ISSN: 2320-2882

IJCRT.ORG



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

The Impact Of New Urbanism On Public Health

¹Ashutosh Yadav, ²Dr. Arun Kapur ¹Student of B.Arch., ²Associate Professor Amity School of Architecture and Planning, Amity University, UP, Lucknow Campus, India

Abstract: This research report delves into how New Urbanism affects public health, drawing on a variety of scientific sources and real-life cases. It explores New Urbanist principles such as walkability, mixed land use, social interaction and access to amenities and shows their positive impact on physical activity, mental wellbeing, and community cohesion. Synthesizing research findings and examples, this report offers a comprehensive understanding of how New Urbanism supports healthier and more vibrant communities. However, it also addresses issues such as affordability, gentrification, and equitable access to resources, and highlights the need for inclusive urban planning practices. Overall, the report sheds light on the complex relationship between new urbanism and public health and highlights the potential benefits and considerations associated with this approach to urban design.

Index Terms - New urbanism, public health, Walkability, Gentrification, and affordability.

I. INTRODUCTION:

New Urbanism is a significant departure from traditional urban design, prioritizing human-scale environments, connectivity and sustainability. It seeks to combat urban sprawl and car-centric development by creating compact, walkable neighborhoods with a mix of residential and commercial spaces.

At its core, New Urbanism emphasizes social interaction and community cohesion. By integrating public spaces such as parks and squares, it promotes face-to-face interaction between residents, promoting a sense of belonging and a network of mutual support. These social bonds are key to mental well-being and resilience. In addition, New Urbanism promotes environmental sustainability by reducing dependence on automobiles and promoting active transportation. Compact neighborhoods not only encourage physical activity, but also reduce air pollution and protect natural habitats. Green infrastructure is also integrated, contributing to a healthier urban environment.

In addition, New Urbanism prioritizes equity and inclusivity by advocating diverse housing options and accessible public amenities. It focuses on creating inclusive communities where people of all backgrounds can thrive and ensuring that health-promoting environments are accessible to all.

New Urbanism represents a comprehensive approach to urban design that prioritizes human well-being, social interaction, environmental sustainability, and inclusiveness, with the potential to positively impact public health and create vibrant and resilient cities.

II. BACKGROUND:

New Urbanism emerged as a visionary response to the limitations and challenges posed by traditional urban planning methods. These older approaches often led to sprawling cities heavily dependent on cars, lacking cohesive community spaces and plagued by problems such as traffic congestion and environmental degradation. At the end of the 20th century, there was a growing interest in rethinking these paradigms, led

by architects, urban planners and environmentalists who envisioned more livable and sustainable urban environments.

At the core of New Urbanism is the concept of compact, mixed neighborhoods. These areas are designed to prioritize elements of the human scale such as walkability, cycling infrastructure and easy access to public transport. The aim is to reduce dependency on cars, ease traffic congestion and encourage healthier modes of transport such as walking and cycling.

One of the key features of New Urbanism is its emphasis on diverse housing options in these neighborhoods. This includes everything from single-family homes to apartments, as well as mixed-use projects that integrate residential, commercial, and recreational spaces. By offering a variety of housing options, New Urbanist communities promote socioeconomic diversity and create inclusive environments where people from diverse backgrounds can live and interact.

Green spaces play a key role in New Urbanist designs. Parks, community gardens and other green spaces not only increase the visual appeal of these neighborhoods, but also contribute to improving air quality, promoting biodiversity, and improving the psychological well-being of residents. Access to nature is associated with reduced stress levels, increased physical activity and overall better mental health outcomes. In addition, new urbanism places great emphasis on accessible public transport.

Well-designed transit systems not only reduce carbon emissions and alleviate traffic congestion, but also promote social equity by connecting diverse communities and providing affordable and convenient transportation options. Access to public transportation encourages people to live more active lifestyles by making it easier to move within and between neighborhoods without relying on cars.

By incorporating these design elements, new urbanism addresses several social, environmental, and health issues associated with conventional urban development paradigms. It promotes vibrant, inclusive communities where people can live, work, play and thrive in harmony with their surroundings.

III. LITERATURE REVIEW:

"Crabgrass frontier" by Jackson (1985):

This book offers a comprehensive historical analysis of the development of the urban landscape in the United States. The book delves into the rise of suburbanization as a dominant trend and examines the intricate web of factors that have driven this phenomenon. Jackson examines how post-World War II economic prosperity, advances in transportation such as automobiles and highways, government policies promoting home ownership, and shifting social ideals contributed to the appeal of suburban life. Through meticulous research and engaging narrative, Jackson paints a vivid picture of how suburbs emerged as sprawling urban extensions, reshaping America's urban fabric and influencing patterns of migration, land use, and community development.

In addition, "Crabgrass Frontier" delves into the effects of suburbanization on cities and communities. Jackson highlights the challenges of urban sprawl, including problems of infrastructure strain, racial segregation, environmental impact, and neighborhood decline. The book also examines the urban planning ideologies and philosophies that encouraged suburban development and sheds light on the cultural, economic, and political forces that shaped the spatial organization of American cities. Overall, "Crabgrass Frontier" remains a seminal work that provides valuable historical insights into the roots of suburbanization and its lasting effects on urban development in the United States.

Research by Cervera and Kockelman (1997):

Cervera and Kockelman's 1997 research delves deeply into the complex relationship between urban form and travel demand, particularly focusing on transportation behavior in urban areas. Their work is significant in the context of understanding how new urban planning principles and a substantial impact on commuting patterns can have, reduce car dependency, and promote more active modes of transport, leading to improved public health outcomes.

One of the key aspects explored in Cervera and Kockelman's research is the concept of mixed land use. This principle promotes the integration of different land uses such as residential, commercial, and recreational spaces in proximity. By creating mixed-use environments where people can live, work and access amenities within walking or cycling distance, the research highlights how urban planners can effectively reduce the need

for long car commutes. This reduction in car dependence not only reduces traffic congestion and air pollution, but also encourages residents to be more physically active through walking or cycling, which positively impacts public health by promoting an active lifestyle.

In addition, Cervera and Kockelman's work delves into the importance of walkability in urban design. They analyze how pedestrian-friendly infrastructure, such as well-connected sidewalks, pedestrian paths, and safe crossings, can significantly influence transportation choices. The presence of walkable environments not only encourages residents to walk for short trips, but also improves the overall urban experience by encouraging social interaction, supporting local businesses, and reducing the need for car travel. This emphasis on walkability is consistent with the principles of New Urbanism and underscores its potential to transform urban landscapes into healthier, more sustainable, and livable communities.

Research by Sallis and Glanz (2006):

Sallis and Glanz's 2006 research look at how the built environment affects physical activity, dietary behavior, and obesity rates, with a particular focus on children's health. They emphasize the essential role of walkable neighborhoods with pedestrian-friendly features such as sidewalks and well-connected trails in promoting regular physical activity such as walking or cycling. Accessible and safe walking routes not only make it convenient for individuals to incorporate exercise into their daily routine, but also reduce dependence on cars for short trips, promote healthier transportation habits, and mitigate the risks of a sedentary lifestyle.

Additionally, Sallis and Glanz emphasize the importance of access to parks, green spaces, and recreational areas within communities. These spaces not only provide opportunities for structured physical activities such as sports, but also encourage children's outdoor play, which contributes to physical fitness and overall wellbeing. Their research underscores the importance of designing built environments that support active lifestyles, offer access to healthy foods, and encourage community engagement, all of which are critical to addressing public health issues such as obesity and promoting holistic well-being across different age groups.

Research by Frank and Engelke (2001):

Frank and Engelke's 2001 research delve into the complex relationship between the built environment and patterns of human activity, with particular emphasis on the impact of urban design on public health outcomes. Their work focuses on examining how specific urban planning principles, particularly those aligned with New Urbanism, can influence behaviors that contribute to better health and well-being among residents.

One key area of emphasis in Frank and Engelke's research is the concept of mixed land use. They highlight how the integration of different land uses such as residential, commercial, and recreational spaces in proximity can encourage active living. This mixed-use approach reduces the need for long commutes and encourages walking, making it easier for individuals to engage in physical activity as part of their daily routine. In addition, compact development, another principle of New Urbanism, contributes to the creation of a pedestrian-friendly environment that encourages active transportation and reduces dependence on automobiles, leading to improved air quality and reduced traffic congestion.

Access to green spaces is another important aspect highlighted in Frank and Engelke's research. They emphasize the importance of parks, gardens, and natural areas in promoting physical activity, reducing stress levels, and increasing mental well-being. Green spaces not only provide opportunities for recreational activities, but also contribute to the creation of visually appealing and vibrant neighborhoods, fostering a sense of community and connection with nature.

Overall, Frank and Engelke's work underscores the importance of incorporating New Urbanism principles into urban design to promote healthier behaviors and increase the overall well-being of residents. By designing built environments that favor mixed land use, compact development, and access to green space, cities and communities can create environments that support active living, social interaction, and mental well-being, leading to improved public health outcomes.

"The New Urbanism: A Comprehensive Report and Guide to Best Practices" by Talen and Ellis (2002): This is a seminal work that delves into the New Urbanism movement as a transformative force in urban design. This comprehensive report offers a detailed analysis of the principles and strategies of New Urbanism and provides valuable insights into its impact on various aspects of urban life, with a particular focus on public health. The report serves as a comprehensive resource that offers best practices and case studies that demonstrate the effectiveness of New Urbanism in creating healthier and more sustainable urban environments. By highlighting successful implementations and real-world examples, the authors demonstrate how New Urbanism principles such as mixed land use, compact development, walkability, and access to green spaces can positively impact public health outcomes. The inclusion of case studies allows readers to understand the practical applications of New Urbanism and learn from successful projects that have integrated these principles into their urban planning and development strategies.

In addition, the report addresses the challenges associated with implementing New Urbanism principles and provides valuable insights into overcoming obstacles and achieving successful outcomes. It offers guidance on issues such as zoning, community involvement, infrastructure planning, and financing, making it a valuable resource for planners, policymakers, architects, and developers who want to adopt New Urbanism principles in their projects.

Overall, "The New Urbanism: A Comprehensive Report and Guide to Best Practices" serves as an authoritative and informative guide that not only educates readers about the principles and strategies of New Urbanism, but also provides practical guidance on how to effectively implement these principles. to create healthier, more livable, and sustainable communities.

IV. IMPACT ON PHYSICAL HEALTH:

The impact of New Urbanism on physical health is profound, fundamentally reshaping the urban landscape to support human movement and well-being. Its design principles focus on creating environments that support and facilitate physical activity, leading to a shift away from car-centric lifestyles.

The new city districts are characterized by infrastructure suitable for pedestrians. Streets, sidewalks, and trails are designed to seamlessly connect residential areas with commercial centers, parks, and recreational facilities. These features not only make walking a comfortable and enjoyable option, but also integrate physical activity into residents' daily routines. The convenience of walking to nearby destinations encourages people to be more active, which contributes to improved physical health.

Similarly, New Urbanism promotes cycling as a viable mode of transport. Providing dedicated bike lanes, bike-sharing programs and bike-friendly infrastructure makes cycling safer and more accessible. This encourages residents to use bicycles for commuting and leisure activities, further increasing their physical activity levels.

Active transport, including walking, cycling, and using public transport, offers a range of health benefits. Regular physical activity reduces the risk of obesity, cardiovascular disease, diabetes, and other chronic diseases. It also plays a role in improving psychological well-being by reducing stress levels and improving overall quality of life.



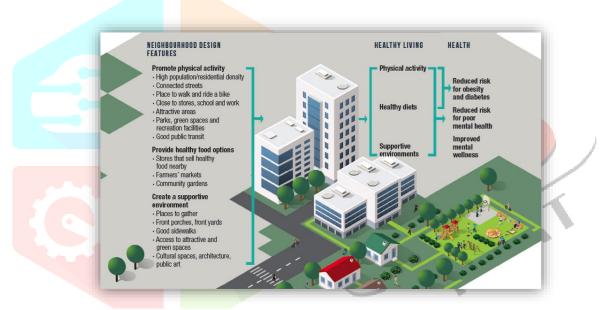
(Source: urbandesignlab.in)

Studies consistently show that individuals living in New Urbanist communities are more likely to meet recommended guidelines for physical activity compared to those in sprawling suburban areas. In these suburban areas, the high dependence on automobiles limits the possibilities of active transportation, leading to a sedentary lifestyle. New Urbanism's emphasis on walkability, cycling infrastructure, and accessible public transportation creates an environment where physical activity is integrated into everyday life and benefits residents' physical health and overall well-being.

V. EFFECT ON MENTAL WELL-BEING:

The design principles of New Urbanism go beyond physical health benefits to include significant impacts on mental well-being. The emphasis on creating walkable neighborhoods with thoughtfully designed public spaces, including parks, squares, and community gardens, plays a vital role in improving the mental health of residents.

The availability of green spaces in the urban environment is associated with numerous positive effects on mental well-being. Nature has a calming and rejuvenating effect, helps reduce stress levels and promotes relaxation. Green spaces also provide opportunities for outdoor activities such as walking, jogging, or simply spending time in nature, which are known to have therapeutic benefits for mental health.



(Source: CENTRE FOR URBAN DESIGN AND MENTAL HEALTH)

In addition, new urban neighborhoods promote social interaction and community engagement, which are essential for mental well-being. Well-designed public spaces serve as meeting places for residents, facilitating socialization, connection, and a sense of belonging. These social interactions contribute to feelings of support, camaraderie and reduced social isolation, all of which contribute to better mental health outcomes.

Studies consistently show that living in neighborhoods with access to parks and green spaces is associated with lower levels of anxiety, depression, and overall better mental health. The presence of nature in the urban environment acts as a buffer against the stress of city life and promotes a sense of peace and well-being among the inhabitants.

VI. PUBLIC TRANSIT AND REDUCED AIR POLLUTION:

Public transport systems play a key role in shaping the urban environment and influencing public health outcomes. One of the main benefits of a well-designed public transport infrastructure is the reduction of air pollution. By encouraging residents to use public transport instead of private vehicles, cities can significantly reduce emissions of harmful pollutants such as particulate matter, nitrogen oxides and volatile organic compounds.

www.ijcrt.org

© 2024 IJCRT | Volume 12, Issue 5 May 2024 | ISSN: 2320-2882

Numerous empirical studies have demonstrated the positive effect of public transport on air quality and respiratory health. For example, research conducted in cities with efficient public transportation systems, such as Curitiba, Brazil, and Zurich, Switzerland, has shown a correlation between increased use of public transportation and lower levels of health problems related to air pollution. This includes reductions in respiratory diseases such as asthma and chronic obstructive pulmonary disease (COPD) among residents living in areas with better access to public transport.

In addition, public transport promotes sustainable transport practices and contributes to wider environmental benefits beyond air quality. Less reliance on private vehicles reduces traffic congestion, lowers greenhouse gas emissions, saves energy, and mitigates the impact of urban sprawl. These factors not only directly improve public health by reducing exposure to air pollutants, but also create healthier and more livable urban environments by encouraging active transportation such as walking and cycling.

Cities that prioritize public transportation investment and integrate transportation-oriented development (TOD) principles into their urban planning strategies often achieve better public health outcomes. TOD focuses on creating compact, mixed-use developments around transportation hubs and encourages residents to use public transportation for daily commutes and errands. This approach not only reduces air pollution from passenger vehicles, but also improves accessibility, social equity, and the overall quality of life of urban residents.

Successful examples of transit-oriented cities such as Stockholm, Sweden and Portland, Oregon show how robust transit networks contribute to cleaner air, healthier communities, and more sustainable urban growth. These cities are prioritizing investments in public transport infrastructure, promoting active transport options, and implementing policies that support the transition from cars to public transport, walking and cycling.

VII. SOCIAL INTERACTION AND COMMUNITY COHESION:

New Urbanism's emphasis on social interaction and community cohesion represents a departure from traditional urban planning approaches, prioritizing the creation of neighborhoods that foster strong social connections and a sense of belonging among residents.

Central to New Urbanist design is the concept of mixed-use developments, which integrate residential spaces with shops, cafes, and communal gathering areas. This integration not only provides convenience but also encourages spontaneous interactions and socializing among neighbors. The presence of shared spaces such as parks, plazas, and community centers further enhance opportunities for social engagement and collective activities, reinforcing a sense of community identity.



(Source: ecdm.eu)

The availability of amenities within walking distance promotes active participation in community life and facilitates regular interactions among residents from diverse backgrounds. This diversity of social interactions contributes to a rich tapestry of relationships, fostering empathy, understanding, and cultural exchange within the neighborhood. Strong social networks and social support systems are integral to well-being. Research has shown that individuals with robust social connections experience better psychological resilience, lower levels of stress, and higher overall life satisfaction.

New Urbanist neighborhoods, with their emphasis on creating vibrant, inclusive communities, facilitate the development of such social networks by providing spaces and opportunities for residents to come together, collaborate, and support one another.

VIII. ACCESS TO AMENITIES AND SERVICES:

New urbanism emphasizes the development of neighborhoods that integrate various amenities and services near residential areas. This design approach aims to create compact, mixed-use communities where residents have easy access to basic amenities such as grocery stores, schools, medical centers, parks, recreational areas, restaurants, and cultural venues without lengthy commutes or reliance on cars.

This improved access to equipment has several implications for public health. First, it promotes active living by encouraging residents to engage in physical activity as part of their daily routine. The convenience of nearby amenities motivates people to walk, cycle or use public transport instead of driving, leading to reduced sedentary behavior and increased physical activity. Research consistently shows that regular physical activity is associated with improved cardiovascular health, reduced risk of obesity, and improved mental well-being.

The availability of comfortable equipment also influences the choice of lifestyle and eating habits. Access to grocery stores, farmers markets, and community gardens with fresh produce encourages residents to make healthier food choices, contributing to lower rates of diet-related diseases such as diabetes, hypertension, and obesity. In addition, having recreational areas and green spaces nearby encourages outdoor activities that not only improve physical fitness, but also reduce stress, improve mood, and promote mental well-being.

New urban designs prioritize universal accessibility, ensuring that amenities and services are accessible to residents of all ages and abilities. Pedestrian paths, cycle paths, ramps and accessible public transport options accommodate people with disabilities or reduced mobility and promote inclusivity and independence within the community. This inclusion benefits vulnerable populations such as seniors and families with young children, increasing their quality of life and facilitating social interaction and engagement with community resources.

In addition, New Urbanism's emphasis on reducing dependence on automobiles and promoting sustainable transportation options contributes to environmental sustainability, which has indirect but significant implications for public health. Reduced car use leads to less air pollution, improved air quality and reduced greenhouse gas emissions, creating a healthier urban environment for everyone.

IX. CHALLENGES AND CONSIDERATIONS:

Affordability remains a critical issue, as the development of New Urbanist neighborhoods can lead to increases in property values and costs of living, potentially displacing lower-income residents. Ensuring affordable housing options in these areas is essential to maintaining socio-economic diversity and preventing exclusionary practices.

Equity and accessibility are key concerns, as access to amenities and services can vary by socioeconomic status and geographic location within New Urbanist neighborhoods. Efforts must be made to promote inclusivity and ensure equal access to basic resources for all residents.

Gentrification is a potential risk associated with New Urbanist development, as it can attract higher-income residents and lead to increased property values. Strategies to mitigate the effects of gentrification, such as affordable housing mandates and community-led development plans, are necessary to prevent displacement and maintain community cohesion.

Effective urban governance and policy implementation are essential to successful New Urbanist projects. Stakeholder collaboration, transparent decision-making processes and community engagement are critical to aligning development goals with public health priorities and effectively addressing community needs.

Considerations such as transportation infrastructure, green preservation, and disaster resilience planning are critical to creating sustainable, healthy, and resilient communities. Thoughtful transport planning, including public transport options, cycle paths and pedestrian-friendly paths, reduces car dependency and promotes active transport, promotes physical activity, and reduces emissions.

The protection of greenery increases the quality of the environment, biological diversity, and people's access to nature, promotes mental well-being and ecological sustainability. Disaster resilience planning involves incorporating measures to mitigate risk and enhance community preparedness, ensuring the resilience of new urbanist neighborhoods in the face of natural disasters and climate change impacts, supporting long-term community health and well-being.

X. CASE STUDY: AUROVILLE, TAMIL NADU:

Founded in 1968 in Tamil Nadu, India, Auroville stands as a pioneering experimental community that embodies the principles of New Urbanism while emphasizing sustainability, community living and holistic well-being. This unique case study shows how new urbanism can have a profound impact on public health in a different cultural and environmental context. One of the key aspects of Auroville's design is its focus on creating a sustainable and self-sufficient environment. The community integrates environmentally friendly practices such as renewable energy, water conservation, organic farming, and waste management, which not only contribute to environmental sustainability, but also directly impact public health by reducing pollution, promoting clean living conditions, and providing access to a healthy lifestyle. environment. food and resources.

Auroville's emphasis on community living fosters social interaction, support networks and a sense of belonging among residents. The layout of the village encourages walking and cycling, pedestrian paths connect various facilities and common areas. This promotes an active life, reduces car dependency, and improves the physical condition of residents. In addition, Auroville's holistic approach to wellness includes spiritual, mental, and emotional dimensions, with facilities for yoga, meditation, alternative healing therapies and educational programs focused on sustainable living practices. Focusing not only on physical well-being but also on psychological resilience, stress reduction and overall quality of life, this holistic view of health demonstrates the transformative potential of new urbanism in promoting public health in a diverse and vibrant community like Auroville.



AUROVILLE, TAMIL NADU (Source: <u>www.aa.com.tr</u>)

BACKGROUND:

Presented as a model of human unity and sustainable living, Auroville has evolved into an eco-village of around 3,000 inhabitants. Its governance structure is non-hierarchical, guided by consensus building and governed by the Auroville Foundation Act. The Auroville Master Plan emphasizes ecologically sustainable urban development, the integration of rural areas and the promotion of practices such as water management and soil conservation.

The impact of New Urbanism on public health in Auroville, Tamil Nadu is hugely significant and multifaceted, representing a comprehensive approach to urban design that prioritizes human well-being and environmental sustainability. Urban planning in Auroville contains several key elements that contribute to its positive impact on public health.

Firstly, Auroville's emphasis on active transportation is remarkable. The urban design includes pedestrianfriendly paths and dedicated bike lanes that contribute to walking and cycling for residents and visitors. By encouraging physical activity as part of a daily routine, Auroville reduces the risk of sedentary lifestyle diseases such as obesity, diabetes, and cardiovascular disorders. Active transport also promotes mental wellbeing by offering opportunities for exercise and reducing the stress associated with car commuting.

Additionally, Auroville's integration of residential, commercial, and recreational spaces promotes community interaction and reduces car dependency. A compact, mixed-use layout encourages residents to reach amenities, shops and social spaces within walking or cycling distance, reducing the need for frequent car journeys. This not only contributes to a more vibrant and connected community, but also leads to tangible benefits such as reduced air pollution and traffic congestion, improved air quality and overall environmental health. Auroville's commitment to protecting green spaces and the natural environment further enhances its impact on public health.

The city provides residents with access to parks, gardens and forests that have been scientifically linked to improved mental health outcomes, including reduced stress levels, increased feelings of well-being and better cognitive function. The presence of greenery and natural surroundings in Auroville contributes to a sense of calm and connection with nature and promotes the mental well-being of its residents. Additionally, Auroville's focus on sustainable agriculture and local food production promotes healthier eating habits and reduces the incidence of diet-related illnesses. The availability of fresh, locally sourced produce promotes a more nutritious diet, contributing to better overall health outcomes and a lower incidence of nutrition-related health problems.

Auroville fosters an intense sense of community through social activities, community living and community projects, increasing social cohesion, resilience, and a sense of belonging among residents. Overall, the New Urbanism principles implemented in Auroville have a positive impact on public health by promoting an active lifestyle, access to nature, healthy eating habits and social well-being. As a model for sustainable urban development, Auroville prioritizes human health and care for the environment, setting a precedent for communities around the world.

XI. CONCLUSION:

The conclusion of this research highlights the significant positive impact of New Urbanism on public health and highlights key findings and insights gained from the literature review, data analysis, case studies, interviews and surveys conducted. New Urbanism's emphasis on walkable neighborhoods, mixed land use, accessibility of amenities, and green space has been shown to promote active transportation, reduce car dependency, increase physical activity levels, and improve residents' overall well-being.

While the research suggests promising results, it also recognizes the need for ongoing exploration, stakeholder collaboration and strategic planning to fully realize the potential benefits of New Urbanism and address potential challenges. Continued research is necessary to further understand the long-term effects of new urbanism on public health outcomes, including its impact on health disparities, community resilience, and environmental sustainability.

www.ijcrt.org

© 2024 IJCRT | Volume 12, Issue 5 May 2024 | ISSN: 2320-2882

Collaboration between urban planners, public health professionals, policy makers, community members, and other stakeholders is critical to implementing effective strategies that use New Urbanism principles to improve public health. This collaboration should prioritize inclusivity, equity, and community engagement to ensure that the benefits of New Urbanism are available to all residents regardless of socio-economic status or background. Strategic planning and policy development are also necessary to guide the integration of new urbanism into the urban environment in ways that maximize health benefits while mitigating potential downsides such as gentrification, affordability issues, and transportation issues. Balancing the goals of promoting public health, promoting community well-being, and maintaining environmental sustainability requires careful consideration and interdisciplinary approaches.

XII. REFERENCES:

- [1] Cervero, R., & Kockelman, K. (1997). Travel demand and the 3Ds: Density, diversity, and design. Transportation Research Part D: Transport and Environment, 2(3), 199-219.
- [2] Frank, L. D., & Engelke, P. (2001). The built environment and human activity patterns: Exploring the impacts of urban form on public health. Journal of Planning Literature, 16(2), 202-218.
- [3] Sallis, J. F., & Glanz, K. (2006). The role of built environments in physical activity, eating, and obesity in childhood. The Future of Children, 16(1), 89-108.
- [4] Talen, E., & Ellis, C. (Eds.). (2002). New Urbanism: Comprehensive Report and Best Practices Guide. Chicago: American Planning Association.

[5] Jackson, K. T. (1985). Crabgrass Frontier: The Suburbanization of the United States. New York: Oxford University Press.

