

Getting There from Here:
Transportation and the Twin Crises

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The twin energy and climate change crises represent the greatest threats to human civilization. We have not yet faced such incredible challenges to the most fundamental aspects of our modern existence. In North America, we are particularly unprepared to effectively deal with these issues. The post-World War II urban form of Canadian and American cities has tended towards low-density, highly automobile-dependent communities. This short article will briefly provide background on these two crises, and then illustrate why the predominant North American development form is unsustainable and impractical based on the great amount of oil required. If a reconfiguration of the urban landscape does not occur now by choice, it will be forced upon the North American majority by the reality of energy scarcity. The latter transition will likely be characterized as a period of social inequity and great financial burden (Newman and Boyer, 2009).

Peak oil and the North American oil consumption are incompatible. In the United States between 1980 and 2003, vehicle miles travelled per capita increased from 6,742 to 9,941 (Kim and Ulfarsson, 2008, p.723). Moreover, the US population travels a greater distance by car than any other population in the world, resulting in US residents making nearly four automobile trips per person per day (Kim and Ulfarsson, 2008, p.724). This auto-dependent lifestyle is possible exclusively through the use of gasoline, or more generally, oil – a finite resource which is becoming increasingly scarce. Shell geophysicist Marion King Hubbert formulated the peak oil hypothesis in the 1950s, arguing that US oil production would peak in 1970, and peak world production would occur around 2000 (Newman and Boyer, 2009, p.19). Hubbert's 1970 US peak production prediction was indeed correct, and furthermore, global oil production plateaued in 2005 (Newman and Boyer, 2009:20). Many critics of energy scarcity argue technological

advances will solve our energy problems. While it is not within the scope of this short paper to address this claim, “renewable resources offer only a fraction of the current energy supplied by finite resources” and unconventional oil will experience falling energy returned on investment (Saunders, et al., 2008, p.874).

The seriousness and urgency of a transition to low or carbon neutral cities becomes more apparent with the climate crisis. Fifty percent of species will be lost with only a two-degree increase in global temperatures (Condon, 2010, p.1). This scenario – or the very likely possibility of much more catastrophic temperature increases – puts human civilization in doubt. The faster we burn fossil fuels driving from the sprawl to the central city, the sooner this scenario will come to fruition. When petroleum products are burned, they become anthropogenic greenhouse gas emissions. Globally, 77 percent of oil is burned directly for transportation (Newman and Boyer, 2009, p.25) and transportation accounts for 15 percent of carbon emissions. The US will likely experience the largest growth in GHG emissions from transportation (Newman and Boyer, 2009, p.87). Most alarming, transportation is responsible for 28 percent of all energy consumed in the US – this is a 17 percent increase in transportation energy between 1995 and 2005.

If we are to address the energy and climate change crises, we must link transportation fuel consumption to suburbanization.¹ Inadequate and high real-energy costs in early modern cities facilitated high-density, mixed-used development (Vojnovic, 1999, p.302). With peak oil, a return to this type of urban form will be necessary as transportation from low-density residential developments to the city centre is unrealistic. Accessible public transit is vital, as “there is a

¹ By no means am I suggesting that this is the only discussion necessary as we face energy scarcity and the impending climate calamity. Our food systems and the transition to a steady state economy are also part of this wider discussion, but beyond the scope of this short paper.

strong negative correlation between how much fuel a city uses and how much transit it has” (Newman, 2009, p.86).

While most North American cities pale in comparison to European cities, some are already well-positioned to transition. New York City uses only 326 gallons of oil per person on average compared to Atlanta’s 782 (Newman and Boyer, 2009, p.86), although Helsinki’s 69 gallons per person and Hong Kong’s 32 illustrate how far North American cities must come.² Vancouver also places fairly well, consuming half the fuel per person on average of New York (Newman and Boyer, 2009, p.88). European and wealthy Asian cities are considerably further ahead if we look at public transit mode share. As a percentage of motorized transportation, Hong Kong (73 percent), Krakow (50 percent), Toronto (14 percent), and New York (9 percent) are leaders on their respective continents (Newman and Boyer, 2009, pp.86-87). Vancouver sits at 7 percent, while Phoenix, Houston, Atlanta, San Diego, and Denver are at 1 percent (Newman and Boyer, 2009, pp.86-87).

Greater public transit mode share is indicative of higher densities, but it is not the only indicator of a resilient city (Newman and Boyer, 2009). Less resource-intensive and more compact cities – thus resilient cities – are also better suited for walking and bicycling. European cities average 34 percent of residents cycling or walking to work (Newman and Boyer, 2009, p. 87). In the City of Vancouver, 15.9 percent of residents cycle or walk to work, and for Metro Vancouver, combined cycling and walking mode shares account for 8 percent. The City of Vancouver did see the cycling mode share increase by 12 percent between 1996 and 2006, although still only accounting for 3.7 percent of trips to work (City of Vancouver, 2009). Many

² Atlanta is the most auto-dependent city in North America.

cities are actively encouraging transportation alternatives and are therefore challenging post-World War II automobility, which has come to dominate our urban spaces.

Reducing transportation energy consumption is not the panacea for addressing the energy and climate crises, but it remains a necessary part of the solution. Cities will likely face one of Newman and Boyer's (2009) four scenarios: collapse, ruralized, divided or resilient. A strong connection exists between current transportation energy consumption, car culture, and the future of these cities. If current trends continue unabated, many cities will face collapse or considerable division between wealthy neighbourhoods with access to services and transit and poorer areas on the fringe (Newman and Boyer, 2009, pp.47-48). More broadly, challenges to the production of space for oil consumption may only occur through the reallocation of space for public transit and non-motorized uses. These geographies of petro-capitalism have existed largely uncontested in North America – and equity has long been ignored.

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