

## Enhancing Public Transportation through Accessible Planning for Children

Darshankumar Patel<sup>1</sup>, Bikram Prasad<sup>2</sup>

<sup>1</sup>Research Scholar,  
Department of Civil Engineering, Oriental University, Indore, Madhya Pradesh, India  
[darshptl12354@gmail.com](mailto:darshptl12354@gmail.com)

<sup>2</sup>Associate Professor,  
Department of Civil Engineering, Oriental University, Indore, Madhya Pradesh, India  
[bikram2010@gmail.com](mailto:bikram2010@gmail.com)

**Abstract**—Movements within the city area mainly regulated by the various purposes like work, shopping, recreational activities. Accessibility is related to ease of access while mobility is related to ease of movement. In literature review different concept and components of accessibility is analysed with the help of available research. There is importance of accessibility in urban planning along with different factors affecting it, which plays major role for the preparation of transportation plan of city regarding various trips within the city area. Though there are many accessibility measures techniques but out of this gravity accessibility measures and cumulative accessibility measures are very important as they consider land use factors for evaluation purpose of accessibility. It also discusses different case studies related to accessibility based planning related to children which will provide overview of application of different accessibility measure in city to improve performance of transportation system. As per the limited study conducted for the Indian city, it is observed that in most of the Indian cities accessibility to the transportation services criteria is neglected which directly leads to different transportation issues within the city. So based on literature available we can conclude that Accessibility gives us authority for analyzing actual accessibility against the indicators due to which accessibility problems can be identified, addressed and monitored in better possible way so that sustainable transportation can be achieved in efficient manner.

**Index Terms**—Accessibility, Evaluation, Planning, Transportation

### I. INTRODUCTION

Accessibility is used as very important principle in urbanization theories and growth of many cities that means sprawl [1]. According to research board of transportation, mobility and accessibility consider as very important parameters for analysis [2]. In many cities of India accessibility parameter is not considered while conducting transportation related plans and analysis. Plans mainly consider mobility and motorized transit only. Due to these more time and money is spending on facilities and amenities only. Accessibility which is directly depending on pattern of land use and transportation system usage by everyone. This is why it is most proper parameter for estimating facilities' and amenities which was given by the transportation system to the various categories of users. Transportation plan is not analyzed after some time like land use planning. Transit plan and land use plan are analyzed individually for implantation purpose in general. There is need for new approach to develop to solve issues related to urban sprawl in which we have to consider people, environment and economy at the same time [3]. The above discussed fact addresses towards integrated way of special and transport planning by considering accessibility is one of the parameter. It is essential to consider accessibility while planning for transportation in Indian Cities. For this, the current status of accessibility should be known and based on that improvement can be done. Once the accessibility can be quantified many potentials uses in land use planning with integration of public transportation system. (4)

Accessibility is a measure of the spatial dispersion of numerous aspects together around stage, taking into consideration the ability and willingness of people or organizations to conquer geographic distinction. [5]. Accessibility is a principle being often chosen in a range of relevant academic subject areas, which include transportation infrastructure, city planning, and geographic region, and it performs a substantial part in decisions making [6]. The mass transit system is defined as the proximity of individuals, places, as well as

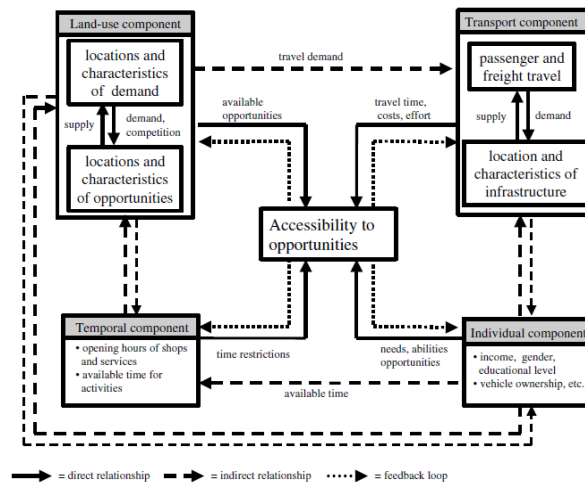
utilities. [7]. Accessibility corresponds to a person's ability to reach facilities, commodities, and activities, and is a main objective of most transport operations. [8]. The more accessible to various activity areas in community lead to greater its development potential [5]. Accessibility is a crucial characteristic for metropolitans regions and is frequently reflected in transportation and land use planning objectives [9]. Land use and transportation proposed policies are commonly represented, with easy accessibility measures for decision makers and research scientists. [6].

## II. ACCESSIBILITY COMPONENTS

The number of components of accessibility is effects on accessibility measure. The study by Gerus and Wee defines the following components.

1. **Land use Component:** The land-use element takes into account the land-use system, which includes  
 (a) The number, quality, and geographic scope of options available at each location.  
 (b) At origin, there is a demand for any of these options. (c) The clash between producers and consumers for possibilities, which can sometimes lead in competitive pressure for limited activities like work and school vacant positions and hospital beds.

2. **Transport Component:** The mass transit dimension reflects the mass transit system, which is demonstrated as the amount of time, cost, and effort required for a person who uses a particular means of transportation to



travel the distance among an origin and a destination. Conflict among producers and consumers is the source of this disutility. Infrastructure supply indicates the location and attributes of a facilities.

**Figure 1: Accessibility Components [6]**

3. **Temporal Component:** The time and space

Element takes into account the accessibility of possibilities at distinct intervals of the day, as well as the amount of time required for people to participate in specific operations.

4. **Individual Component:** The individual component reflects the person's requirements, skills and possibilities. These factors influence a person's level of exposure to different modes of transportation and spatial and temporal possibilities, as well as the overall ease of access outcomes.

## III. ACCESSIBILITY MEASURES

Techniques for measuring the influences of such a behavior or course of action, including the advantages and disadvantages of multimodal transportation significant improvement, have been termed as the assessment. Many planning decisions are influenced by how accessibility is assessed. Presently, often these depends on the success on movement instead of as a whole ease of access. Vehicular methods are commonly used to analyze

the performance of motor vehicle and transportation system. Those who keep records of transit times, operational expenses, and tickets prices. Some rather designs just responsible for transportation among both areas, not inside areas; plenty of fail to take into account for resulting impact individuals (that also highlight the benefits such as increased roadway efficiency and availability of reducing traffic congestion); and therefore only a few comprise public transport user satisfaction considerations apart from operating speed; and those who constantly fail to assess the outcomes of transportation strategies like rate reform proposals.[\[10\]](#).

The accessibility technique is essential for measuring the city's current accessibility. The different kinds of accessibility measures are described in the whole segment. Regardless of the reality there is no one-size-fits-all method for assessing accessibility, different scenarios and considerations necessarily require various techniques.[\[6\]](#).

1. **Infrastructure-based measure:** One such sort of way of measuring is frequently used during transport systems and involves evaluating the effectiveness and quality of service of road infrastructure utilising variables including such average traffic volume on the a roadways and congested roads levels.[\[6\]](#).
2. **Location-based measure:** A location-based way of measuring, that also takes into account the distribution pattern of activities, typically demonstrates quantitative visibility.[\[6\]](#).
3. **Person based measure:** This measure is used to evaluate a person's level of transparency, including such actions which a person could also take part through at a particular time. [\[6\]](#)
4. **Utility based measure:** It assesses the financial advantages which individuals obtain from obtaining access to amenities which are geographically distributed. [\[6\]](#).

#### IV. LITERATURE REVIEW

There is Contribution of different researchers in the field of Transportation Accessibility, Accessibility modeling, evaluation and measurement of accessibility with different methods for different modes and purpose within the study areas of researchers by using different parameter relevant to their research.

(Iacono, Krizek, & El-Geneidy, 2010) investigates the issues surrounding the implementation of non-motorized mode accessibility measures, particularly biking and having to walk. It also presents challenges in implementing smart ease of access indicators, attributed to problems to understanding reliability, the sub - district framework of mass transit modeling techniques, as well as the appropriateness of modeling techniques & transportation systems throughout Minneapolis, MN (USA).[\[11\]](#)

(Vasconcelos& Farias, 2012) Predicts city ease of access through taking into consideration methods of transport as well as places of interest, and journey time and expense, while somehow taking into consideration the outside ecological impact. Because of deterioration component for all these mechanisms becomes less confrontational than that for pedestrian, vehicle and transportation ease of access for communities did tend to be equivalent. [\[12\]](#).

(Geurs, De Montis, and Reggiani, 2015) provide summary of accessibility modelling over time. In addition, it emphasizes that somehow this topic necessitated empirical investigation on some kind of wide range of subjects.[\[13\]](#)

(Tong, Zhou, & Miller, 2015) offers a framework for space-time prism assessment. This paper seeks to discuss an urban spatial connectivity issue involving design for optimization of transportation connectivity between many main factors that influence access points which are confined by the a manufacturing-related highway expenditure.[\[14\]](#)

(El-Geneidy et al., 2016) recommends a set of new connectivity indicators that take into account journey time and expense. Afterwards when, this is implemented towards that measurement to evaluate whether or not people in Montreal, Canada, live in a deprived area. [\[15\]](#)

(Chen et al., 2016) Introduces different evaluation parameter of Area Public Transit Accessibility (APTA). This idea is predicted based on behavior of person travelling, scientific perceptions person along with transportation network system and connectivity with the help of GIS technique.[\[16\]](#)

(Hawas, Hassan, &Abulibdeh, 2016) presents associate degree parameter related to accessibility evaluation in specific region wherever without considering intensive information to carry out the standard evaluation and analyzing process. Three benchmarks which was chosen to judge transportation accessibility area for unit influence area of transportation network, transit provide, route diversity.[\[17\]](#)

(Saghapour, Moridpour, & Thompson, 2016) develops new approach for evaluation which is considering occurrence of public amenities and density of area as a very crucial spatial management parameter. A Public transport accessibility index is developed for quantification in Melbourne city.[\[18\]](#)

(Litman, 2016) introduces new the idea of accessibility and the way it is used in transit network coming up in future. Accessibility means the person ability to reach in desired product, services, infrastructure amenities and facilities.[\[19\]](#)

(Levine et al., 2017) proposes partner degree versatility based measurement of openness that may change project-level investigation of land-improvement comes as partner degree availability based different to traffic-sway examination in Ann Arbor, Michigan, USA.[\[20\]](#)

(Albacete, Oлару, Paül, & Biermann, 2017) equates as well as refers 2 different place transit connectivity evaluation strategies in Helsinki.[\[21\]](#)

(Xu, Zhang, & Li, 2017) focuses on evaluation of the expected locational accessibility (ELA) of urban transportation connectivity for users which is present in of Xiamen town, China. The ELA of the transportation connectivity is evaluated by an element which is called expected locational accessibility index.[\[22\]](#).

(Litman, 2017) thinks about three ways to deal with assessment transportation framework execution and examines their impacts on choices on arranging plan Traffic-based estimations, Portability based estimations and Availability based estimations.[\[23\]](#)

(Silva, Patatas, & Amante, 2017) concentrates mostly on strategy of connectivity reliability of the a particular connectivity of both the Functional Accessibility and can provide a significant importance's of ease of access measures through evaluating the very same qualities with support of such a researcher. Individuals utilize four-dimensional assessment methods that really are presently under improved performance with in design and analysis internet publications to attain their existing inference. SAL makes it appear to be have restricted ability to revolutionize creative planning away from mainstream forecasting and can provide reasoning's and toward integrated land use as well as mass transit justifications targeted at decreasing journeys.[\[24\]](#)

(Gil Solá, Vilhelmson, & Larsson, 2018) provided new approach that is accessibility considering the sustainable approach. This is very new way for planning perspective to the urban designer and planners, request to initiate and combined the idea in their designing.[\[25\]](#)

(Handley, Fu, & Tupper, 2019) show the effect on travel network property of a genuine organization configuration utilizing extensive proportions of availability. This catches the norm of administrations way the qualification between the constant openness and planned availability as a perform of existence. [\[26\]](#).

(Kelobonye et al., 2019) utilizes a simple amazing, strategy amicable 'accessible opportunities' way to deal with take a gander at the overall availability and spatial value of five key metropolitan land utilizes in Perth, Australia.[\[27\]](#)

(Tomej & Liburd, 2020) presented new way which ordinarily consider for evaluating metropolitan vehicle frameworks, to the area of maintainable provincial vehicle for the travel industry purpose. This paper tries to fill this hole by joining propels in transport organization and topography, country transport and transport for the travel industry.[\[28\]](#)

(Huang, 2020) adopts a reproduction strategy to survey travel based occupation availability. To start with, travel subordinate specialist specialists are produced utilizing a populace combination. At that point the specialists are empowered with quest for new employment and substitution capacities. When the specialists are sent all through a recompense reproduction, singular replacement visits are recorded. A non-public occupation openness file is created upheld reproduced recompense visits. This study does not consider travel cost, behavior, socio-economic factor, time of trips, modal choice etc for calculating accessibility index related to Job.[\[29\]](#)

(Zuo, Wei, Chen, & Zhang, 2020) makes an amount based strategy to quantify the passerby and bike travel availability that effects of cycling and strolling on travel openness are assessed and thought about.[\[30\]](#)

(Straatemeier & Bertolini, 2020) Accessibility ideas & variables that carried fully integrated method framework constitutes, which include transport and land organizing committee, in two Dutch metropolitan areas. 2 context - specific evaluations encompassing the Netherlands have been carried by training and

creating from transport and land segments. -use strategic plan did come up with using acceptance guidelines to keep coming up with others and choose convincing development and land methodologies.[31]

**V. TRANSPORTATION ACCESSIBLE PLANNING FOR CHILDREN**

Enhancing public transportation through accessible planning for children in India is crucial for several reasons:

1. **Promoting Inclusive Society:** Accessible public transportation ensures that all members of society, including children with disabilities or special needs, have equal access to transportation services, promoting inclusivity and reducing societal barriers.
2. **Safe and Secure Travel:** Children are among the most vulnerable groups in society, and accessible public transportation can provide a safe and secure means of travel for them, reducing risks associated with overcrowding, unsafe vehicles, or inadequate safety measures.
3. **Improved Educational Opportunities:** Accessible transportation can facilitate better access to educational institutions for children, enabling them to attend schools and educational facilities that may be otherwise inaccessible due to geographical constraints or lack of transport options.
4. **Healthcare Access:** Many children in India require access to specialized healthcare services, which may be located far from their homes. Improving public transportation can ensure that children can access necessary healthcare facilities without undue hardships.
5. **Reduced Traffic Congestion:** With efficient and accessible public transportation, more families may opt for these services instead of using private vehicles, leading to reduced traffic congestion, less air pollution, and improved overall environmental conditions for children's health and well-being.
6. **Social and Recreational Opportunities:** Accessible transportation can enable children to participate in social and recreational activities outside their immediate neighbourhoods, fostering social interactions and overall development.
7. **Empowering Families:** Accessible public transportation can empower families by providing affordable and convenient travel options, enabling parents and guardians to fulfil their responsibilities and engage in economic activities without being overly burdened by transportation constraints.
8. **Economic Growth:** By facilitating the movement of people, including children, public transportation can contribute to economic growth by enabling greater workforce participation and enhancing access to markets and employment opportunities for families.
9. **Environmental Sustainability:** An efficient public transportation system reduces the dependence on individual vehicles, leading to a decrease in carbon emissions and contributing to the overall environmental sustainability and a healthier environment for children to grow in.

By prioritizing accessible planning for children within public transportation systems, India can ensure a more equitable and sustainable future for its younger generations, promoting their overall well-being and development.

**Table No 1 Transportation Accessible Planning for Children in India**

| Aspect          | Description  |
|-----------------|--|
| Safety Measures | 1. Presence of designated school zones with reduced speed limits.                  |
|                 | 2. Implementation of strict traffic rules around schools and residential areas.    |
|                 | 3. Installation of pedestrian crossings and speed breakers to ensure child safety. |
| Infrastructure  | 1. Construction of well-maintained sidewalks and                                   |

|                       |  |
|-----------------------|--|
|                       | <p>footpaths to facilitate walking to schools.</p> <p>2. Provision of ramps and lifts for easy access to public transport for children with disabilities.</p> <p>3. Establishment of dedicated bicycle lanes to encourage cycling as a mode of transport for children.</p>   |
| Policy Initiatives    | <p>1. Introduction of child-friendly urban planning policies to prioritize the safety of children.</p> <p>2. Inclusion of children's transportation needs in urban development plans.</p> <p>3. Implementation of initiatives promoting sustainable and safe transport options for children.</p>   |
| Educational Programs  | <p>1. Conducting road safety awareness campaigns in schools to educate children about safe commuting.</p> <p>2. Integration of transportation safety education in the school curriculum.</p> <p>3. Collaboration with local authorities and NGOs to organize workshops on safe transportation practices.</p>                             |
| Community Involvement | <p>1. Encouraging active participation of parents and communities in promoting safe transportation for children.</p> <p>2. Establishing parent-teacher associations to discuss and address transportation safety concerns.</p> <p>3. Forming youth groups to advocate for child-friendly transportation policies and infrastructure.</p> |

Enhancing public transportation through accessible planning for children is crucial for creating a more inclusive and sustainable urban environment. To effectively address this issue, several key points should be considered:

1. **Safety Measures:** Implement safety features and protocols on public transportation systems to ensure the well-being of children, including safety barriers, child-friendly seating, and clear safety instructions.

2. **Accessibility:** Ensure that public transportation is accessible for children with disabilities, incorporating features such as ramps, elevators, and designated spaces for strollers or wheelchairs.
3. **Educational Programs:** Develop educational programs within the public transportation system that promote safety awareness, responsible behavior, and etiquette for children using public transportation.
4. **Child-friendly Infrastructure:** Design stations and vehicles with child-friendly infrastructure, including colorful signage, interactive displays, and child-sized amenities to create a more welcoming and engaging environment.
5. **Route Planning and Scheduling:** Optimize route planning and scheduling to accommodate the needs of families and school-going children, ensuring timely and efficient transportation to schools, parks, and other recreational facilities.
6. **Community Engagement:** Foster community engagement by involving parents, schools, and local authorities in the planning and development of child-friendly transportation initiatives, encouraging feedback and suggestions for improvement.
7. **Affordability and Accessibility:** Ensure that public transportation is affordable and easily accessible to families, particularly those from low-income backgrounds, by offering discounted fares, family passes, and convenient payment options.
8. **Security Measures:** Implement security measures, such as CCTV surveillance and personnel monitoring, to create a secure and protected environment for children using public transportation.
9. **Multi-modal Transportation Integration:** Promote integration between different modes of transportation, such as buses, trains, and bicycles, to provide children and their families with a comprehensive and interconnected public transportation network.
10. **Sustainability and Environmental Awareness:** Integrate environmentally friendly practices within public transportation, promoting sustainability and fostering environmental awareness among children and their families.

Creating an accessible and child-friendly public transportation system is crucial for the well-being and development of communities. Below is a sample table outlining various strategies and considerations for enhancing public transportation with a focus on accessibility for children as shown in the table no 1.

**Table No 1: Accessible and child-friendly public transportation system**

| Strategy/Consideration      | Description   |
|-----------------------------|---|
| Inclusive Design            | Implementing features that accommodate the needs of children, such as easy-to-reach handrails and child-friendly seating.                                   |
| Safe Boarding and Alighting | Providing well-lit and secure boarding areas, with clear signage and instructions for safe embarkation and disembarkation.                                  |
| Child-Sized Amenities       | Incorporating child-sized facilities at stations and on vehicles, including appropriately sized seating, child-friendly toilets, and designated play areas. |
| Educational Signage         | Using engaging and informative signage that educates children   |

|                            |   |
|----------------------------|---|
|                            | about public transportation and promotes safety and public awareness.   |
| Dedicated Staff Training   | Training staff to effectively interact with children and their caregivers, offering assistance and ensuring a child-friendly environment throughout the transportation system.  |
| Integrated Family Services | Introducing family-oriented services, such as stroller-friendly access, family ticketing options, and designated areas for families to travel together comfortably.   |
| Sensory Considerations     | Creating a sensory-friendly environment by minimizing loud noises, incorporating calming visuals, and offering tactile features to accommodate children with sensory sensitivities.                                       |
| Community Engagement       | Involving local communities, schools, and parents in the planning process to ensure that the transportation system reflects the specific needs and preferences of the area's children.                                    |
| Accessibility Technology   | Introducing technological advancements, such as interactive maps, audio-visual guidance, and mobile applications that provide real-time information and assistance for families and children using public transportation. |



**Table No 2: Comparative Analysis of Accessibility Case Study (Indian Scenario)**[\[34\]](#)[\[35\]](#)[\[36\]](#)[\[37\]](#)[\[38\]](#)

| Case Study       | Reference   | Issues addressed by the study   | Indicators used in Study   |
|------------------|---|---|--|
| Ahmedabad, India | (Shah & Adhvaryu, 2016)<br>(Zuidgeest et al., 2013) | Slums house about 30-35 percent of the population. A large percentage of the urban poor cannot afford to commute using public transportation.<br><ul style="list-style-type: none"> <li>• As a result, the PTAL is being mapped with the aim of boosting the threshold and improvement of services mass transit, including that of the upcoming metro rail network.</li> <li>• To determine the impact of BRTS and forthcoming mrt developments mostly on capacity of an underprivileged to connect jobs, and to offer alternatives to for slum dwellers to personally profit from more infrastructure improvements.(Connecting low-wage workers in cities with jobs)</li> </ul>                  | <ul style="list-style-type: none"> <li>• Time and speed of a typical walk</li> <li>• The distance between public transportation stops</li> <li>• Different modes of public transportation have different peak hour frequencies.</li> </ul>   |
| Surat , India    | (Adhvaryu, Chopde, & Dashora, 2019)                 | <ul style="list-style-type: none"> <li>• The PTAL is incorporated that used a case study of Surat, India. Surat PTAL maps are generated for the a reference year (2016) and a forthcoming year (2021), with density of population superimposed, and particularly in comparison to Ahmedabad.</li> </ul>   | <ul style="list-style-type: none"> <li>• Time and speed of a typical walk</li> <li>• The distance between public transportation stops</li> <li>• Different modes of public transportation have different peak hour frequencies.</li> <li>• Pace of walkingMax. walk time</li> <li>• Max. walk distance 640m</li> </ul>   |
| Delhi, India     | (Tiwari & Jain, 2012)                               | <ul style="list-style-type: none"> <li>• a comparative evaluation of conventional and emerging ease of access and security measures.</li> <li>• recommends predictors for assessing a transportation development's influence across all types of traffic consumers and society overall. The 5.8-kilometer Delhi-BRT corridor is assessed using conventional as well as postulated predictors.</li> <li>• The safety predictors assessed how different road users communicate and just how secure various types of street users have been. A predictors further started to look over how distinct modes' lucrative positions shifted over time, which might result to rapid transition.</li> </ul> | <ul style="list-style-type: none"> <li>• Accessibility</li> <li>• Safety</li> <li>• Total number of road users/persons using various modes during rush hour</li> <li>• the total amount of time that all road users have saved</li> <li>• The number of people actually who really can connect specific locations has altered.</li> <li>• Variation in the total number of destinations within reach of various types of road users</li> <li>• The threat postured by a means of transportation to other pedestrians</li> <li>• Chances of a fatal or injurious collision between two modes</li> <li>• As a specific mode consumer, you run the risk of</li> </ul> |

|               |                               |   |   |
|---------------|-------------------------------|---|---|
|               |                               |   | having a disaster.  |
| Agartala City | (Sarkar & Mallikarjuna, 2013) | <ul style="list-style-type: none"> <li>• Taking into account evolving economic and educational and land use qualities and of there impact on travel behavior, one such study sought to determine their relative importance in the selection of non-motorized and personal motor transport for different kinds of journeys. Work trips, shopping trips, and other trips have all been examined.</li> </ul> | <ul style="list-style-type: none"> <li>• socioeconomic characteristics</li> <li>• Land use pattern</li> </ul> |

**Table No 3: Comparative Analysis of Accessibility Case Study ( Foreign Scenario)** [\[39\]](#)[\[40\]](#)[\[41\]](#)[\[42\]](#)[\[43\]](#)[\[44\]](#)[\[45\]](#)[\[46\]](#)[\[47\]](#)[\[48\]](#)

| Case Study                           | Reference                                | Issues addressed by the study  | Indicators used in Study   |
|--------------------------------------|--|--|--|
| Nairobi, Kenya                       | (Campbell, Rising, Klopp, & Mbilu, 2019) | Uses three different measures to quantify location ease of access for walkers, public transit, as well as driving. a transportation estimate which actually matters how many other places in Nairobi there really are, a contour measure which includes that many healthcare facilities there will be, as well as a gravitational attraction way of measuring which includes number of times medical amenities have been balanced by the a function of time. | <ul style="list-style-type: none"> <li>• For each accessibility measure, there is a wide disparity in ease of access besides mode.</li> <li>• Accessibility by residential level</li> <li>• Health Facilities and Paratransit Routes in</li> </ul> |
| Belo Horizonte/Minas Gerais – Brazil | (Lessa, Lobo, & Cardoso, 2019)           | <ul style="list-style-type: none"> <li>• Examines the levels of bus accessibility in Belo Horizonte / MG, as well as their association to urbanization has resulted movement.</li> </ul>   | <ul style="list-style-type: none"> <li>• depending Upon the number of bus stations to the population ratio, the number of total of public transportation travels divided by the total number of bus</li> </ul>                                     |

|                                   |   |  |  |
|-----------------------------------|---|--|--|
|                                   |   |  | routes which transfer through into the boarding locations, as well as the Ease of access Indicator   |
| Almere & Rotterdam<br>Netherlands | (Straatemeier & Bertolini, 2020)              | <ul style="list-style-type: none"> <li>Examine two scenarios from the Netherlands, wherein lawmakers from both transportation and land-use planning sectors established and then used accessibility indicators to create as well as pick impactful transportation and land-use measures.</li> </ul>  | <ul style="list-style-type: none"> <li>Planning goals and accessibility requirement, preferred modes of transport services, labor force, population, Motorcycle and public transportation access to the working places by different modes of transportation.</li> </ul>                              |
| Vilnius,<br>Lithuania             | (Verseckiene, Meškauskas, & Batarliene, 2016) | <ul style="list-style-type: none"> <li>Researcher uses the Vilnius city's public transportation data for calculating the ease of access quantification service for people with different modes of transportation.</li> </ul>   | <ul style="list-style-type: none"> <li>Walking distance, Waiting time, Service Frequency<br/>The service's dependability, Information that is easily accessible Ticketing that is easily accessible, Vehicles and the built environment that are accessible, Disabilities and their types</li> </ul> |
| Botosani county-<br>Romania       | (Ursulica, 2016)                              | <ul style="list-style-type: none"> <li>Botosani, from 2000 to 2013, evaluating and analyzing the population's connectivity factors to medical services and health comprehensive needs index.</li> </ul>  | <ul style="list-style-type: none"> <li>Older population ratio (65 years old), percent amount of consultations for every resident, persistent mortality rates for every 1000 persons, Proportion of youths people in a population (up to 5 years)</li> </ul>  |
| Amsterdam,<br>Netherlands         | (J. Cheng & Bertolini, 2013)                  | <ul style="list-style-type: none"> <li>The ability to interpret the impact of changes in land use</li> <li>Infrastructure plan and overcrowding threshold for advancement in employment availability</li> </ul>  | <ul style="list-style-type: none"> <li>Present number of jobs Working Population Number of inhabitants</li> </ul>  |
| London,<br>England                | (Transport for London, 2010)                  | <ul style="list-style-type: none"> <li>Identify areas that might result in better road transport.</li> <li>To determine the likely consequences of newly proposed corridors, stations, as well as streets, as well as which areas of London are appropriate for the growth of much more schools and workplaces.</li> <li>Make recommendations as to whether different places require roughly parking.</li> </ul> | <ul style="list-style-type: none"> <li>Walking Access time, Service Availability , Reliability of mode , available Level of Service, Average waiting time , Coverage area of stations</li> </ul>   |
| Milan, Italy                      | (Martino & Science, 2014)                     | <ul style="list-style-type: none"> <li>proposing potential changes to surface public transport and also to analyse the access to public transport accessibility</li> <li>To find out causes of less efficiency of public transport.</li> </ul>   | <ul style="list-style-type: none"> <li>Walking access time, Service availability, Population density, Employments , Mobility</li> </ul>  |

## VI. CONCLUSION

After studying the literature related to Accessibility for Transportation for Indian and Foreign Condition. It is concluded that in India, there is an absence of accessibility organising for local neighbourhood action plan and City level planning as it is concentrated on Mobility planning only. No define indicators for accessibility planning in Indian cities, only transportation indicators related to the social, public transport, economic indicators are defined in sustainable indicators manual. There is a need to define such standardized indicators for accessibility to different services in Indian cities also so that it can give a better idea about the transportation system. Though National Urban Transport Policy-2006 which was revised in the year 2014 suggested that transportation planning has to focus on accessibility but still no define parameters are provided for accessibility design, evaluation and analysis purpose in detail manner. If this planning is done with detail and precise analyse which can be beneficial for local authority to provide Housing policy, parking policy, Future Development Planning for city along with this it will be helpful for other factors which are directly or indirectly related to Transportation and Urban Planning. Major factor which is directly affecting Accessibility planning in context to Indian Absence of reliable and real time transportation data, land use data and lack of public participation in planning process.

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