



On Compact Cities

Jack CHRISTENSEN

Lincoln University graduate in Bachelor of Environmental Management and Planning, 2013.

1. INTRODUCTION

Planners of the nineteenth and early twentieth centuries reacted to the overcrowding, disease and general poor quality of life in cities by reimagining the urban form (Hall, 1992). Cities became more decentralised, living spaces more open, and accessibility to green spaces more readily available. With the almost universal uptake and utilisation of the motor vehicle in a large portion of western societies post World War Two, massive decentralisation and suburbanisation on the ever-expanding city fringe occurred and still continues today. The sprawling development has often been demonised as “sprawl,” a term that has become axiomatic for unsustainable growth. Sprawl has overtaken prime agricultural lands, destroyed ecosystems and habitat, added to infrastructure costs and is responsible for masses of greenhouse gas emissions due to the necessary transportation issues that arise from this type of expansion (Beatley, 2000). Over the last generation, there has been a push back to the urban centre with the concept of the “compact city” at the vanguard of a cohort of concepts that relate to a greater population density and a more liveable urban environment. This essay will argue that, while there is merit in the concept of the compact city, in many instances the reality of the situation means that all that glitters is not necessarily the gold of sustainable development. In this piece, a definition of what is meant by the compact city will be given. Following this, a critique of the compact city ideology will be delivered from several angles. While not exhaustive, the critique will examine the more prominent issues associated with the compact urban form. Additionally, the city of Portland,

Oregon in the United States will be used to better illustrate the difficulties and issues surrounding the compact city model as set down in the critique. This essay will, due to the need for brevity, largely ignore the compact city from the viewpoint of developing nations where a myriad of additional complexities exist, and will instead focus on the developed world.

2. DEFINING THE COMPACT CITY

There is not an exact and satisfactory definition of what comprises the compact city that is readily presented (Neuman, 2005). However, descriptions of the compact city typically give characteristics and functions of the manipulation and containment of the urban form, so as to obtain improved sustainability in the realms of environment, society and the economy. Characteristics and functions include:

- Well-connected and accessible communities facilitated by strong public transport options in addition to quality walking and cycling infrastructure. This aspect of the compact city is widely hailed for eliminating unnecessary vehicular movements and in doing so, reduces carbon emissions, creating a healthier society that is more active and more interactive with one another.
- A mixture of land and building uses to promote high levels of residential and employment density. The removal of zoning restrictions, within reason, is encouraged to allow for the mixing of business and residential use. This in turn supports a diverse, integrated and lively culture as people are attracted for different reasons due to the varied nature of what is on offer in the city.

- The renewal and repurposing of industrial lands as well as infill projects for commerce and housing. This permits existing infrastructure such as for water, sewers, roads and electricity to be used. Additionally, this increases population density and preserves land on the urban border (Neuman, 2005; Burgess, 2000; Burton, 2000; Jenks, 2000; Thomas & Cousins, 1996; Westerink et al, 2013).

The compact city concept may be implemented at differing scales, from an entire metropolis through to an unconnected town and a single neighbourhood (Gordon & Richardson, 1997; Westerink et al, 2013).

3. CRITIQUE

Perhaps the most heralded aspect of the compact city from a sustainability viewpoint is that of the energy saving and carbon reducing benefits, as well as lower traffic volumes due to the reduction in vehicle movement. The mixed use aspect of compact cities allows for most needs to be satiated nearby, whether groceries, a movie, a doctor's appointment or a simple cup of coffee, and the need for independent vehicle travel is said to be much reduced when compared to suburban areas. Champions of the compact city assert that high-density environments can provide the critical mass necessary to make public transit work efficiently to create substantial energy and emissions gains (Burton, 2000; Duany, Plater-Zyberk & Speck, 2001; Newman & Kenworthy, 1999). However, research into this aspect of the compact city finds that there is evidence to suggest that this is not the case. Analysis of a 1995-96 Department of Transportation study conducted in England showed that compact urban forms in themselves had no significant influence on private vehicle use or the length of trips taken (Williams et al, 2000). It notes that planning policy variation can have some impact but has the potential drawback of restricting mobility overall. The effect of personal choice and preference on travel behaviour is also discussed, using the examples of specialist employment, recreation and shopping as means of drawing people out of an immediate area and causing more travel. Jarvis (2011) contends that it is naïve to consider that urban form alone can reduce vehicle usage to the claimed extent. She cites the complexity of modern family living, the

requisite need for a family to have two incomes and the basic practicalities of life as obstacles to both social and environmental sustainability in the compact city. She states that when these issues are considered, there is no difference in the number of private vehicle trips undertaken. Gordon & Richardson (1997) opine that compaction can actually increase private vehicle use. They note that the shorter distances to services and amenities made possible by the compact urban form make private travel less expensive and more convenient than public options, thereby actually *increasing* the number of trips taken. Neuman (2005) takes a broader approach, reviewing considerable literature and empirical studies on the effects of compact city approaches to transport. He asserts that claims of reduced vehicle trips and energy consumption are ambiguous at best and that the results of various studies on the matter are often inconsistent in their results. Melia et al (2010) identify what they term the "paradox of intensification." This paradox is in essence that while compactness and population intensification will reduce the number of vehicle trips per person, the overall concentration of vehicle traffic will increase leading to deterioration in local environmental conditions. A doubling of population density will not halve the number of vehicle trips taken. In fact, studies show that doubling in density would only reduce vehicle trips by 5-7% (Gordon & Richardson, 1997; Melia, Parkhurst & Barton, 2010). The works outlined above all lead one to the conclusion that claims surrounding increased environmental sustainability specifically relating to vehicle usage are flawed and that the opposite of these claims may well be true.

Proponents of compact city philosophies often point to the improved social conditions that occur in higher density areas. They point to increased and improved social interactions, safer communities, better access to facilities and a greater mix of housing opportunities that allow for a greater homogenisation of social and cultural backgrounds (Burton, 2000; Duany, Plater-Zyberk & Speck, 2001; Newman & Kenworthy, 1999). When looking at the issue of social equity (the way in which a city distributes associated costs and benefits to its residents), the compact city is often given a free pass without

due scrutiny (Burton, 1997). Burton (1997) found that the term "social equity" was too broad when trying to establish the correlation with the compact city concept. Instead, to be more accurate, social equity needs to be broken down into constituent parts. Only on an individual basis can the relationship between compactness and each element of social equity be established. Burton found that the only true measures of social equity were when intervention in the neoliberal housing market structure took place to provide social housing in close proximity to services and facilities, and thus protections and security of tenure to those at the bottom end of the socio-economic ladder. This is a point expounded upon by Gordon & Richardson (1997) highlighting the fact that housing affordability in many compact communities, as compared to more standard suburban areas, is considerably worse than the average in their findings. Increases in house prices in compact cities is due to constraints on land use that do not allow for expansion into Greenfield spaces – expansion that would otherwise loosen up land supply, reducing demand and keep purchasing costs lower (Gordon & Richardson, 1997). This point reinforces Burton's position that without the use of public funds to subsidise housing, the compact form does not increase social equity.

Other measures of social sustainability claims within compact cities are also open to criticism. Bramley et al (2009) undertook empirical research that examined five British cities for neighbourhood pride and attachment, social interactions, safety, neighbourhood, environmental quality, satisfaction with the home, residential stability, participation in groups and use of neighbourhood facilities. Findings suggest that neighbourhood pride and attachment, stability, safety, environmental quality and home satisfaction showed a negative relationship with increased compaction, especially where there was no capacity to access a garden. When access to green space and/or a garden was possible the relationship with density improved. The link between social interactions and group participation with population density was positive but only to a point of "medium" density. When the density increased further, this relationship deteriorated. A similar study conducted in Taiwan also found social

sustainability suffered when exposed to increased compaction (Lin & Yang, 2005), indicating that this is not just a British phenomenon. Similar to the Bramley et al study, Lin & Yang (2005) identified complementary planning approaches including the need for sufficient green space. These studies clearly show that communities are complex places and that wielding densification and compactness as broad-brush tools does not bring about social sustainability.

A final issue that confronts advocates of the compact city is of public perception and the reality of choice. In other words, do people actually want to live in a compact urban environment? There is a considerable amount of research that illustrates that while many people like the idea of other people living in compact cities, given the option they would prefer to live in a lower density, "typical" suburban environment. In addition to this are the views and actions of current residents that are content with their existing level of surrounding population density, despite seeing the shift to compaction happen around them. Gordon & Richardson (1997) as well as Neuman (2005) suggest that the idea of suburban living and the associated spatial patterns is now ingrained in American and other Western societies. As such, the development of "sprawl" by developers is simply providing what the market is asking for. This is also apparent in Christchurch, New Zealand where open spaces and low density were deliberately created to escape old world, industrial revolution city living, as built during the second half of the nineteenth century. With this almost instinctive attitude of avoiding cramped living conditions, there is resentment to the idea of compaction and increased population densities, by way of infill developments, that threaten a well liked and established way of life (Vallance et al, 2004). Breheny (1997) provides evidence that people living in the highest densities were the least satisfied with the area that they lived in, while the opposite was true for those that lived in the least densely populated areas. The author shows that over ten times as many people would prefer to live in a detached dwelling as opposed to apartment type living. Breheny goes on to conclude that "people aspire to the very opposite of the compact city"

(Breheny, 1997, p. 7). This is hardly an advertisement for urban intensification. In Dublin, Ireland, it has been shown that the compact urban form and the associated apartment type living conditions are only attractive to a small segment of society. These people were predominantly in early adulthood and affluent (Howley, 2008). When this group was questioned regarding their future plans, almost half responded that they thought they would live in a stand-alone house and a third thought they would live in open countryside or a small town or village. This implies that preferences are strongly weighted toward lower densities (Howley, 2008). As many governing authorities are pursuing and implementing the concept of compact cities, it would seem judicious for them to examine such research as that delineated above and observe that residential housing preferences appear to be at odds with what is being planned and enacted.

4. PORTLAND

The city of Portland, in the State of Oregon in the United States of America, has been at the vanguard of cities in the United States in term of the planning and policy implementation aimed at enacting the core principles of the compact city. Founded in 1845 at the confluence of the Columbia and Willamette Rivers, Portland, now a city of almost two million inhabitants, has for the past 40 years been the largest ongoing example of the compact city movement in the United States (Abbott, 1983; Beatley, 2000; Gibson & Abbott, 2002).

In the late 1960s and early 1970s, energy that was going into the civil rights and anti-Vietnam War movements in Portland began to shift to a more local level. Activists saw concerns rising in Portland about the decay and potential collapse of the Downtown area as was happening in other cities throughout the United States (Abbott, 1983). In reaction, an alliance of citizen advocates, city officials, downtown business owners, property owners and neighbourhood groups was formed. Together they sought to solve one another's problems as part of a single wide-ranging package rather than in piecemeal fashion (Abbott, 1983; Gibson & Abbott, 2002). In 1972, through negotiations and trade-offs, a

strategy involving improved public transport and parking, retail reinvestment and the formation of more appealing public spaces and street scaping, was agreed upon (Gibson & Abbott, 2002). This strategy was the genesis for Portland to move along the path toward the compact city model. Another solidifying feature that pushed Portland in the direction of compaction was the State mandated Urban Growth Boundary (UGB). The UGB in Portland came into effect in 1980. The UGB sets the margin for where infrastructure and services are placed to give surety for development and business decisions, to protect farm and forest land and encourage infill projects, and to redevelop and rejuvenate core urban areas (Metro, 2013). The Portland UGB has been "loosened" on multiple occasions to allow for the controlled expansion of development when it has been deemed appropriate, as the State mandate requires 20 years supply of land be available. Between 1979 and 2000, an additional 6000 acres of land was released (Gillham, 2002).

Portland continues on its path of compaction. Since 1972, many seemingly radical actions have occurred to create a city inline with the ethos of the compact city doctrine. Examples include a six lane highway that followed the river being removed and replaced with a public park, the removal of a downtown parking building to make way for a civic square that is used for many cultural events, and federal funding to the city for highways was diverted to create a light rail system that has since expanded from its original 15 miles to more than 52 miles with further plans for expansion (Abbott, 1983; Gibson & Abbott, 2002; Beatley, 2000; Gillham, 2002; Metro, 2013). In addition to the light rail system, a network of pedestrian and cycle-friendly access ways was created with over 149 miles now in use (Beatley, 2000). Infill housing projects were made necessary as a result of the UGB. In the twenty years from 1978 to 1998, the average house land lot reduced by over a half, from 12,800 square feet down to 6200 square feet (Gibson & Abbott, 2002).

Portland is regarded as the "poster child" of U.S. cities with regards to sustainable development and the compact city design. It is hailed as a model example for other cities to

follow. The virtues of Portland's effective public transport, vibrant urban core and neighbourhoods, as well as its pronounced walkability and cycle-friendly nature are often espoused as cutting edge and highly sustainable (Beatley, 2000; Gibson & Abbott, 2002; Gillham, 2002, Richardson & Gordon, 2001).

However, research exists that questions this notion for Portland, much of it similar to the earlier overall critique of the compact urban form as a planning strategy. In a comparison study with 32 other similar sized metropolitan areas in the United States, Jun (2004) found that Portland's UGB failed to control urban sprawl or to significantly reduce private vehicle usage. The study found that Portland was in the top third of the 32 metropolitan in terms of urbanised land area and placed 15th in terms of population density.

In another study, Richardson & Gordon (2001) are scathing in their analysis of the effectiveness of Portland's compact growth strategies. Their study compared Portland with Los Angeles, often cited as being notorious for sprawl and air pollution due to vehicle use. Evidence presented by these two authors showed that Portland is less densely populated than Los Angeles with 3021 and 5801 people per square mile respectively. Additionally, the study shows that there is 2.8 times more road length per capita in Portland and commute times in Portland increased 19 percent between 1992 and 1999, whereas the increase in Los Angeles was only 1 percent over the same time period. The study even showed that Los Angeles had become more affordable than Portland in terms of housing and directly related this to the "choking effect" (Richardson & Gordon, 2001, p. 17) of Portland's UGB.

Unfortunately, even the social sustainability aspect of Portland comes under scrutiny. Along with the urban renewal policies has come an inevitable level of gentrification. Gentrification has driven low-income residents out of their often longstanding neighbourhoods as they become more desirable to a more affluent set. This is illustrated in the traditional African American neighbourhoods of North-eastern Portland. As the area became more desirable, there was an influx of non-blacks, changing the

composition of the area (McGee, 2010). While creating more diverse cultural and ethnic mixes, the long-standing communities were forced to disperse, leading to a breakdown in networks and social institutions. Richardson & Gordon (2001) also hypothesise that monies that would normally have been used to improve public services such as health and education programmes were siphoned off for use in the campaign of compacting the city. If true, then this surely reduces the social equity in the city by denying services to portions of the population.

Finally, the issue of choice again comes into question. Evidence on population growth in Northern Oregon where Portland is located, as well as Southern Washington State, indicates that the UGB has slowed population growth in Portland. Evidence shows that communities outside of the UGB have grown much faster than Portland. Across the Willamette River in Vancouver, Washington, a town that is in essence part of Portland but under a different jurisdiction absent the planning policies of Portland, population growth far outstripped Portland. Vancouver, in 1990, had one-tenth the population of Portland yet added more residents over the course of the following decade (Richardson & Gordon 2001; Jun, 2004; US Census bureau, 2000). This is surely an indication that people desire to live in an environment that is less densely populated. Even within the UGB, there is dissatisfaction amongst members of the public with comments such as "Metro planners moan about the suburbs as if they were a disease" (Gibson & Abbott, 2002, p. 432) and the recalling of council members (by voters in classic suburban districts where compaction is not favoured) that supported the compaction policies in Portland (Gibson & Abbott, 2002).

5. CONCLUSION

The philosophy surrounding the compact city is alluring as a means of implementing a sustainable urban space. There are certainly merits in the concept. However, the literature on the subject indicates that compaction on its own does not have the desired effects. Or, if the positive effects are present, they are certainly not on the scale that some may suggest. The ample literature on Portland illustrates in very real ways

why the compact city concept is a flawed model of planning. This essay should not be misconstrued as advocating for the status quo of ever expanding urban areas. Instead, this piece merely serves to illustrate that creating a sustainable city is a problematic issue that is not easily overcome simply by use of the single instrument of compaction. Instead, multiple approaches that are specific to the circumstances of the individual urban area are required for success. Rather than plunging headlong into compaction, planners and city designers can use it as a complementary tool to provide residential environments that are suitable throughout a person's life and give an improved quality of life to all.

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