NEW URBANISM IN CONTEXT TO MOBILITY

Anusha Porwal¹, Ar. Vaishali Sharma²

¹School Of Architecture, IPS Academy, Indore
²School Of Architecture, IPS Academy, Indore

---***---

Abstract - In recent years, the concept of New Urbanism has gained significant attention as a means of addressing the challenges of urban development and mobility. There has been a growing interest in understanding how new urbanism principles impact mobility patterns and behaviours. The New Urbanism, initially conceived as an anti – sprawl reform movement, New Urbanism is an urban planning and design approach that emphasizes walkability, mixed land uses, and connectivity. In new urbanism, there is a strong emphasis on promoting alternative modes of transportation to reduce car dependency and create more sustainable and liveable communities. These abstract aims to explore the relationship between new urbanism and mobility, focusing on the various factors that influence transportation. This paper aims to explore the key principles of New Urbanism that enhance mobility and examine the ways in which it promotes the use of alternative modes of transportation. Through this research, we hope to provide insights into the potential benefits and challenges of New Urbanism as a means of improving mobility in urban areas. Some common modes of transportation in new urbanist developments include walking, cycling, and public transit by examining the role of street design, infrastructure, and transportation demand management strategies. This not only helps to reduce traffic congestion and air pollution but also promotes a healthier and more active lifestyle. The goal is to encourage alternative transportation options. This research seeks to provide insights into creating more sustainable and accessible urban environments. This research will contribute to the ongoing dialogue on how to design cities that prioritize mobility, promote alternative transportation options, and reduce car dependency.

Key Words: New urbanism, Sustainable mobility, Transit-oriented development (TOD), Walkable communities, Active transportation, public space, public transit.
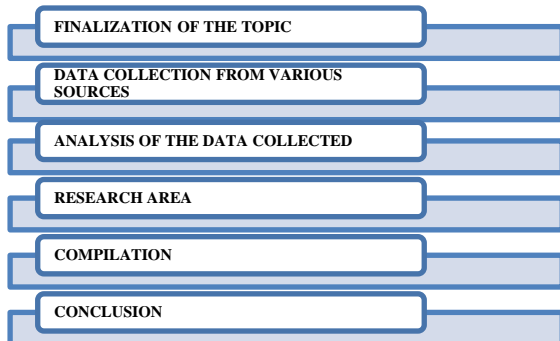
1. INTRODUCTION

New Urbanism is a design concept that promotes car-centric urban sprawl. It is a method of urban planning and design that is strongly tied to the processes that improve and shape the growth of American suburbs.

The goal is to create a compact, walkable community in which residents can get daily requirements without relying exclusively on cars. The emphasis on pedestrian-centric living is having a significant impact on mobility and forming a more sustainable and lively urban landscape. In the last 20 years, public spaces have regained prominence in urban planning discourse as a vital component of urban sustainability. The use of streets, sidewalks and bike lanes for daily mobility systems poses a significant challenge to the design of sustainable mobility systems and the development of sustainable and livable communities. Urban mobility is something that involves public spaces. The two of the most environmentally and economically sustainable ways to move around the city are cycling and walking, which involve using public streets. On the other hand, a sustainable mobility system also relies on public spaces, for example: train stations, cable cars, buses, airports, and any other mobile hub that people use in daily life. According to a report published by the EU, "a sustainable city must have attractive open public spaces and promote sustainable, inclusive and healthy mobility [..]" (European Union Regional Policy 2011). A 'smarter' transportation system is one where the environmental, economic, and social effects of mobility are balanced to produce a more sustainable transport system. As a result, while smart urban mobility is commonly used to describe various technological developments in urban transport, it should be viewed as a broader concept aimed at improving the urban transport system, including land use integration and sustainable infrastructure development.

2. Methodology

- To identify a set of indicators that can be used to assess how public spaces and urban mobility contribute to urban sustainability.
- Understanding the concept of New Urbanism.

- Comparative analysis ; comparing data from existing New Urbanist developments to conventional suburban or urban areas.
- Various techniques which can be incorporated to function mobility.

FINALIZATION OF THE TOPIC

DATA COLLECTION FROM VARIOUS SOURCES

ANALYSIS OF THE DATA COLLECTED

RESEARCH AREA

COMPILATION

CONCLUSION

NEW URBANISM

New Urbanism is a civic design movement that advocates designing cities with people first and then the automobiles, by building close knit homes in increments over time and commercial store outlets built in to streets within walking distances and thus bringing the cities back to human scale. The idea is to make cities more livable by putting people back at the center of their urban environment. This means creating areas where people can live, work, play, and shop near one another, reducing the need for cars and other forms of transportation.

PRINCIPLES OF URBAN MOBILITY

- Sustainability: Urban mobility aims to promote sustainable transportation options that minimize environmental impact, such as walking, cycling, and public transit. This helps reduce congestion and air pollution in cities.
- Accessibility: Urban mobility seeks to ensure that transportation options are accessible to all residents, including those with disabilities or limited mobility. This involves providing barrier-free infrastructure and inclusive services.
- Efficiency: Urban mobility focuses on improving the efficiency of transportation systems to reduce travel times and congestion. This includes optimizing traffic flow, implementing intelligent transportation systems, and integrating technology for real-time information.
- Safety: Urban mobility prioritizes the safety of all road users, including pedestrians, cyclists, and motorists. This involves designing safe infrastructure, enforcing traffic regulations, and raising awareness about road safety.
- Equity: Urban mobility aims to provide equitable access to transportation options for all residents, regardless of their income, age, or location. This includes ensuring affordable fares, improving connectivity to underserved areas, and addressing transportation disparities.
- Livability: Urban mobility contributes to creating livable cities by promoting walkable neighborhoods, vibrant public spaces, and a sense of community. It focuses on enhancing the overall quality of life for residents through well-designed transportation systems.

INNOVATIVE SOLUTIONS FOR IMPROVING URBAN MOBILITY

- Shared Mobility Services: Ride-sharing platforms, bike-sharing programs, and car-sharing services provide convenient and flexible transportation options, reducing the need for private vehicle ownership and decreasing traffic congestion.
- Electric Vehicles: The adoption of electric vehicles (EVs) can help reduce greenhouse gas emissions and improve air quality in urban areas. The development of charging infrastructure and incentives for EV adoption are crucial for their widespread use.
- Smart Traffic Management: Utilizing advanced technologies like sensors, cameras, and data analytics can optimize traffic flow, reduce congestion, and improve overall transportation efficiency. This includes intelligent traffic signal systems and real-time traffic management platforms.
- Micro-Mobility Solutions: Electric scooters and electric bicycles offer compact and eco-friendly transportation alternatives for short-distance trips, complementing existing public transit systems and reducing reliance on cars.
- Mobility as a Service: Mobility as a Service platforms integrate various transportation modes, such as buses, trains, taxis, and ride-sharing services, into a single app or platform. This enables users to plan, book, and pay for their entire journey seamlessly.
- Pedestrian and Cycling Infrastructure: Investing in well- designed and safe pedestrian and cycling infrastructure encourages active modes of transportation, promotes healthier lifestyles, and reduces congestion on the roads.
- Autonomous Vehicles: Self-driving cars have the potential to improve urban mobility by reducing accidents, optimizing traffic flow, and increasing transportation efficiency. However, further development and regulatory considerations are necessary for their widespread implementation.
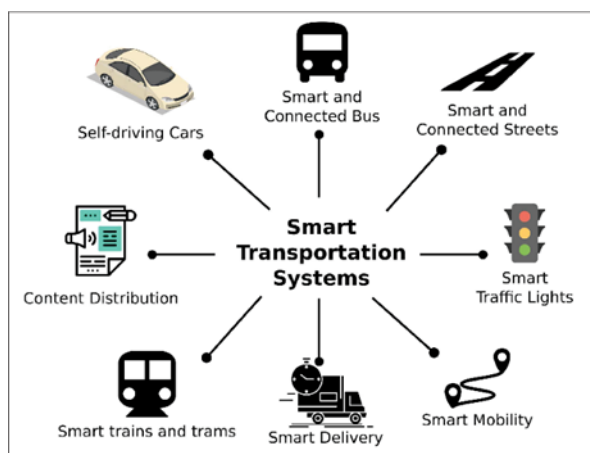
Common addressed building blocks of smart transportation systems

Source : Semantic Scholar

IMPACT OF NEW URBANISM ON MOBILITY

Urban growth and changes in life styles

Mobility is a city's essential tool in providing access to employment, education, goods, and services. More than half the world's population are already living in urban areas, and this is predicted to reach 70% by 2050. Global passenger transport activity (passenger-km) will consequently double, putting more pressure on mobility services. With the unprecedented rate of our ageing populations, and the inflow of young people attracted to these urban centers, the demographic changes are affecting mobility needs. These growing segments within the urban population are looking for accessible, safe, and personalized transport.

People Centric Cities

From the 1960s onwards, space was increasingly given to cars. The shape of the city transformed itself, expanding to the outskirts and taking spaces used for public transport and walking to accommodate cars. **According to the World Health Organization (WHO), more than 90% of the world's children breathe toxic air every day.** To reverse this car dependence, authorities need to actively provide alternatives for citizens and attract investments in high capacity, quality transport.

Source: MORE, 2019
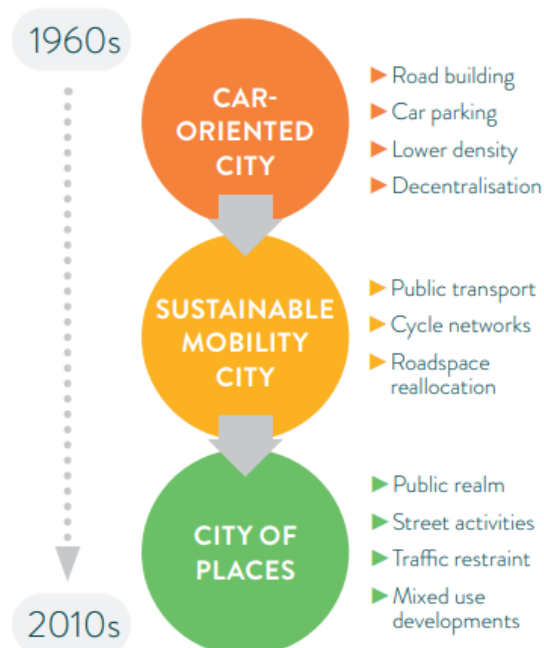
To reduce car use, cities need to deliver alternatives to citizens, and attract investments in high capacity and quality transport. The aim is to increase the number of people transported efficiently and sustainably. For this, cities need to build infrastructure to maximize accessibility. The success of pedestrian areas in many cities worldwide demonstrates the positive impact they have on the urban realm. Cities with developed walking and cycling infrastructure have evidenced the positive effect they have on the urban realm, and that increasing the quantity of people moving does not necessarily mean using additional space. Reducing land dedicated to roads and parking preserves open spaces and enhances cities' attractiveness for both citizens and businesses, positively impacting the local economy.

Space Scarcity: Efficient uses of space

1. Parking space management

Space dedicated to mobility in cities is huge and not all modes are equal in terms of space requirements and access. Cars require a huge amount of space to move and

park. It is estimated that an average 10 bikes can fit in one car parking space.
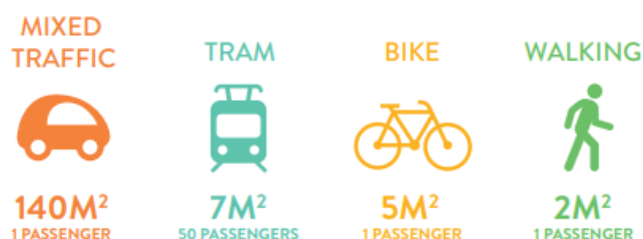

Source: KiM Netherlands, 2018

THE HEALTHY STREET APPROACH IN LONDON The Mayor of London and Transport for London are taking the Healthy Street Approach to encourage people to walk, cycle or use public transport to travel around London. The objective is for 80% of all trips to be made by walking, cycling and public transport by 2025.

While many cities have traditionally imposed parking space requirements for real estate developments, more cities are limiting the number of cars and therefore reversing these regulations to parking maximums, or withdrawing the obligations.

1. Travel space per mode

Mobility in cities is either individual (walking, cycling, micromobility and driving) or collective (mass public transport and shared mobility). By comparing different modes, cars are incredibly inefficient in terms of space needed for moving and parking.

Source: KiM Netherlands, 2018

If cities manage to reduce the space allocated to cars, they will enable   sustainable modes to run efficiently and can allocate more land for green spaces, dedicated lanes for mass public transport, and better cycling and walking infrastructures. With new players, such as shared (e-)bikes, (e-)scooters, (e)mopeds and ride-hailing systems,

additional pressure is put on the urban streetscape, challenging cities to accommodate them which in returns creates sustainable solutions.

CONCEPT OF COMPACT CITY AND CHANGE IN TRAVEL

"The 'compact city' promotes living and working in higher density places so that there is an increase in the proximities of co-presence with other city dwellers, at the same time as there is less need to make individual car journeys or long-distance journeys by high-speed train or air" (Dennis and Urry 103). Urban mobility culture and practices in most cities in the developed nations is seeing a shift. Urban planners and policy makers, taking this shift into account, are forming new planning policies which promote a compact city ideal of urban densification and mixed use (Rode et al. 6).

There is a terrific relationship between 'compactness' of a city and its public transportation systems. The high-density urban areas promote the use of public transportation as well as walkability and at the same time, lowers car dependency and hence, could form the foundation for a sustainable transport strategy for future urban growth. New Urbanism principles capitalizes on this relationship to provide a more sustainable choice of urban living. A compact city thus creates an eco-system where the movement would increase in volume and not distance (Dennis and Urry 102).

The close physical proximity within the compact city makes distances walkable, naturally creating a walk-friendly environment.

Prioritizing Infrastructural Needs

Wide / Accessible Pavements		Pedestrian
Dedicated / Protected Lanes		Mass public transportation, bikes, shared bikes, e – scooters, ride – hailing services.
Kerb Access		Mass public transport, ride – hailing services, goods delivery
Pick – up / Drop – off areas		Ride – hailing services, goods delivery
Space for parking		Bikes, free – floating shared bikes / e - scooters
Dedicated parking		Car – sharing, docked shared bikes
Access to stations and stops		Mass public transport, pedestrians, bikes, shared bikes, e – scooters, car – sharing, ride hailing services, freight, and goods delivery.

CASE STUDY: DHARVI – CITY WITHIN A CITY

Human-scale urban form- A street view from Dharavi

Source: Khanna, Pretika and Gyan Varma. A Street View From Dharavi. 2015. Web. 3 Dec. 2016.

Dharavi, one of the largest slums in the world. With a population of over a million and a corresponding average population density of about two thousand people per acre, Dharavi is truly a 'city within a city'. The organically evolved 'city' has formed its own cohesive urban environment with residences, commercial and industrial spaces within walking vicinity. Dharavi encompasses many different varieties of mixed space use such as, residential and retail, residential and industrial, all connected through labyrinthine walkways (Echanove and Srivastava 19).

Beyond the stereotype of slums, Dharavi has a vibrant and diverse community and economy. The proximity of workplace and residence within the slum, saves people from long hours of traffic and improves productivity. Dharavi's economic activities are decentralized as almost every home doubles up as a workshop during day and these activities are deeply rooted with their ethnolinguistic communities. This has created a closely-knit organic urban form which grew incrementally over the years and is human-scale, community-centric, pedestrianized, highly dense, self-sufficient, and self-sustaining.

Dharavi, even though lying on the extremities of a concept of a city, is a good case study for a new urbanist city. It showcases compact, diverse, walkable, mixed land use within an urban environment and therefore, Dharavi is a model which urban planners have been trying to recreate elsewhere in this world.

TRANSPORTATION AND FUTURE GROWTH OF THE CITY

The transportation systems of each city manifest the various historical, geographical, and social dimensions that shaped the growth of the city. For a sustainable future city, it is then very much important that the city's mobility systems also be in align with the practices of sustainability. City planners and policy makers need to adopt various alternatives and multi- modal transit options. At the same time, they need to attend to the current mobility injustices which splinter cities. Thus, a future transportation system should encompass the various environmentally sustainable transportation modes and mobility justice (Sheller 289).

URBAN MOBILITY TECHNOLOGIES
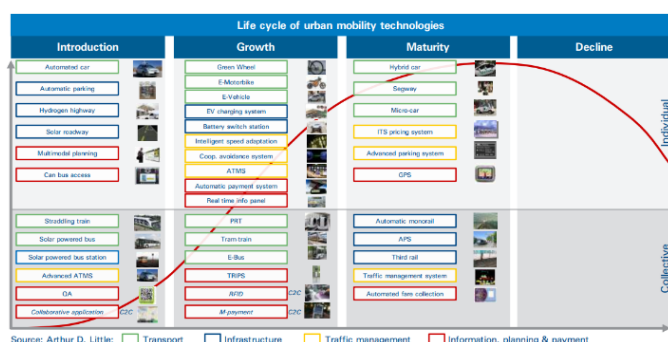
THREE KEY TRENDS IN NEW URBAN MOBILITY:

I. <u>Urban Change</u> : Denser, mixed-use cities

II. <u>New alternatives to the automobile</u> : Upgradation in public transport, cycling and pedestrian infrastructure
III. <u>Digital technologies and transport innovations</u> : New opportunities for accessing the city

A revolutionary shift in social and economic dynamics has been brought about by the expansion of information and communication technology (ICT) and its impact on mobility. ICT has the ability to not only completely transform the current mobility services but also to develop a brand-new option for public transport. The primary way that these digital technologies are revolutionizing the transportation industry at the moment is by making ride-hailing and car-sharing services possible, which are upending conventional notions of car ownership.

The implementation of these technologies is what requires utmost concern. The potential of this technology should be established by transport policy makers in an impartial and uniform manner, avoiding market forces that serve the interests of "preferred customers."

INFLUENCE OF NEW URBANISM IN THE DESIGN OF TRANSPORTATION SYSTEM

New urbanism heavily influences the design of transportation systems to create walkable, bikeable, and transit-oriented communities.

I. COMPACT, MIXED-USE DEVELOPMENT
New urbanist neighbourhoods are designed to be compact, meaning everyday destinations like shops, offices, and schools are all close by. This reduces reliance on cars for short trips.
II. PEDESTRIAN – FRIENDLY DESIGN
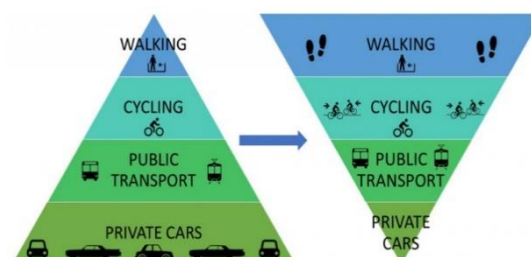
Wide sidewalks, street trees, plazas, and attractive landscaping make walking a pleasant experience. Pedestrian crossings are frequent and prioritized.
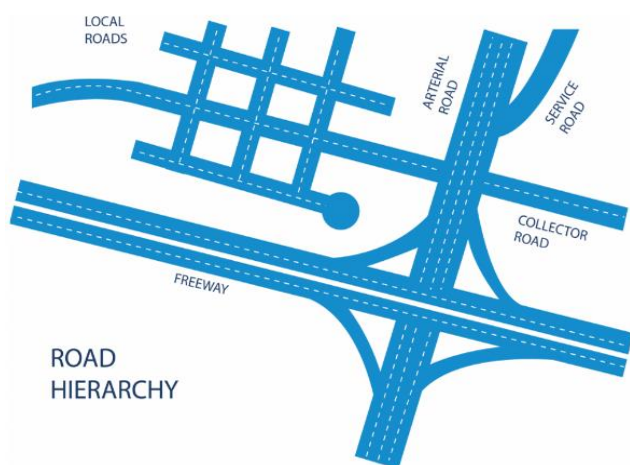
III.   COMPLETE STREETS

Streets are designed to accommodate all users, including pedestrians, cyclists, motorists, and public transportation. This may involve dedicated bike lanes, bus lanes, and sidewalks with ample space.

IV.   CONNECTIVITY AND HIERARCHY

New urbanist communities often have a grid-like street network with a hierarchy of roads. Wide avenues handle through traffic, while calmer, narrower streets prioritize pedestrians and local car traffic.

By incorporating these design principles, new urbanism fosters a transportation system that reduces car dependence, promotes a healthy lifestyle, and creates vibrant, livable communities.

NEW URBANISM APPROACH AND PUBLIC HEALTH
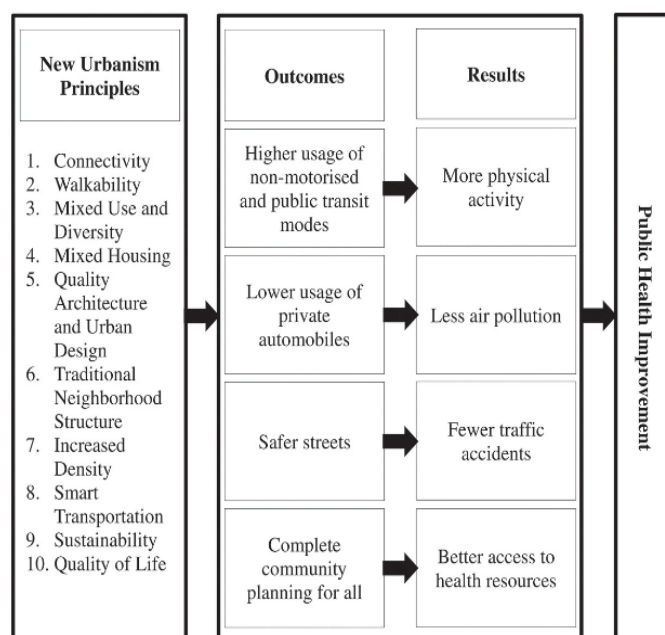
FUTURE SCOPE

New urbanism has the potential to be a powerful tool for shaping the future of mobility in cities:

- ➢ **REDUCED RELIANCE ON CARS -** By creating walkable, mixed-use neighbourhoods with everyday necessities close by, New Urbanism can significantly reduce car dependence. This translates to less traffic congestion, lower emissions, and a healthier population.
- ➢ **RISE OF MICROMOBILITY -** New Urbanism fosters environments perfect for micromobility options like bikes, scooters, and e-bikes. Short distances and dedicated lanes encourage residents to choose these convenient and sustainable modes of transport.
- ➢ **INTEGRATION WITH PUBLIC TRANSIT -** New Urban developments can be planned around existing or future public transit hubs, making it easy for residents to access a wider area without relying on personal vehicles.
- ➢ **EMERGING TECHNOLOGIES -** New Urbanism can seamlessly integrate with upcoming advancements like autonomous vehicles and ride-sharing services. Smaller, more connected neighbourhoods can optimize these technologies for efficiency and accessibility.
- ➢ **FOCUS ON COMMUNITY -** New Urbanism prioritizes pedestrian-friendly spaces and public areas, encouraging walking and cycling. This fosters a stronger sense of community and creates

opportunities for social interaction while reducing reliance on cars.

FUTURE POSSIBILITIES

- ➤ <u>15-minute cities</u> - Neighbourhoods designed where all essential needs are within a 15-minute walk, bike ride, or public transport trip, minimizing car usage.
- ➤ <u>Complete Streets</u> - Roads designed with dedicated lanes for pedestrians, cyclists, and public transport, prioritizing safety, and accessibility.
- ➤ <u>Smart Mobility Systems</u> - Integrated networks combining public transport, micromobility options, and ride-hailing services with real-time information and seamless ticketing.

New Urbanism offers a promising future for mobility. By promoting walkable, connected communities, and integrating with new technologies, it can create cities that are not only sustainable but also vibrant and livable.

3. CONCLUSIONS

Through concepts and case studies, the cities should be brought back to human – scale, where pedestrians and walking are given an upper – hand, through smart growth policies and new urbanism approaches. The concept of 'compact city' is gaining much more importance as it makes the physical proximities closer, forming a walkable environment and at the same time can assist in laying the foundation for a successful public transportation network. When studying the future of cities, it is convincing that there is a great influence of information and communication technology in almost every aspect of a city and city life. Understanding and utilizing its potentialities in a beneficial manner would help creating a future that is just and sustainable.

New Urbanism, a planning and design movement aimed at creating livable, sustainable, and inclusive communities, has received a lot of attention in recent years because of its potential to address modern urban challenges, particularly those related to mobility. This paper examined the intersection of New Urbanism principles and mobility considerations, with the goal of determining the efficacy of New Urbanist approaches in improving urban mobility. Through a comprehensive review of literature, case studies, and empirical evidence, several key conclusions emerge.

To begin, New Urbanism principles clearly have the potential to improve urban mobility patterns. New Urbanist communities frequently enable shorter trip distances by promoting mixed land uses, higher density development, and pedestrian-oriented design, encouraging active modes of transportation such as walking and cycling. These features not only reduce reliance on private automobiles, but also help to improve public health by encouraging physical activity and lowering air pollution.

Furthermore, focusing on compact, interconnected neighborhoods promotes a sense of place and community, encouraging residents to participate in local activities and eliminating the need for long-distance travel. This notion of "complete streets"- streets built to accommodate all users, including walkers, cyclists, and public transit users - is closely related to New Urbanist principles and has been proved to improve safety, accessibility, and general quality of life.

Despite the potential benefits of New Urbanism for mobility, several problems and restrictions must be overcome before it can be fully realized. One major concern is the potential of gentrification and displacement, especially in economically disadvantaged communities undergoing restoration efforts. Without proper safeguards to secure affordable housing and avoid displacement, New Urbanist plans risk worsening socioeconomic disparities and alienating marginalized groups.

The integration of developing technologies and creative mobility solutions creates both opportunities and challenges for New Urbanism. While advancements in autonomous vehicles, ride-sharing services, and mobility-as-a-service platforms have the potential to improve accessibility and efficiency, they also carry risks such as increased vehicle miles travelled, congestion, and sprawl if not carefully managed within a New Urbanist context.

To summarise, while New Urbanism provides potential techniques for fostering sustainable, equitable, and efficient urban mobility, its success is dependent on a comprehensive and collaborative strategy that considers the social, economic, environmental, and technological components of urban development. Cities that embrace New Urbanism concepts while adjusting to changing problems and opportunities can develop dynamic, resilient, and inclusive communities in which people can thrive and travel freely, safely, and sustainably.

REFERENCES

1. Journal of urban design, Vol. 7, No. 3, 261-291,2002
2. Julia Jarass and Dirk Heinrichs / Transportation Research Procedia 1 (2014) 142 – 153
3. Urban Planning (ISSN : 2020, Volume 5, Issue 4, DOI : 10.17645/u)
4. Int. J. Hum. Capital urban manage., 2(4): 303-308, Autumn 2017 DOI: 10.22034/ijhcum.2017.02.04.006
5. L. Butler et al: Smart Urban Mobility Innovations: A comprehensive Review and Evaluation
6. Geography compass 7/6 (2013) 435 – 448, 10.1111/gec3, 12042
7. https://www.uitp.org/publications/new-mobility-and-urban-space-how-can-cities-adapt/
8. https://www.linkedin.com/pulse/study-new-urbanism-compact-city-influence-urban-mobility-varma/
9. https://www.plugandplaytechcenter.com/resources/better-and-safer-city-new-urbanism/
10. https://www.linkedin.com/pulse/influence-urbanisation-mobility-rusha-sen/
11. https://parksmart.gbci.org/here-there-evolving-landscape-urbanization-and-mobility
12. https://www.tandfonline.com/doi/full/10.1080/13574809.2018.1554997
13. https://cms.uitp.org/wp/wp-content/uploads/2020/05/Policy-Brief-New-mobility-services-and-urban-space.pdf
14. https://houstonstrategies.blogspot.com/2006/02/new-urbanism-and-value-of-mobility.html
15. htts://doi.org/10.1080/17549175.2020.1834435
16. https://www.journalpublicspace.org
17. https://www.adlittle.com/sites/default/files/viewpoints/adl_the_future_of_urban_mobility_report.pdf