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Urban evolution: streamlining development for convenience and affordability

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Abstract

Throughout North America, though especially in The U.S. and Canada, modern sprawl has grown in cities with inefficient land usage and convenience leading to several harmful factors regarding the human body and efficiency. Many millions of Americans are increasingly living in suburbia, so an emergence of inefficiency and non-homeliness has developed. This article details what actions may be taken to convert the modern sprawling American city into what is known as a 15-minute city (FMC) affordably and efficiently. It regards factors such as the expansion of transportation, removal of extraneous roads, newer urban and suburban developments featuring mixed-use zoning, and access to local amenities and businesses for a transformation. Note each city is unique depending on geography and climate and will require a unique method of transforming it into a compact and efficient environment in multiple aspects.

Keywords: Urban planning, neighborhood planning, land use planning, 15-minute cities, transportation, urban, suburban, accessibility.

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Literature Review

Current American urban, especially suburban, communities are mostly rooted in post-WWII era sprawl (Kushner, 2007). Millions of families in the United States are located within sprawling suburbs where the quality of living becomes more inaccessible and inefficient. This paper aims to establish a broad guideline for establishing a walkable or 15-minute city, which is the opposite of a sprawling community, through a list of hypothetical policies. *"15-Minute City: Decomposing the New Urban Planning Eutopia"* by Georgia Pozoukidou and Zoi Chatziyiannaki discusses the idea of a 15-minute city (FMC) as a concept from existing urban planning guidelines. The concept is then thought to be a "structural and functional element for redesigning contemporary cities." *"From Garden City to 15-minute city: A historical perspective and critical assessment"* by Amir Reza Khavarian-Garmsir, Ayyoob Sharifi, Mohammad Hajian Hossein Abadi, and Zahra Moradi examines urbanist plans and the characteristics of an FMC. A weakness it does mention is the uncertainty and broadness of future city goals, claiming detailed studies would have to be made to thoroughly discuss a city's strengths and weaknesses. *"ZONING FOR MIXED-USE DEVELOPMENT"* by Daniel R. Mandelker explores the idea of mixed-use zoning and its applications to cities and suburban developments. The journal does not only explore mixed-use but also its functions and prerequisites like public transportation. *"Consumption amenities and city population density."* by Jordan Rappaport is a journal discussing the correlation between amenities and land value, but also importance, determinance, and therefore convenience applying to the quality of life, of dwellers. *"Assessing Benefits of Neighborhood Walkability to Single-Family Property Values: A Spatial Hedonic Study in Austin, Texas"* by Wei Li, Kenneth Joh, Chanam Lee, Jun-Hyun Kim Han Park, and Ayoung Woo discuss the correlation between land value and nearby amenities, concluding that land value increase is created by an investment in neighborhood amenities and sidewalks. *"Global urban climatology: a meta-analysis of air temperature trends (1960–2009)"* by Alvin C. G. Varquez and Manabu Kanda study urban heat islands, their correlations with the physical environment, and artificial and natural causes. It links urbanization with the effects of urban heat islands, being areas of increased temperature, though numeric values vary. *"Compactness vs. Sprawl Revisited: Converging Views"* by Reid Ewing, Harry W. Richardson, Keith Bartholomew, Arthur C. Nelson, and Chang-Hee Christine Bae compare and contrast both compactness and sprawl to "environmental problems (such as climate control), automobile dependence, economic development, infrastructure costs and the quality of urban life." And though it claims and supports the idea compact cities are more economically efficient and have a better outcome, it also claims there are no "good" or "bad" patterns of planning, only "good" or "bad" outcomes from these environments. Accumulating the sources, the application of compact cities and developments to contemporary settings and environments suggests there would be renewed economic growth and interest in environmentally friendly yet appealing environments. Contemporary cities could consist of "environmentally sound, socially beneficial, and economically viable development through dense and mixed-use patterns that rely on sustainable transportation" (Bibri, 2020) but are impeded instead by suburban sprawl.

Method of Research

To prove, evaluate, or otherwise observe the legitimacy of FMCs, listed sources must conversate and mustn't illegitimate each source's claims. Refuting a source may create ambiguity, but some ideas may suggest benefits for ambiguity and refuting. Not all sources require ambiguity, or that may create illegitimacy, idea nullification, and confusion. Sources in this article were per the source claims, evidence, and reasoning. Multiple sources claim the economic viability of compact cities outweighs the suburban sprawl and is socially beneficial. The sources have been made within the 21st century and city planning and creation have not generally changed much since 2000. The claims of these sources apply to modern-day living and millions of civilians in the United States and Canada, due to Canada's appliance of American sprawl. It argues for the best way of civilized and modern living due to the numerous inconveniences of the sprawling suburban lifestyle. The listed sources are meant to back the claim for the methods used to create efficient and compact cities. They each may correlate with the reason for converting to FMCs and the author's methods and claims for doing so. The definition and cause of heat islands, which are caused by urbanization and civilized development (Varquez et al., 2018), is meant to claim inefficient usage has consequences. Compact cities will appear more attractive (or aesthetically pleasing), economically viable, environmentally friendly, density efficient, socially acceptable, and comfortable (Bibri, 2020). Two sources in this case, *"Compact urbanism and the synergic potential of its integration with data-driven Smart Urbanism: An extensive Interdisciplinary Literature Review"* by Simon Elias Bibri and *"Assessing Benefits of Neighborhood Walkability to Single-Family Property Values: A Spatial Hedonic Study in Austin, Texas"* by Li, et al., are linked to economic growth, though facilitated by investments, though less of convenience, and leads to higher land value and likely opportunity. The sources in my article do not go in complete harmony, but may perhaps support another idea, even with different viewpoints. One viewpoint is the support of suburban sprawl which has been pointed out, but not necessarily idealized due to its shortcomings. A solution I propose is to base cities on the FMC guidelines but have minimalized sprawl to satisfy the demand for single-family homes for residents able to afford the housing due to its plentiful shortcomings of the generally accepted plans of a compact urban or suburban environment.

Discussion

Implementing the former ideas may logically provide economically productive cities and convenience to their inhabitants. There is the idea of certain developments, such as sprawling neighborhoods, being preferred over the methods in this paper. Sprawling neighborhoods may have a correlating supportive group(s) perhaps comparable to the number of people's preferences for FMCs. But those developments, especially the common American suburb, should not be commonplace for urban planning. Instead, if people prefer them, they should be placed somewhere along the periphery of traditionally built and walkable cities. I propose sprawling developments should at least have one amenity or convenience within half a kilometer of each household to uphold living convenience. I also suggest that car-dependent placement should not be the center of development for a small or large city of any kind. Using the given statistics, though, compact cities are appealing, convenient, and economically efficient most importantly. Know "economy" is a general term and should be defined by the

categorized economies within an area such as general shopping, utility, costs of public or private transportation, land value, etc. Car-dependent city centers do not profit as much as walkable city centers (Ahfeldt et al., 2018), so it would be illogical and inconvenient to base cities on motor vehicles. The criteria for compact cities permit it to be a lively city, especially with a lively city center.

Expansion of Transportation

Systematically implementing public transport removes responsibility and reliability and creates the idea of freedom of choice when given multiple options for transport options. Options may include but are not limited to buses, trains (including rail and metro), trams, ferries, and taxis. If the former methods are integrated into city transportation, there would be significantly less inconvenience because of congestion, collision, and less car-dependent infrastructure (Henezi et al., 2023). Instead, public transport allows for an individual to have a mode of transportation (multimodality), even after one mode fails (Pozoukidou, et al., 2021). Meaning, if you cannot catch a train to your destination, multimodality would allow you to conveniently use a bus or taxi, for example. Transport also thins traffic congestion due to decreased use of personal vehicles. It allows for priority vehicles such as emergency vehicles to arrive at an urgent destination in less time rather than being stuck in the same traffic as civilians.

Removal of Extraneous Roads

Roads oriented towards only cars may contribute to multiple factors, including air pollution, noise, and “heat islands,” which roads and parking lots contribute to (Varquez et al., 2018). Large car-oriented areas, like roads or parking lots, may become obsolete and may have a significant capacity to what is used if fewer cars are being used. This could be due to improved transportation. Many roads may not used and yet have a high capacity for a low number of cars over a larger distance. To encourage the use of public transit and discourage the use of personal vehicles, segments of large roads and highways may be demolished and the remaining space may be used for proper urban development, suburban development, or public transportation, based on the location of communities. This may be done before or after the implementation of public transport elsewhere, depending on whether a citizen may reach another destination without the use of a personal motor vehicle, including cars, trucks, and motorcycles conveniently.

Planned Urban and Suburban Developments

Residential zones where people spend most of their daily lives must be conveniently located within amenities and social services. Sprawling American suburbs are zoned to contain homes with high surface area and even more extensive lawns that are placed relatively far from other homes. These areas are intentionally separated from social services and amenities due to zoning requirements (Pozoukidou, et al., 2021). Millions of people live in isolation from these necessities except ones who have personal vehicles. Again, I live in an “isolated” neighborhood. Beforehand, my suggested definition of mixed-use developments means

multi-story housing or offices with surface-level business either on the street or road below or in nearby or adjacent buildings. Newer developments or FMCs should be able to efficiently house families with commercial areas nearby or within walking distance. A suburban development following this criteria is mixed-use zoning. This will allow for a smoother gradient of community from high-density, medium-density, and low-density instead of removing the in-between. On a personal note, I feel that it will allow for a sense of belonging or home to the inhabitants since I do not consider my actual home as 'home.' This paper does not detail the inclusion of architecture though, nor its effects on the sense of belonging, only the blueprint for functioning and efficient communities.

Access to Local Services and Amenities

I live in an isolated neighborhood, where there are two entrances. When leaving the neighborhood, the road outside the residential zones is high-speed, double road, multi-lane. According to the Google Maps distance tool, the distance from my home and along the sidepath to this crossing is approximately 500 meters. This means I cannot cross the road with relative safety without putting myself at risk of collision. The length of the crossing is 50 meters and another 100 meters from entering commercial zoning, also separated by a parking lot. Along the way, the path is not obstructed but becomes hazardous due to the lack of pedestrian infrastructure and excess of car-oriented infrastructure. The description is about walking to the nearest amenity. Dwellers need to be located within the area of effect of local services like the local clinic, the police station, the fire station, etc. Non-urgent services, such as restaurants, cafes, or barber shops, must be within walking distance from living areas or local public transit to live more "conveniently," (Mandelker, et al., 2023). Convenience is a broad term, though I suggest defining it as "generally suitable for living comfortably." The former paragraphs may detail methods to improve the traveling time between an individual and vital services, being that they are used in cases of emergency, so situations are often urgent. Local amenities must also be considered, as the nearby grocery store or coffee shop provides comfort and convenience. Investing in and improving accessibility to this convenience grows multiple benefits like improved land value, living conditions, and general happiness. Allowing citizens to access the most conveniences facilitates individual success and, logically, improves morale due to the high quality of life (Rappaport, et al., 2008).

Conclusion

Adding public transportation to communities removes supernumerary vehicles from roads, removing congestion and additional traffic to more densely populated areas. The removal of extraneous roads will discourage driving a personal car and create space for other methods of transportation such as a bus or tram on a widened road, which are prevalent in modern U.S. developments that nurture functioning and economically stable environments while being socially self-sufficient. Newer and modern urban and suburban developments will create comfort and a sense of belonging, creating and maintaining the idea of 'home.' In addition, it would make inhabitants of the community convenient and efficient daily. Making sure that these homes are quickly accessible to local services and amenities would allow for efficient

time utilization on both ends (inhabitants and service providers) including individual productivity.

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