Overcoming Barriers in a Shift Towards a Sustainable Transportation System

A Major Portfolio submitted to the Faculty of Environmental Studies in partial fulfillment of the requirements for the degree of Master in Environmental Studies

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Table of Contents

Abstract

The three parts of this portfolio provide a critical perspective on public transit infrastructure, primarily in the Greater Toronto and Hamilton Area (GTHA), but which also strives for wider applicability. The first paper, "The Contradictions of Splintered Network-Building," proposes that the spate of public transit physical infrastructure projects proposed in *The Big Move*¸ 2008 regional transportation plan for the GTHA, can be described as a process "splintered network building." This entails an attempt to build a regional public transit system relying on neoliberal practices that would usually be associated with the fragmentation of networked infrastructures operated by state monopolies. The paper argues that *The Big Move* represents an infrastructure plan, rather than a comprehensive scheme to improve public transit in the region.

The second paper, "Rapid Transit as a Suburban Renewal Project," uses York Region's Viva bus rapid transit system as an example of emergent suburban rapid transit. The paper identifies suburban rapid transit as public transit in the form of either light rail or bus rapid transit that connects within suburbs, rather than a more typical form of transit infrastructure that links peripheries to urban centres. The paper demonstrates that while these projects can deliver real improvements in the use value of public transit, they are also entrusted with the task of urbanizing the suburbs by attracting speculative real estate development.

The final part of the portfolio is a photo essay documenting the various forms of development that occur next to transit, and which serve to create "places of transit." It is intended as a visual representation of one of the exchange value orientations of public transit infrastructure.

Foreword

This portfolio aims to demonstrate an understanding of the forces and ideologies that drive dominant, neoliberal conceptions of mobility, particularly with regard to public transportation, while also presenting strategies for alternative approaches to mobility in sub/urban environments. The portfolio primarily fulfills my learning objective to "[u]nderstand the political economy of public transit planning" by drawing on critical sub/urban studies to illuminate the obstacles that hinder a shift towards more sustainable transportation systems. I argue that the prioritization of public transit's exchange value, namely the ability of transit to attract speculative capital investment in real estate, in the GTHA has undermined its use value orientation, which is its ability to move large numbers of people affordably and efficiently. The portfolio is intended principally observation in theory rooted in a critical academic tradition primarily concerned with infrastructure. I also propose a minor theoretical intervention, in that critical perspectives on infrastructure have tended to focus much more on the existence of infrastructure, while the services provided on said infrastructure have generally received considerably less attention. I argue that a closer examination of how infrastructure is used can add a productive analytical dimension to critical studies of infrastructure by illuminating the contradictions of mass transit under neoliberalism. The photo essay is intended as a visual documentation of the exchange value orientation of public transit by capturing some examples of the speculative real estate development that occurs in proximity to transit.

While the portfolio takes a critical perspective on regional scale planning and on a specific transit project, it also fulfills my learning objective to "[g]ain a thorough understanding of the principles of public transportation planning." Beyond critique, I attempt to provide

constructive alternatives grounded in specific examples from other regions that can contribute to a more just and sustainable transportation system based on both improving existing service and building new infrastructure. This equips me with practical and readily applicable tools that can be used to guide my practice as a professional planner (an additional learning objective), and the capacity to conduct comparative research the various policies and programs adopted to improve public transit. Ultimately, the portfolio is intended to shift the focus of public transit planning in the GTHA away from infrastructure expansion and towards a much wider perspective rooted in equity and sustainability that is intended to bring about a modal shift away from single-occupancy vehicle use.

Introduction

The three components of this portfolio aim to offer a multi-scalar perspective, ranging from a single transit project to exercises in regional transit planning, on transit planning and construction, and the attendant forms of speculative real estate development that can accompany the addition of new transit infrastructure. The portfolio attempts to provide a sense of the structural barriers that inhibit the creation of a more sustainable and equitable transportation system, and a shift away from dispersed, auto-centric mobility regimes. As I argue in the second paper on suburban rapid transit, projects to improve public transit in the suburban GHTA have so far largely coexisted with automobility, rather than meaningfully shifting transportation in a more collective and equitable manner. New transit is also being employed as a means of facilitating higher density, speculative real estate development near new infrastructure. Concentrating development near transit can provide a wide number of benefits, but the type of development in transit-oriented development matters a great deal if public transit is to promote equity through its construction and operations. Taken together, this portfolio is intended to provide analyses of transit planning, construction, and operations in the GTHA, while also illustrating a number of examples of market-based, speculative real estate development that have accompanied new transit in the United Kingdom, Italy and Canada. Taken as a whole, the portfolio is intended as a critique of existing practices, but also aims to highlight potential courses of action and examples that could serve to further a transition away from our current, wildly unsustainable and deeply inequitable transportation system.

The first paper “The Contradictions of Splintered Network Building” takes a regional-scale perspective of the GTHA and looks at the contradictory processes of sociotechnical

systems building set forth in *The Big Move*, a regional transportation plan launched in 2008. It argues that the plan is not so much a scheme to improve public transit in the region, but is rather a program to build physical public transit infrastructure. While these two goals are far from exclusive and are ideally mutually supportive, the types of infrastructure and the prioritization of capital funding in an environment of austerity for operating funding mean that investments in new public transit infrastructure as set out in *The Big Move* are geared towards enhancing regional competitiveness and creating "premium networked spaces" that "are partitioned off from spaces of (perceived) danger, difference and poverty whilst being ever more seamlessly linked into the customized transport, energy, water and communications that allow users to extend their action spaces to distant elsewheres" (Graham & Marvin, 2001, p. 301). The paper proposes that the regional scale at which *The Big Move* operates undermines any effort to shift the modal share of the GTHA away from the single-occupancy vehicle and towards cycling, walking and transit. While there is little doubt that the GTHA is sorely in need of improved regional transportation, *The Big Move* and other Metrolinx plans are largely silent on how transit users are to reach regional transit or conduct shorter distant journeys. As such, *The Big Move* puts forth an infrastructure network that is remarkably fragmented without meaningful fare integration and is increasingly reliant on public-private partnerships to build, design and operate mass transit in the GTHA. The paper concludes with a critique of the desire to depoliticize transit planning in the region, and instead argues that what is needed is a radical reconfiguration of both what constitutes "politics" with regard to transit planning and how it intersects with the investments and disinvestments made in both transit infrastructure and service.

The second paper addresses the increasing number of suburban rapid transit projects and uses York Region's Viva bus rapid transit system as a case study. The paper identifies four rapid transit projects that are entirely suburban in character, as in either running in between suburbs or entirely within suburbs. While rapid transit in suburbs is hardly novel, virtually all existing public transit lines in Canada and the United States serve to bring transit riders from cores to peripheries, although this arrangement does not preclude suburban journeys. In an increasingly polycentric, we are see the development of forms of infrastructure that previously would have only linked suburbs to urban centres, now serving to link emerging centres within or across suburban municipalities. However, new rapid transit lines in the suburbs are simultaneously expected to both link and play a major role in the creation of what amount to suburban downtowns. As such, recent suburban rapid transit projects embody a similar dynamic that is seen with recent American streetcar projects, in which new transit has been enrolled in a project of spatial planning, where it "can be understood as a creative city development tool" (Culver, 2017, p. 22). King and Fischer explain that "[i]n contrast to traditional urban planning processes, spatial planning is a deliberate effort by local government or territorially-based policy communities to take place-shaping seriously" (King & Fischer, 2016, p. 384). While spatial and transportation planning are certainly not incompatible, through discursive practices and service levels, we see that the mere existence of rapid transit infrastructure in a place like York Region is valorized as a good in and of itself that is slated to bring about an urban transformation along suburban arterials. The paper highlight some of the often wildly inequitable and cost inefficient capital investments that have been made with Viva when compared to other transit agencies in the GTHA. Despite massive capital investments,

Viva and York Region Transit's service levels are generally lower than transit agencies in adjacent municipalities, which is a product of a relatively generous environment for capital funding combined with a long-standing austerity regime when it comes to upper level government support for transit operations. The failure to adequately leverage Viva's infrastructure through improved service and the maintenance of private vehicle travel lanes have resulted in a remarkably expensive transit system that is not capable of meaningfully changing mobility in York Region. The paper intends to prompt a critical eye with regard to suburban rapid transit, acknowledging that it can be very useful to transit riders, but must be situated within plans to improve suburban transit on a network-wide basis that considers affordability and accessibility at every step.

The third component of the portfolio is a photo essay highlighting transit-oriented development that is either completed or underway in a variety of locales. It includes photos from the Urban Growth Centres of York Region, Vaughan Metropolitan Centre and Markham Centre, from the inner suburbs of London, and from Milan and Florence. The essay is intended as a visual representation of the forms of generally market-rate housing and office development that is increasingly occurring in close proximity to transit, particularly near newly built infrastructure. While the enlistment of public transit in real estate development is far from novel, the major shift under neoliberal governance is towards the use of state-funded and planned transit infrastructure as a means of attracting private sector investment, both in urban areas seen to be in need of regeneration, and in suburbs that are viewed as ripe for urbanization.

Taken as a whole, the components of this portfolio strive to capture the current approaches that shape the form of public transit infrastructure in the early 21st century, particularly in the GTHA. It aims to highlight the inequitable investments and the shift towards capital funding for large infrastructure projects combined with a deeply entrenched austerity regime when it comes to funding transit operations. While improved public transit should not be treated as a panacea for solving the problems afflicting cities in the early 21st century, but it can play a valuable role in shaping a more just, sustainable and equitable distribution of resources, both in terms of infrastructure and services. Filion and Keil write that "[s]ocial inequality is both reflected in and intensified by high levels of unevenness in the availability of infrastructures" (2016, p. 15). As just one example, this is widely reflected in the apportioning of roadways, particularly suburban arterials that are almost exclusively designed for private vehicles. As we shall see in York Region, even efforts to repurpose suburban arterials, among the most vital and ubiquitous forms of suburban infrastructure, to make them more transit-friendly do not meaningfully address many of the barriers to equitable transit, particularly in terms of cost to the user. While creating a more equitable public transit system could improve the material conditions of many people, it is also necessary to shift transit-oriented development away from market-based, speculative models, and towards use-value oriented forms of affordable housing. A more equitable public transit system's utility would be greatly undermined if it only served to better connect its users to unaffordable housing and low-wage precarious employment.

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Part One:

The Contradictions of Splintered Network-Building - Fragmented Transit in the Greater Toronto and Hamilton Area

Introduction – Moving the GTHA

The Greater Toronto and Hamilton Area (GTHA) is by far the largest urban region in Canada, and has experienced rapid growth in its suburban municipalities for the past several decades. The region is expected to add nearly 2 million residents in the coming decades, growing to 8.6 million people by 2031 (Metrolinx 2008). However, since the early 1980s public transit infrastructure has failed to expand apace with population growth. A sustained period of capital underinvestment in new infrastructure began in the late 1980s, and the hardline, neoliberal Common Sense Revolution of the Mike Harris' Progressive Conservative government completely cut provincial operating subsidies for local transit in 1998, which have not been restored in the ensuing two decades (Munro 2016). As just one example of the decline in capital investment, from 1986 to 2016 the City of Toronto added six subway stations to its network (one of which was an infill station on an existing line), while in the same period the much smaller Vancouver Metro Region built three light metro lines with 53 stations, giving the west coast city the longest rapid transit system in Canada. Addie explains that from the late 1980s to the early 2000s "the spatial logic of transit investment had focused on the metropolitan scale, Toronto transit was disconnected from the GTA's globalizing infrastructure (Pearson Airport) and emerging regional nodes, and lacked interregional governance integration" (2013, p. 199). As traffic congestion worsened and the pressures of interregional competition grew more

pressing, the provincial government of Ontario would embark on a program to address the deficient state of the GTHA regional transit system.

In 2003, a Liberal provincial government was elected, and set out to tackle the GTHA's worsening congestion problems through the creation of a regional transit procurement and planning agency in 2006. First known as the Greater Toronto Transportation Authority, it was renamed Metrolinx in 2008, and underwent a major shift in structure and responsibility in 2009, absorbing GO Transit, the GTHA's commuter rail and bus service, and shifting to an appointed corporate-style board, rather than one made up largely of municipal politicians from the GTHA. In 2008, Metrolinx released a major infrastructure plan, *The Big Move*, which proposed to spend $50 billion to 2041 to construct a regional transit network for the GTHA (Metrolinx 2008). Yet, with the exception of GO Transit and Union-Pearson Express, an oft-maligned air-rail link connecting Pearson Airport to downtown Toronto, Metrolinx's mandate expressly excludes subsidizing transit operations or planning local transit. As will be discussed below, this structural omission is a major hindrance with regards to a modal shift towards transit use in the region.

In 2018, Metrolinx adopted the *2041 Regional Transportation Plan for the Greater Hamilton and Toronto Area* (RTP), which is an update to *The Big Move*. While it represents a continuation of the goals and policies set out in *The Big Move* in many respects, it also marks a considerable reduction in the anticipated outcomes of building a regional transportation system. *The Big Move* envisioned a capital investment of $50 billion in new infrastructure to 2041, ideally funded by dedicated sources (2008, p. 68-71). However, Metrolinx was unable to secure its own dedicated taxes, fees, or highway tolls due to widespread political opposition

both from within the Liberal Party and from the opposition parties at Queen's Park (Ferguson 2016). Without dedicated funding sources, there is virtually no way to ensure $50 billion would actually be spent by 2041, although it is entirely possible. The RTP is significantly reduces the scale of investment to $30 billion to 2025 in order to ensure completion of projects underway as of 2018, but is mum on the subject of further funding beyond this date. As will be discussed further below, the RTP also dramatically reduces transit's expected modal share in the GTHA for 2041. Overall, the RTP is a continuation of the infrastructure first approach enshrined in *The Big Move*, and its preeminent strategy is ensuring the completion of projects currently underway that were included in *The Big Move*. However, the resounding defeat of the governing Liberal Party and the election of right-wing populist premier Doug Ford has injected considerable uncertainty into the future of transit infrastructure construction in the GTHA, and it is unclear what projects outlined in *The Big Move* will be prioritized or discarded.

It is questionable whether Metrolinx possesses either the political will or the practical capacity to successfully construct a transit system capable of addressing the mobility challenges of the GTHA. This stems from what can be characterized as *The Big Move*'s "splintered" network building, whereby a regional system is being built through processes of unbundling of assets, partial privatization, and the creation of new markets for the provision of public services (Graham and Marvin 2001). Graham and Marvin define unbundling as "the division of integrated networks into monopolistic and non-monopolistic segments that are contestable by new entrants" (2001, p. 139). A key regional specificity is that Metrolinx is attempting to build an unbundled infrastructure network through new transit projects, rather than by privatizing existing infrastructure. Metrolinx has opted for what Graham and Marvin characterize as a

"Delegated Infrastructure" framework to privatization, which "involves suppliers competing for *the right to supply a market*. Governments create market conditions by offering leases or concessions for either integrated or monopoly elements of the networks" (2001, p. 53). As a contradictory combination of a major public investment in infrastructure, and the simultaneous privatization of many elements of mass transit operations, *The Big Move* embodies the neoliberal shift in Ontario politics over the past few decades (Fanelli and Thomas 2011).

The regional transportation network envisioned by *The Big Move* can be viewed as a neoliberal large technological system (Hughes 1987) in a number of ways:

- By automatically requiring design/build/maintain/operate public-private partnerships for new transit lines, such as the Hurontario LRT.
- Through the prioritization of regional transit as a means of bolstering regional competitiveness, while local transit generally stagnates or declines. As will be argued below, this regional bias could severely hamper Metrolinx's ridership goals, and the successful realization of a regional transit system.
- Possessing a governance structure modeled on a corporate board that excludes any elected members, and is allowed to meet in secret. As a provincial agency, Metrolinx is effectively synonymous with the provincial government, yet it is unclear just how provincial politicians exercise influence over transit planning decisions.
- *The Big Move* is a regional mobility plan that is not on the required scale in terms of *public* investment to bring about the necessary modal shift away from the dominance of single-occupancy vehicles and towards more sustainable modes of transportation,

namely public transit, walking and cycling. This is unfortunately typical of the continued failure of capitalist states to meaningfully enact sufficient measures to address the pressing demands of mitigating climate change.

Additionally, the overwhelmingly regional nature of *The Big Move* creates place-based advantages through selective investment to move suburban commuters, while often also serving as a means of furthering speculative real estate investment along transit nodes and corridors, although the latter is not consistently a priority across all projects, particularly with the much-diminished remnants of Transit City.[1]

This paper will be divided into four sections. The first section will provide an overview of the regional transportation system set out in *The Big Move* as a large technological system under neoliberalism, and question whether the system can successfully fulfill its goals, or if it can even define them. The following section will turn to the inequities of investment borne out of a transportation plan that prioritizes regional transit, and does little to improve languishing local transit service. The third section will focus on the structure of Metrolinx's preferred form of public-private partnerships as an ideological choice. The final section will look at the Union-Pearson Express, one of the few projects in *The Big Move* to have been completed, as an example of unbundled infrastructure used to create a premium corridor linking global spaces of

[1] Transit City was a transit plan designed to provide eight light rail and six bus rapid transit lines in Toronto's inner suburbs, as well as increases in local bus service, with the stated goal of providing rapid transit to historically underserved communities. It was championed by former Toronto mayor David Miller, but received a pair of death blows first at the hands of then premier Dalton McGuinty who cut funding for four of the LRT lines in early 2010. The election of suburban revanchist Rob Ford as the Mayor of Toronto in December 2010 marked the final nail in the coffin, as Ford promptly declared the remainder of the project "dead" upon assuming office. One LRT line is currently under construction, with an additional line serving Toronto's northwest corner set to begin construction in 2019. Further LRT lines based on Transit City's plan may be constructed in Toronto at some future point, but no funded plans presently exist.

capital accumulation. The paper is intended as a prompt to shift away from a common, popular critique of transit planning that frames "politics," broadly viewed as the self-interested actions of unscrupulous politicians, as an unwanted intrusion into a supposedly pure realm of transit planning. Instead, the debate should be shifted to inherently include politics as a domain of contention with regard to the allocation of scarce resources within transit planning in the GTHA.

The Big Move **as a Large Technological System Under Neoliberalism**

The many purposes of public transit

Public transit has come to occupy a prominent place as a potential solution to the myriad problems facing urban regions, from traffic congestion (Toronto Region Board of Trade 2013), to greenhouse gas reduction (Metrolinx 2008a), to reducing social and economic exclusion (Keil et al 2015). Adopting a multiscalar perspective, Farmer explains that:

> Public transportation plays a vital role in the urban economy in that it creates place-based advantages, facilitates the circulation of capital, and attracts investment in local real estate markets. At the level of everyday lived experience, public transit shapes and constrains opportunity (time it takes to access jobs, schools, and services) and sociospatial relations into the built environment (2011, p. 1154).

Public transportation serves many roles to different actors depending on their physical location, their journeys (or lack thereof), their access to alternative modes of travel, their socioeconomic status, among other factors. Farmer and Noonan propose that public transit in capitalist

economies is pulled between a "structural contradiction" between use-value and exchange-value, and they write that "capitalism degrades and distorts the urban mass transit system in a manner that is favorable for the accumulation of capital *via* a privileging of exchange-value over and against the use-value of satisfying people's need for an effective and efficient (in energy, time and space) means of urban transportation" (2014, p. 83). Mass transit's structural contradiction is readily apparent in the current program of transit expansion in the GTHA, which exhibits a strong preference for capital intensive projects that favour suburban, work-bound commuters, and serve as an enabler to further speculative investments in the GTHA's booming real estate market. Cost-effective measures such as improvements to existing service are generally shunned under Metrolinx in favour of new capital projects.

The Big Move as a Regional Integration Project

Figure 1 - A stylized representation of The Big Move's many transit projects, both new, existing and to be improved. Note that the lines depicted are wildly out of scale and would be several kilometers wide. (Image credit: Metrolinx)

With *The Big Move*, the Ontario provincial government signaled a strengthening commitment to acting as the regional governing body for the GTHA, following a series of less than successful attempts at regional governance made up of GTHA

municipalities (Frisken 2007). Along with complimentary growth and land use plans, Metrolinx's transit strategic plan acts as a means of creating a political entity out of a disjointed, disparate, and largely suburban region. Addie proposes that "Our established notions regarding the territorial logics of *metropolitan* urbanization – characterized by political, social, and morphological binaries between urban core and 'traditional' suburbs – no longer contain the relational flows and processed of a polycentric, globally integrated, *city-regional urbanization*" (2015, 187). The shift under neoliberal urbanization from a metropolitan to a regional perspective of urbanization is reflected in Metrolinx's transit plans and its very structure. Enright (2016) proposes that regional integration carried out via heavy rail systems, such as the expanded and electrified GO network and the extension of Toronto's subway to neighbouring municipalities, constitutes "Metromobility – referring to metro infrastructures of urban rail, the political economic cultures they support and the ideologies of movement and development that underlie them" (p. 99). Within a GTHA context, Keil and Young propose that "the existing transportation situation has become a bottleneck for the continued globalization of the region, because local circuits of mobility are not well coordinated and various scales of decision making do not visibly interact for the regional good" (2008, p. 729). The creation of Metrolinx and the implementation of *The Big Move* are strategies to overcome the "bottleneck" stymying further growth in the region, and as a means of shifting towards greater regional integration through improved public transit connections. Made up of corridors and nodes, sites where multiple forms of transit intersect that are intended as hubs for office and residential development, *The Big Move*'s completed transit network aims to overcome the municipal boundaries within the GTHA. However, unlike most North American urban regions, the GTHA lacks any kind of

regional governance structure made up of its constituent municipalities, despite numerous attempts to create one since the 1940s (Frisken 2007). Instead, the provincial government serves as the regional decision-making body in terms of land use and regional transportation planning. The provincial government acts through Metrolinx on matters of public transit in the GTHA, yet it frequently overrules its own supposedly arms-length creature.

Infrastructure Only Transit

The Big Move is foremost an infrastructure plan, and as such places the highest priority on successfully constructing approximately 15 transit projects to 2022, with a further 11 projects to be completed by 2031 (Metrolinx 2008a, p. 60-66). An additional 11 projects are vaguely included in a post-2031 timeline, but the state of these is unclear (Ibid, p. 67). Many of the projects are located in the transit-sparse suburban municipalities of the GTHA, where Filion and Keil (2017) characterize infrastructure as possessing a "tendency to be in a catch up mode" (p. 16). Major improvements are also underway to increase the capacity of travel corridors into Toronto's central business district, the largest employment centre in Canada. *The Big Move* does include a number of mobility goals, but they are not even consistent within the document itself. The plan commits the GTHA to achieving a transit modal share of both "one third" (p. 14) and 26.3% (p. 59) by 2031. A presentation in August 2017 to the Association of Municipalities Ontario by Leslie Woo, Metrolinx's chief planning officer, and Judy Pfefier, Metrolinx's chief communications officer, shows the GTHA's 2031 modal share split along roughly the same lines as 2011, with 18% being captured by transit (Metrolinx 2017a, slide 32). The 2018 draft RTP drops the projected modal share of transit even further, down to 14.7% for 2041, just 0.5% higher than 2011, although due to population growth the RTP envisions moving nearly 700,000

more trips via transit in 2041 (p. 111). Despite a large investment in infrastructure, the steady decline in transit's expected modal share signals that Metrolinx has to a certain extent engaged in what Keil and Young characterize as a "defensive strategy" to simply maintain transit's modal share (2009, p. 741). Rather than signalling a shift in the way the GTHA moves, the RTP envisions the continuing dominance of the single-occupancy vehicle in the region.

Similarly, Metrolinx's 2016 *Go Station Access Plan* proposes a massive shift in how passengers reach GO Stations with the expectation of that the rate of users arriving to GO stations through walking, cycling, local public transit, ride sharing and carpooling increases by 60% by 2031 (Metrolinx 2016, p. 14). Goals to treble transit access to commuter rail are unsupported by any corresponding funding increases to local transit agencies to improve connections to regional transit, although some new transit projects, such as the Hurontario LRT in Mississauga, will feature a number of transfer points with GO stations. Additionally, no Metrolinx plan includes any benchmarks to measure progress towards the modal share targets. In spite of ambitious messaging espousing transformational shifts in mobility in the GTHA, Metrolinx's program of infrastructure construction is by its own accounting too modest in scale to achieve a major shift in modal share in the GTHA.

In sharp contrast to the GTHA, both the City of Vancouver's *Transportation 2040* (2012), and the Metro Vancouver transportation agency Translink's *Regional Transportation Strategy: Strategic Framework* (2013) begin with a desired modal share, and create an investment strategy in *both* improving existing service and building new infrastructure. As a result, the City of Vancouver, by far the densest part of British Columbia's Lower Mainland, met its goal to shift more than half of all trips to walking, cycling and public transit four years ahead of schedule in

2016 (City of Vancouver 2016). Translink has also become the North American leader in transit ridership growth, achieving a growth rate of 4.5% in 2016 and 5.7% in 2017 (Translink 2018). With the notable exception of the suburban municipalities of Brampton and Mississauga, transit ridership growth in the GTHA has been lackluster at best from 2012 to 2016 (Toronto Transit Commission 2016a, p. 5). Ridership on the Toronto Transit Commission (TTC), which carries nearly three-quarters of transit journeys in the GTHA, has plateaued as its overburdened and underfunded service has effectively stagnated (City of Toronto 2017). Ridership on the TTC increased slightly in 2016, and declined by 0.9% in 2017 (Toronto Transit Commission 2018). Translink's strategic plan is both a service and an infrastructure plan, and proposes to spend $23 billion to 2041, with $18 billion for new infrastructure and $5 billion for service improvements and maintenance (Translink 2013, p. 10). On a per capita level, this works out to an approximately a 40% greater investment in public transit to 2041 than *The Big Move*, but it is underway in an urban region that has steadily expanded its rapid transit and bus service during the past 30 years, unlike the GTHA (Bell and Gatien 2017). Continuing austerity policies at the provincial level in Ontario have extended a long-standing provincial refusal to meaningfully subsidize transit operations in the GTHA, with some premium exceptions as will be discussed below. The City of Toronto does receive a share of the provincial gas tax that Toronto directs towards TTC operations that accounted for approximately 15% of the agency's operating subsidy in 2015 (Munro 2016). Alongside GO Transit, the TTC remains the least subsidized transit agency in North America, receiving less than half the subsidy of Vancouver (TTC 2016b, appendix H). While Vancouver has hardly been spared the impacts of neoliberal austerity and rampant real estate speculation, it has generally elected for a far more generous approach to

both funding transit operations and capital costs motivated by the specific and tangible aim of shifting modal share when compared to the GTHA.

Metrolinx's declining modal share goals and its narrow focus on building new infrastructure, rather than building a functional transit network imperil the intended shift towards transit, cycling and walking. If the 26.3% transit modal share goal in *The Big Move* was to be fulfilled, then transit ridership in the GTHA would have increase at an average rate of 3.1% to 2031. Unfortunately, ridership growth in the GTHA from 2012-2015 stood as a lackluster 1.4% annually when averaged out over three years. Only Brampton exceeded the necessary growth rate, and Oakville and Burlington have shed substantial numbers of riders in recent years (Marshall 2016). Most transit agencies in the GTHA have been fighting to simply maintain ridership. Without graduated targets measured at regular intervals, it is impossible to ascertain whether a plan's goals are being successfully implemented, and to undertake corrective actions if targets are not being fulfilled. Instead, Metrolinx and the provincial government have shown themselves to be quite unconcerned with the sloth-like rate of transit ridership growth in the GTHA, particularly on the TTC.

Inequities of Investment – *The Big Move's* Self-Defeating Regional Bias

While heavy rail infrastructure for regional service will inevitably have higher capital and operating costs than a bus route running in mixed traffic, recent transit related decisions in the GTHA have emphasised the highly uneven distribution of resources for new transit projects that privilege regional commuters, generally located in newer, outer suburbs, over local transit in the "in-between city," the older suburbs that are now home to growing low-income and visible

minority populations (Young and Keil 2014). Regional transportation plans will usually emphasize long distance, often inter-municipal travel, and in turn likely provide greater benefit to so-called "choice riders," those not dependent on transit who generally use it to commute to work. However, the current strategy for transit expansion in the GTHA leans heavily towards regional transit infrastructure, and raises serious concerns about the equity of current transit investments.

The cornerstone of The Big Move is a major expansion to GO Transit's commuter rail service through the construction of a primarily electrified Regional Express Rail (RER) network to provide all-day trains every 15-minutes on three, fully electrified lines, and two lines that will be partially electrified on their busier portions. Additionally, other lines will see service improvements within the limitations of operating commuter trains on trackage owned by rail freight companies. The cost for the RER network is presently estimated at $13.5 billion, although no dedicated revenue stream has yet become available. The expansion of GO service will also entail the addition of new stations, including several that will be included as part of the continuously nebulous SmartTrack plan, a pet project of Toronto Mayor John Tory that continues to be whittled down from an ambitious, election-time promise of a surface subway along the lines of London's Crossrail to a handful of new GO stations, which may or may not use a TTC fare. Despite nearly a decade of studies, fare integration in the GTHA remains partial and fragmented, with a range of co-fares for suburban transit users transferring between systems, and while passengers transferring between GO Transit and the TTC now receive a reduced fare, passengers who transfer from a suburban local transit agency to the TTC must pay two fares. Yet, with an integrated fare payment system across the GTHA, there no exists no technolical

barrier to implementing a coherent and broad-ranging fare integration program. However, a continued unwillingness at the provincial level to fund the increased operating costs of inter-agency transfers or institute daily fare-capping remains a considerable impediment to regional transit that functions as such.

In an episode of astoundingly flagrant interference by a politician into the supposedly neutral process of selecting new stations, it was revealed that provincial Transportation Minister Steven Del Duca intervened to push for the inclusion of a station at Kirby, in the sparsely settled periphery of his riding in suburban municipality of Vaughan, north of Toronto. Analysis conducted by consultants hired by Metrolinx showed that a station at Kirby would result in a net loss of riders, due to longer travel times for riders further up the line (Spurr 2017a). The station's estimated construction cost was slightly under $100 million. Lawrence East, a proposed SmartTrack station, was also approved at the same board meeting, and was projected to similarly result in a ridership decline, albeit the analysis conducted for Metrolinx did not take into consideration ridership with at TTC fare, which is possible. In sharp contrast to this pair of lackluster transit performers, the TTC recently released a modest plan for expanding the agency's express bus network, consisting of new routes and improvements to existing routes (TTC 2017). The plan calls for the purchase of 34 new articulated buses for $34 million, and an annual increase of $13 million in operating costs. It is expected to add 1.2 million new riders to the TTC while improving the experience of 70 million riders per year. Express bus routes primarily serve Toronto's peripheral, inner suburbs, home to large immigrant and low-income populations of transit-dependent people. Four of five of the express bus routes introduced in 2016 have performed well above expectations (CBC News 2017). The number of

additional rides from new express services is similar to the number of new journeys projected to be added with much maligned, one-stop Scarborough subway extension (SSE), at less than *hundredth* of the capital cost, and slightly under 40% of the projected annual operating costs for the subway extension. The plan is slated to be fully-implemented by 2026, although its launch was delayed until 2019. By comparison, Seattle plans to expand RapidRide, its "BRT-Lite" system, by 13 lines by 2024 in addition to the six lines already operating in 2017. The TTC express bus plan does include some signal priority measures, but there are no funded plans for bus priority lanes, queue jumps or enhanced bus stops, which are included in Seattle's plan. Kirby and Lawrence East were subject to further analysis following revelations of their less than savoury approval, but were ultimately approved by the Metrolinx board (Spurr 2018). The ease with which they were approved illustrates the inequitable distribution of resources that prioritizes the metromobility of regional rail, while snubbing the far more cost-effective strategy of enhancing local and express bus services.

A similar dichotomy is at play in York Region, a sprawling suburban, upper tier municipality north of the City of Toronto that is attempting to densify along its major corridors. A key element in this strategy is York Region Transit's (YRT) Viva system of bus rapid transit (BRT), which began operations in 2005. A series of "rapidways," dedicated centre median bus-only lanes with *Vivastations*, are meant to whisk transit riders across densifying suburbia. The implementation of the Viva network is slated to cost nearly $2 billion, and be completed by 2020 (VivaNext). Viva operates as a mix of full BRT, with buses running in dedicated lanes, and "BRT-lite" services with buses running in mixed traffic, but with signal priority, enhanced stations, off-board fare payment, and some queue jumps. Viva is certainly a welcome addition

of rapid transit to an auto-dominated landscape, and will soon feature three connections to the TTC's subway network, along with links to GO stations. However, Viva has not been accompanied by a commensurate increase in operating funding, but instead the exact opposite has occurred.

At a time of massive infrastructure expansion, YRT has cut service on both Viva lines and on regular routes since 2010 while increasing fares, which are now the most expensive in the GTHA by a considerable margin (Marshall 2017). One Viva route was made rush hour-only, while others saw headways increase to up to 30 minutes outside of rush hour. Headways for local service in York Region connecting to Viva can be up to 75 minutes between buses. Predictably, after years of stalwart growth, YRT's ridership declined in 2014 and 2015, although it recovered in 2016 with modest growth (York Region 2017). By contrast, neighbouring Brampton, a similar rapidly growing suburban municipality, launched its own BRT-lite system in 2011, Brampton Züm. The service did not include immediate plans for dedicated busways, although these will likely be introduced eventually. Brampton Transit has seen explosive growth, particularly in 2016, growing at six times the rate of YRT, and eclipsing the TTC's lackluster ridership growth rate nearly thirteen-fold (City of Brampton 2017). Planner Sean Marshall writes "[o]ne wonders why, on one hand, there's money to be hand to build fancy new bus infrastructure when there's no willingness to fund transit that would make such capital expenditures useful" (Marshall 2017). YRT's fare increases and declining service on both its rapid transit and local service routes coupled with unprecedented infrastructure improvements for a suburban region bely a strong preference for fixed capital investments over long-term

operating investments that may be far more useful as a means of shifting modal share towards transit (Grengs 2005).

The stark imbalance between often lavish capital investments, and the pauperized operating budgets of GTHA transit agencies, who receive a miserly subsidy from the provincial government through gas taxes, betray a contradictory tendency at the heart of public transit planning in the GTHA. With limited exceptions, the kind of sustained investments in operations necessary to take full advantage of new infrastructure have been lacking, especially on a network-wide basis. While new LRT lines under construction will have their operating subsidy paid for by the province, existing feeder bus routes connecting to new transit will continue to limp along under the frugal aegis of municipal governments. Investments in new infrastructure are woefully overdue, but the continuing aversion to increasing operating subsidies, or more ambitiously raising taxes or instituting road tolls to provide dedicated funds for transit operations have become unfeasible in neoliberal Ontario. Even the mere suggestion of implementing taxes and tolls to fund transit have been met with near universal revulsion, including from the nominally socially democratic New Democratic Party. In the dramatically narrowed political spectrum of neoliberal Ontario provincial politics, the actions necessary to adequately fund transit operations have become effectively impossible.

Automatic P3's for The People

From its election in 2003, the Liberal Party of Ontario demonstrated a strong ideological bias towards public-private partnerships when building new infrastructure projects. Since 2005, new infrastructure projects in Ontario have been under the purview of Infrastructure Ontario

(IO), a crown corporation that reports to the Minister of Infrastructure. IO relies on an alternative financing and procurement (AFP) approach to new projects, whereby the private sector at a minimum both finances and builds infrastructure, but also frequently contracted to design, operate and maintain infrastructure for a period of up to 30 years (Auditor General of Ontario 2016, p. 71). The projects of *The Big Move* are delivered through Infrastructure Ontario, usually through a "design-build-finance-operate-maintain" framework. In 2016, the Auditor-General of Ontario found that IO projects came in at $8 billion above the cost of financing infrastructure through more traditional public financing (Ibid). IO countered that its procurement process had avoided $18 billion of risk being borne by the provincial government, but as the Auditor-General explains "[t]here is no empirical data supporting the key assumptions used by Infrastructure Ontario to assign costs to specific risks" (2016, p. 71). Projects of The Big Move have not been subject to a comparative analysis to determine how AFP would compare to public financing, maintenance or operations. In earlier public transit projects in Canada, design has historically been a joint endeavor between government agencies and private firms, while construction was performed by the private sector, with financing, maintenance and operations were delivered by the public sector (Siemiatycki 2006, p. 138-9). With little consultation or input from municipalities or transit agencies, Metrolinx has insisted that any new rail transit in cities that presently do not operate rail transit will be operated by a private sector vendor, often from the same consortium that built the line. As a result, only Toronto will operate new rail transit lines built within its municipal borders.

Ownership of new transit lines will remain with the province rather than being transferred to the city. Transit expert Steve Munro explains the rationale and implications of

such a structure: “The assets would be depreciated over their expected lifetimes and would show up as an offset on the provincial books to the debt raised to fund them. This is a neat bit of accounting that ignores the fact that an asset only has a real value if you could sell it and recapture your investment, but it keeps the bean counters happy and makes the books look better for the politicians” (2009). Since public transit in a North American context is almost invariably a money losing venture, it is unlikely any assets will be sold off, but instead the profitable elements of public transit will be handed to the private sector. Infrastructure in Ontario has adopted an additional exchange value orientation by serving as a means of reducing the appearance of provincial debt through depreciation. However, this is far from the only example of the prioritization of exchange value in public transit in the GTHA.

The Express Train to the Entrepreneurial State

The Union-Pearson Express (UPX) is a 23km rail line that connects Pearson International Airport’s Terminal 1 with downtown Toronto’s Union Station with two intermediate stops at Bloor and Weston. The line whisks travelers through the “in-between city,” connecting an international airport with the central business district. The UPX initially operated with a fare structure that was completely unintegrated with any existing transit service, meaning that travelers connecting via transit had to pay a double fare. However, starting in December 2017 riders transferring from the TTC receive a $1.50 discount on their combined fare. Fares on the line were as high as $27.50 when it commenced operations, nearly 9 times more than a trip on the TTC. Accordingly, initial ridership was disastrously low, reaching a low figure of an average of 2,168 riders per day in December 2016, roughly the same as the TTC’s 125th busiest bus route (Moore 2016a, City of Toronto 2016). Metrolinx ignored reports that it commissioned

prior to the line's construction that indicated ridership would be poor with the initial fare structure (Moore 2016b). During its first year of operation, the UPX received a per-ride subsidy of approximately $52.25, similar to the cost of a taxi ride from the airport to downtown including tip, and which is roughly 250 times higher than the average provincial subsidy for each TTC ride delivered through the gas tax (Spurr 2017, Munro 2016). After considerable uproar regarding outrageous fares and lackluster ridership, Metrolinx cut fares by more than 50%, and the UPX saw a trebling of ridership in short order (Spurr 2016). Increased ridership with decreased fares has resulted in a reduction of the per-ride subsidy to a more modest $11, which is still far in excess of the subsidy paid to any other transit operation in the GTHA (Moore 2017). In the 2015-2016 fiscal year, the UPX received $63.2 million in operating subsidy to move 751,000 trips, while GO Transit received $99.2 million in operating subsidy for nearly 66 million trips (Metrolinx 2016c). In addition to high fares, the UPX requires users to pay a double fare if they access a station via transit, which serves as a further barrier, and ensures the line's usage for non-airport related journeys will be minimal.

The experience of traveling on the UPX differs tremendously from the generally unpleasant task of taking transit in the GTHA, particularly a journey involves the often sardine-like conditions of an overcrowded TTC bus. The UPX trainsets feature plush seats, fold-down tray tables, Wifi, and a complimentary magazine showcasing Toronto's most "creative class" amenable artisanal vendors. A curious feature of the UPX is that because tickets can be purchased onboard, as long as a passenger has sufficient funds it is impossible to fare evade, which telling of the expected demographics of UPX ridership. By contrast, in 2016 fare evaders emerged as a potential scapegoat to partially explain the TTC's paltry ridership growth, instead

of the continued austerity that has resulted in a surface transit network that operates below services levels of the late 1980s (Munro 2017). Farmer proposes that for premium rail lines "[t]he cost, inconvenience, and minimal access points all work to filter the proper users for the premium service, so that this mass transit service, is partitioned for 'appropriate' affluent users" (2011, p. 1165). The slick station environments of the UPX sharply contrast with the generally spartan environs of a commuter rail station. The UPX trainsets also display a curious technical feature that effectively prohibits easily repurposing of the line. Unlike the GO fleet of diesel commuter trains, the UPX operates much shorter, high-floor trains that are incompatible with the rest of the GTHA's rail transit infrastructure, barring major station renovations. While the UPX will likely be electrified at an unknown point in the future, repurposing it into a multi-purpose line integrated with the broader transit network would be extremely costly.

The UPX is the only air-rail link of its kind in North America. No other city in Canada or the United States has a dedicated express rail connection linking their central business district and their international airport. Although despite having a subway connection to the airport, Chicago has built a US$213 million downtown terminal for express airport service without building the actual rail line (Farmer 2011). All existing air-rail links in Canada and the United States function as part of an existing transit network, and generally act as the terminus of lines while also serving destinations along the route. Some airport services, such as Vancouver's Canada Line, do charge a premium fare when departing the airport. Only European cities, which generally have far more developed rail infrastructure, currently possess express airport rail service, but only when local service is also available. Viewed in such a light, the UPX stands out as what Graham and Marvin would characterize as a "premium network space," which "are

partitioned off from spaces of (perceived) danger, difference and poverty whilst being ever more seamlessly linked into the customized transport, energy, water and communications that allow users to extend the action spaces to distant elsewhere" (2001, p. 301). Yet, the UPX is unexpectedly not a private entity, but rather an entirely a state-run venture that salvaged aborted plans by Canadian engineering giant SNC-Lavalin to build a similar air-rail link. SNC-Lavalin concluded that the line would be unprofitable and abandoned the venture, then known as Blue-22 in reference to the travel time between Union Station and Pearson Airport (Bow 2017). In ignoring its own studies indicating the line's fares would be too high and embarking on a project cast off by the private sector, Metrolinx embodies what Harvey (1989) characterizes as the shift from managerialism to entrepreneurialism as an urban governance strategy. The UPX is an infrastructure project that is "speculative in execution and design and therefore dogged by all the difficulties and dangers which attach to speculative as opposed to rationally planned and coordinated development" (Harvey 1989, p. 7). As a project of the entrepreneurial state, the UPX did not have to satisfy expectations of network connectivity or universal access, but rather it is a line designed as a bypass that whisks riders from Canada's busiest international airport to Toronto's Central Business District in 25 minutes.

The UPX stands out as an exemplary case of infrastructure unbundling in practice, with one major exception, it remains a wholly publicly-owned enterprise. Due to its astronomical subsidy, it is unlikely to ever be sold off to a private investor. It has engendered a curious situation in which the line has begun to compete against the TTC's 192 Airport Rocket express bus route for airport trips, meaning that two entirely publicly-owned agencies now compete for ridership for journeys across a splintering region. There is now a competitive market for airport

travel, rather than an integrated and complimentary transit system. Birch and Siemiatycki (2016) highlight that "markets are not simply an imposition *on* the state, they are also very much integrated *within* the state; thus markets are not instituted as an alternative or replacement for the state" (185). The premium network space of the UPX serves as a "glocal bypass," which is described as "[t]he material development of a network that is configured to support interaction between local valued users and spacers and global circuits of infrastructural exchange" (Graham and Marvin 2001, p. 167).

Even the 192 bus has been forced to improve its service and amenities to cater to airport customers since the opening of the UPX. It will be the first bus route on the TTC to implement a trial run of all-door boarding sometime in 2018, which is a curious choice considering the line's relatively low ridership and very small number of stops seemingly wastes the ability of all-door boarding to speed up bus travel (TTC Express Bus Study 2017). Plans to create a "second Union Station" at Pearson Airport have recently been floated, which at a minimum will include connections to a dedicated bus right-of-way to Mississauga, and presently-unfunded extensions of the Eglinton and Finch LRT lines. Such a major development would greatly increase the connectivity of the airport in the region, particularly for the enormous number of workers in

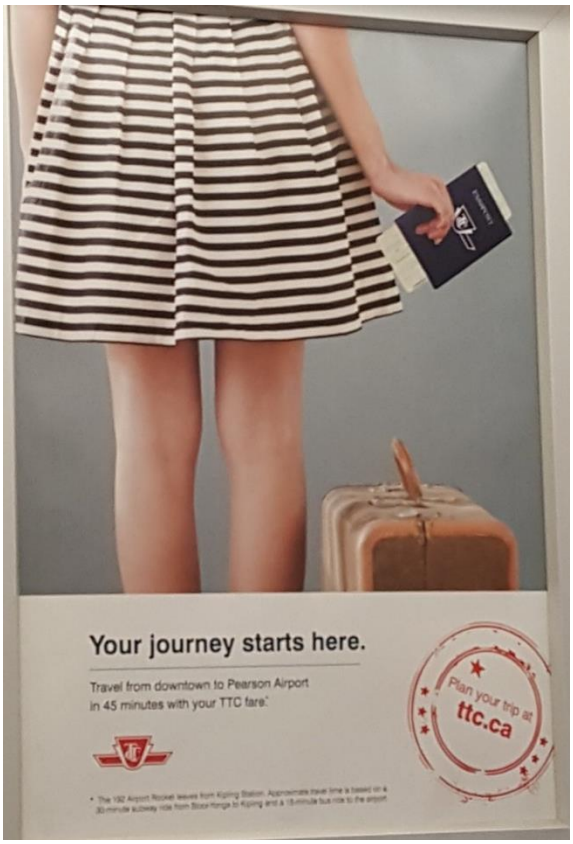

Figure 2 - TTC subway ad advertising the 192 Airport Rocket bus, emphasizing the TTC fare. (Image Credit: Alex Gatien)

the airport-area, the second largest concentration of employment in Canada after Toronto's downtown core. However, a major expansion in airport capacity partially enabled by greater pubic transit could endanger the already modest climate change goals set out by the Ontario provincial government. In this sense, improved airport transit connections have the contradictory effect of enabling the expansion of the most carbon-intensive form of mass transportation on a global level while simultaneously removing single-occupancy vehicle trips at a local level.

Conclusion – The False Premise of "Political" Politicians and Technocratic Salvation

Calls to remove the corrupting influence of "politics" from transit planning have become regular fodder in Toronto's media, where "politics" is narrowly defined as unwanted activities on the part of politicians. Such critiques fail to conceive of infrastructure as inherently political, inevitably producing winners and losers as a result of highly uneven investments (Hertel et al, 2015). As just one example among many, a recent piece in *The Globe and Mail* attributed the GTHA's transit woes to simply "politics," and proposed that transit "has to be run by an organization that operates like a business, responding to market demand – actual customers – not political demands" (Keller 2017). Another recent piece in the progressive website *Torontoist* advocated emulating Vancouver and London's transit governance approaches as a means of sorely needed transit depoliticization in Toronto, yet ignored that both cities actually have considerable more formal involvement by politicians in the governance of transit than in the GTHA (Wood 2017). While Toronto's provincial and municipal politicians have made numerous

transit-related decisions that could be described as ill-informed at best, and blunderingly ignorant at worst, the notion that only the powers of technocratic control can save Toronto from its ever unfolding transit mess is not only naïve, but potentially dangerous. Instead, the push must be for a democratic, participatory, and equity-based politics to shape both transit operations and construction. Writing about the demise of Transit City, Mettke hopefully proposes that "maybe politicization will lead to more participation, to more democratization of transit, and therefore to an increased accessibility of the transit system in Toronto" (2015, p. 239). The widespread discontent with lackluster transit service, and the flagrant use of transit projects as opportunities for political advancement provide a fertile ground for an alternative politics of transit to emerge in the GTHA. However, Farmer and Noonan (2014) recommend exercising caution around nostalgic longing for Keynesian forms of transit planning that occurred prior to the neoliberal turn of the 1980s. Writing in reference to Chicago's CTA, they write that "[t]he key lessons transit activism can draw… is that the deep structure of capitalism *per se*, and not one regime of accumulation or another, is the real force driving the inefficiency in time, energy, space, and the inequality in service that characterizes the CTA" (2014, p. 83). While such admonitions form an important base upon which to base a vision of a transit system embodying greater social and economic justice, they fall short of delivering a pragmatic vision of just what form this might take.

The task then is to sketch out an alternative vision for a local and regional public transit system for the GTHA, one which grounded in a broader framework of equity, social justice and environmental sustainability, but that also prompts us to "pay attention to the characteristics of technical objects and the meaning of those characteristics" (Winner 1980, p. 123). Indeed,

one could invoke the platform height of the UPX trains as a sort of “Robert Moses’ parkway bridges” for the early 21st century (Ibid). A more productive approach may arise through the creation of alternative visions for mobility that take into account the stridently unequal distribution of resources on flagrant display on our streets, railways, air corridors, and so on. The continuing dominance of automobility as the overriding mobility regime in the GHTA must be shifted towards a mobility regime that apportions scarce resources in a sustainable, equitable and democratically planned manner. The metromobility envisioned by Metrolinx is not intended as a re-imagined transportation regime for the GTHA, but rather serves as a means of bolstering regional competitiveness, linking premium spaces, and the creation of place-based advantages.

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Part Two:

Rapid Transit as a Suburban Renewal Project

Introduction - Bus Rapid Transit and Light Rail Transit in Canadian and American Suburbs

Across Canada and the United States, bus rapid transit (BRT) and light rail transit (LRT) have recently emerged as the technological systems of choice for new transit lines in both urban and suburban settings. While some commuter rail and subway systems have seen expansions of existing lines and increased service, transit infrastructure expansion in Canada and the United States has shifted away from subway systems, and towards less expensive bus and light rail-based systems. As of March 2018, the Transport Politic, a website that tracks transit projects in Canada and the United States, lists 83 bus rapid transit projects and 72 light rail projects currently underway at some stage in Canada and the United States (Transit Explorer, 2018). By contrast, only 23 subway projects are underway in Canada and the United States, and only two are entirely new lines.[2] As the pendulum has swung towards less capital-intensive forms of infrastructure, it has been accompanied by a move towards building new rapid transit in suburban areas where mobility regimes are organized around the single-occupancy automobile. Rather than simply a means of enhancing mobility for their citizens, new suburban rapid transit lines have emerged as a force seen to be capable of fostering new forms of the suburban built form through transit-oriented development. Championed by proponents of Smart Growth and suburban densification, new rapid transit is treated as a key element in suburban maturation, as previously peripheral areas progress into a more "urban"

[2] These are Toronto's Downtown Relief Line, and Honolulu's Rapid Rail Transit, a line that combines elements of subways, light metro and commuter rail.

form. New rapid transit projects have also emerged as key sites in the production of territorial identities, crafting both regional and municipal spatial imaginaries while also promoting a transformed built form of greater density and "complete communities" (Keil & Addie, 2016). As urban regions become increasingly polycentric, and suburban municipalities seek to bolster their standing in inter-municipal competition, while simultaneously advancing the potentially contradictory goal of enhancing regional competitiveness, public transit has emerged as a key spatial strategy that is deployed to promote speculative real estate development and regional cohesiveness.

New rapid transit projects[3] in suburban areas contain elements of both spatial and transportation planning, often with a heavier emphasis on the former. While writing about recent streetcar projects in American city centres, King and Fischer propose that "one of the underlying assumptions of modern streetcar projects is that public transport investments can and should enhance private land values" (2016, p. 384). They explain that the shift towards spatial planning "is complimented by a narrow common-sense discourse in which market competition – and the creation of a business friendly environment has become a necessary (and at times the only) value in decision making" (2016, p. 388). No streetcar projects have yet been proposed in any Canadian and American suburbs, and many streetcar lines, such as Detroit's Q-Line, have gone so far as to avoid being integrated within existing public transportation systems (Lowe & Grengs, 2018). While there are exceptions, recent streetcar projects have generally been overwhelmingly focused on spatial transformation of urban areas

[3] Rapid transit for the purposes of the essay is defined as BRT, LRT and subways.

seen to be in need of regeneration, rather than improving the experience of public transportation. By contrast, BRT and LRT projects in suburban areas are an amalgam of spatial planning with the goal of securing speculative real estate investment, and of transportation planning with the aim of improving mobility across suburbs. While these two goals are certainly not incompatible, the neoliberal turn in urban governance (Harvey, 1989; Brenner & Theodore, 2002) has resulted in transit projects that prioritize state strategies of spatial transformation in service of market forces.

This paper aims to examine the role of new transit projects, namely bus rapid transit and light rail transit, serve in the neoliberal suburb of the early 21st century. My contention is that the use value of public transit has been reduced to a secondary concern under neoliberal suburban governance. Suburban public transit has expanded beyond its traditional purpose of transporting commuters to their jobs in urban centres, and is now a key instrument of promoting "smart growth" in North American suburbs. As such, rapid transit has emerged as a spatial fix intended to bring about a transition to a more "urban" built form and landscape that will both replace and displace the sprawling, car-dependent environments that have typified North American suburbia.[4] However, the often generous capital funding, particularly in a Canadian context, for transit construction has not been accompanied by a corresponding increase in operating subsidies, meaning that he use value of public transit as a means of enhancing mobility has been undermined by a failure to increase transit service at a level commensurate with new infrastructure and a simultaneous absence of improved service

[4] For the purposes of this paper, North America will refer to Canada and the United States.

elsewhere on suburban transit systems. Analyses of suburban infrastructure have tended to focus on spatial imaginaries and state strategies associated with infrastructure, while often neglecting the grittier details concerning the specifics of the composition of physical infrastructure and particularly service levels. While I certainly do not wish to minimize the importance of examining the presence of infrastructure, such as with infrastructure and processes of state reterritorialization (Addie, 2013), infrastructure as a socioecological fix (Nugent, 2015), or as a domain of urban politics (Young & Keil, 2014), I propose that a closer examination of how service is provided on new infrastructure can provide a valuable additional analytical dimension that can clearly and tangibly detail the inequitable patterns of infrastructure investment and service provision in cities and suburbs of the early 21st century. This paper aims to contextualize the relatively recent development of intra-suburban rapid transit within a framework of neoliberal, suburban governance in which public transit has emerged as a vehicle for enabling speculative real estate development, while enhancing mobility or shifting modal share away from the single-occupancy vehicle are treated as tertiary concerns.

This paper will first turn to the role of public transit under neoliberalism, paying particular attention to the strained and contradictory relationship between public transit's use and exchange values, and its deployment as a spatial fix intended to secure capital in the built form. The next section will provide a brief overview of rapid transit nomenclature, and of the four suburban rapid transit projects currently underway in Canada and the United States. The following section will examine York Region's Viva bus rapid transit system, one of the most ambitious and most developed suburban rapid transit systems. York Region is an upper-tier

municipality consisting of seven lower-tier, suburban and exurban municipalities located north of the City of Toronto, and since 2005, York Region has embarked on building Viva Rapid Transit, an ambitious capital project to construct a network of BRT routes across a suburban region, with the overt goal of prompting a spatial transformation towards a more urban landscape. Yet, despite massive capital investments for a transit system with relatively low ridership, the project has thus far failed to attract the needed operating investments to either seamlessly link Viva to other transit agencies, or to provide sufficient levels of service to compete with the private automobile. The conclusion will provide some thoughts as to how critical sub/urban studies can contribute towards pragmatically improving the experience of suburban transit users by shifting its analytical lens to include a greater focus on the use of infrastructure, rather than simply its existence.

Public Transit under Neoliberalism

Transportation infrastructure fulfills a vital role in the circulation of capital, goods and people in sub/urban areas. Keil and Yong (2008) identify exchange-value and use-value orientations of transportation infrastructure, with the former described as the process through which:

> globalized city regions are reorganized rationally to improve the real or perceived needs of global capital accumulation through international trade and trans-nationalized production complexes into which each urban region wants to tap in order to increase its riches. On the other hand, such globalized superstructures must be interlinked with a localized transportation and transit

> system, which serves mostly the social reproduction of resident populations and their use-value-oriented everyday needs (p. 730).

Ranging from unreliable suburban local buses to gleaming airport trains, public transit embodies the two value orientations by providing a means of moving workers more efficiently, but also facilitating social journeys. Farmer explains that the exchange value orientation of public transit "creates place-based advantages, facilitates the circulation of capital, and attracts investment in local real estate markets" (2011, p. 1154). Through transit-oriented development (TOD), public transit has been increasingly enlisted as a catalyst around which speculative real estate capital cauterizes into a built form. While from a planning rationale, concentrating new development along transit is desirable in many regards, public transit[5] has in some senses reverted to its earlier Fordist orientation stretching from the late 19th century to the decline of mass transit following the Second World War, in which privately-owned railway or streetcar lines were built in conjunction with new real estate ventures that were often under common ownership (Hovinen, 1985). While certainly not without historical and geographic specificities, transit-oriented development under neoliberalism shares many characteristics with this earlier, privately-led conjunction of mass transit and real estate development. The major shift under neoliberalism is towards the state-ownership and planning of new transit infrastructure, although operations are frequently contracted out to private operators, while new transit infrastructure remains as a means of facilitating new real estate development. Critical perspectives have provided valuable insights into the dynamics of public transit under

[5] As the vast majority of transit systems in North America prior to the Second World War were privately owned, mass transit, rather than public transit is perhaps a more fitting term.

neoliberalism, but may overlook the continuities with earlier forms of mass transportation in Canadian and American cities (Grengs, 2005; Farmer & Noonan, 2014; Farmer, 2011).

In suburban North America, transit-oriented development has emerged as a major driver behind new rapid transit projects in suburban areas. Entailing densification in close proximity to rapid transit, transit-oriented development (TOD) occurs alongside existing, sometimes long-standing rapid transit, but also in conjunction with new transit lines in both suburban and urban areas. Despite the widespread adoption of TOD, some recent commentaries in progressive urbanist circles have suggested shifting the focus towards serving existing communities, rather than placing the emphasis on real estate development (Quednau, 2018). An intensive push for TOD in Los Angeles for instance has actually led to some reduction in transit use along rapid transit lines, as a result of higher income residents with their own cars living near transit, which serves as an amenity rather than a necessity (Zuk & Chapple, 2015; Rosenthal, 2018).

TOD has become a goal of growth-oriented suburban municipalities, such as York Region in the suburban Greater Toronto and Hamilton Area (GTHA), and in Washington D.C.'s suburbs in both Virginia and Maryland (The Regional Municipality of York, 2016; The Maryland-National Capital Park and Planning Commission, 2013). Projects such as Maryland's Purple Line and York Region's Viva BRT system function as a spatial fix centred around the transformation of a suburban landscape to an urban one, with improved public transit infrastructure as the spark that brings the city to the suburb. Harvey (2001) describes a spatial fix as:

> [O]ne of the central contradictions of capital: that it has to build a fixed space (or "landscape") necessary for its own functioning at a certain point in its history only to have to destroy that space (and devalue much of the capital invested therein) at a later point in order to make way for a new "spatial fix" (openings for fresh accumulation in new spaces and territories) at a later point in its history" (2001, p. 25).

Recent suburban rapid transit projects have been billed as more than simply transit, rather they are intended to attract large amounts of speculative real estate investment along the transit corridors and at nodes where multiple rapid transit lines converge (Metrolinx, 2008). The shift towards spatial planning in rapid transit projects is reflective of transit's role as a spatial fix to intended to secure capital along desirable transportation infrastructure on suburban arterials. This new development replaces, but also displaces the formerly suburban landscapes. This is representative of what is characterized as post-suburbanization, which Keil characterizes as "a more reflexive process that consists of both the retrofitting of existing suburbs and the continuing emergence of 'original' suburbanization" that "points beyond the traditional form of linear peripheral development" (2018, p. 56). Mettke proposes that new transit infrastructure offers a particularly fruitful analytic opportunity "[b]ecause changing environments provide moments in which entities negotiate the current and future places of flows, the existing and emerging dynamics are leading to multidimensional spaces of conflicts and tensions, but also to new spaces of possibilities and enablement" (2015, p. 231). New suburban public transit infrastructure has emerged as a key factor in producing both the narratives and the physical environments of formerly peripheral areas aiming to secure competitive advantages to attract

flows of capital. As such, the discursive practices surrounding new transit generally embody a series of similar narratives and priorities. Enright proposes a series of myths that are deployed in the service of a large-scale, commuter rail infrastructure plan for Greater Paris, but that can be applied more broadly:

> the assumption that infrastructure is unilaterally good for economic and social development; the necessity of the speculative investment to urbanization; the equivocation of different types of mobility – especially the false substitution of daily mobility to and from work for residential mobility; and lastly, the notion that mass transportation is also public or communal transportation (2013, p. 803).

The discourses surrounding new suburban rapid transit embody these "mobilizing myths" to varying degrees, but place a particular emphasis on the ability to attract higher densities of speculative investment that were previously possible in an auto-dominated suburb.

New suburban rapid transit can certainly lead to very real improvements in the use value of public transit to its riders, but it can also lead to prioritizing the construction of fixed infrastructure over providing affordable and reliable access to mobility. Under neoliberalism, upper level governments (national, state and provincial) have heavily favoured capital expenditures over operating subsidies, which has in part resulted in either a decline or stagnation of service levels on many transit services, especially on local bus routes, and has been most damaging to low-income people who are captive transit users (Grengs, 2005). The creation of regional, cross-municipal public transportation network has emerged as an

important goal in many Canadian and American cities. In Ontario, which last saw meaningful, regular operating subsidies from the provincial government for local transit operations in 1998, the provincial government embarked on a major capital spending project through the creation of Metrolinx in 2006. Metrolinx was initially an infrastructure construction and procurement agency, but was granted responsibility to oversee operations of the region's commuter rail and bus service, GO Transit in 2009, and the airport express service in 2015. In 2008, the provincial government released The Big Move, a regional transportation plan that called for a $50 billion investment in new public transportation infrastructure to 2041, but it has not been accompanied by a corresponding increase in provincial operating subsidy.[6] Relying heavily on public-private partnerships, and largely overlooking the details of transit operations and service integration, The Big Move signifies a contradictory attempt to build a networked transit system on a regional scale using practices that would usually be employed in processes of fragmentation of networked infrastructures (Graham & Marvin, 2001; Gatien, 2017). In spite of increasing infrastructural integration across the GTHA, measures such as fare integration or cross-municipal service remain a patchwork of half measures that do little to improve the experiences of transit users.

Transit Nomenclature: To BRT or Not to BRT?

Forms of Suburban Transit

This section will briefly provide a summary of the relevant terms surrounding rapid transit in a contemporary North American context, and will conclude with an overview of

[6] With the notable exception of the Union-Pearson Express (UPX), a limited-stop express train from Toronto's CBD to the city's international airport. The UPX receives a per ride subsidy of just over $11, compared to a subsidy of slightly over $1 for a ride on the Toronto Transit Commission.

suburban rapid transit projects that are currently underway in Canada and the United States. Bus rapid transit (BRT) refers to transit projects with buses running in their own dedicated right-of-way with some form of signal priority at intersections, prepayment at stations, and all-door boarding (Institute for Transportation & Development Policy, 2016). BRT lines often run in median lanes in the middle of streets, but can also run in completely separate right-of-ways. It is the fastest mode of bus travel and can carry the largest number of passengers. It is commonly branded separately from local bus operations. BRT systems in Canada and the United States generally carry a small fraction of the ridership of BRT systems in the Global South, such as Yichang, China's BRT corridor that serves over 240,000 passengers a day. Bus rapid transit lite (BRT Lite) has many similar characteristics to full BRT, but does not feature buses running in a dedicated right-of-way for the entire length of the route, although it may include sections of dedicated lanes and intersection treatments, such as queue jumps and signal priority. BRT lite lines usually include dedicated stations, all-door boarding and fare prepayment. "BRT Creep" is a term used to refer to the tendency of bus rapid transit systems to shed features due to budget constrains and political opposition to rapid transit. Few North American BRT lines meet the full BRT "gold" standards, and many systems feature elements of both BRT and BRT-lite. However, generally speaking BRT lines are characterized by the capacity to carry more passengers, more quickly and for a longer distance than local buses. As will be discussed below, whether they actually make use of that capacity is an entirely different matter. Many transit agencies also operate express buses with wider stop spacing, but without other features that characterize rapid transit.

Light rail transit (LRT) describes to rail-based rapid transit running in its own right of way with dedicated stations and is usually equipped with off-board fare payment, all-door boarding, and level boarding from station platforms. Light rail differs from streetcars in that they can be linked to form trainsets, feature wider stop spacing, and generally do not run in mixed vehicular traffic.[7] Light rail has become the rail technology of choice for new transit lines in Canadian and American cities. Light rail has engendered considerable political opposition in some contexts, particularly in suburban Toronto where despite progressive ideals, a suburban LRT network failed to garner a political constituency in support of the project (Kramer & Mettke, 2016). Light rail lines have often been used to link suburbs to central cities in many mid-sized urban areas with many cities building LRT networks in the past few decades, such Calgary, Salt Lake City, Denver, and Portland. All recent and forthcoming streetcar projects are being built in central urban areas, often with the overt aim of revitalizing depressed areas by attracting creative class industries to post-industrial neighbourhoods (Culver, 2017). LRT lines can carry considerably more people than BRT systems and are generally considerably more expensive to built, but since they require fewer vehicle operators than BRT lines they can be cheaper to operate.

Heavy rail consists of subways and commuter rail systems. The last new subway system to open in North America was the Los Angeles Metro in 1992, and while a number of line extensions are underway, no new subway systems are likely in Canada or the United States in the foreseeable future. Commuter rail systems are generally legacy systems built on existing railroad lines that run radially out from central business districts to move suburban commuters

[7] Although Boston's Green Line operates underground, in mixed traffic and in dedicated right of ways.

to downtown jobs. Commuter rail systems have generally focused on "choice" commuters, who choose to take transit due to the difficulty of driving to central business districts, and often feature extremely high rates of accessing transit via automobile (Metrolinx, 2016). Many subway systems also serve to bring workers from inner suburbs to CBD's, although with wider-spaced stations and generally above ground trackage outside of dense urban cores.[8]

Suburban transit has traditionally consisted of infrequent bus service, and transit stations on either subway or commuter rail lines scheduled to serve 9-to-5 commuters, but the 21st century has seen the development of rapid transit lines using different forms of BRT and LRT technologies that are designed to both link urban centres to suburban peripheries and to form inter-suburban networks. This shift towards cheaper technologies is often better-suited for sprawling suburbs, but also marks a general retreat on the part of upper level governments from meaningfully investing in the high capital costs of heavy rail. However, the shift of operating expenses downwards to municipalities and transit riders under neoliberal urban governance has been more severe than the decline in capital funding. Analyses of suburban rapid transit have tended to focus more on the existence of transit infrastructure itself and the accompanying spatial imaginaries and political economy, while devoting less attention to the ways service is provided and how riders use the system (Keil & Addie, 2016; Ferbrache & Knowles, 2017; Keil & Young, 2008; Addie, Metropolitics in Motion: The Dynamics of Transportation and State Reterritorialization in the Chicago and Toronto City-Regions, 2013).

[8] Toronto's recent suburban subway expansions (The Sheppard Line and the recently opened extension to Vaughan Metropolitan Centre) are fairly atypical in terms of being entirely underground. The proposed subway extension to Scarborough Town Centre (STC) will also be buried for its length despite the existence of a dedicated aboveground transit right-of-way that already serves STC.

The addition of metrics, such as service levels and ridership, to critical analyses of suburban transit can serve to highlight the imbalances and inequitable access to mobility, while providing a comparative framework to examine how investments in new infrastructure can shape the use and exchange values of public transit across different, often neighbouring jurisdictions. This approach can serve as a valuable means of rendering the inequitable investments in infrastructure that mark the landscapes of cities both tangible and specific.

Current Suburban Rapid Transit Projects

While there are a number of infrastructure projects that extend existing lines or will construct new lines linking urban centres to their peripheries, entirely suburban lines remain considerably less common. This section will provide a brief overview of the four largest, entirely suburban (either within suburbs or to connect different suburbs) transit projects in Canada and the United States: the Surrey LRT in Metro Vancouver, The Purple Line in Washington D.C.'s Maryland suburbs, the Hurontario LRT in Mississauga, and Viva bus rapid transit in York Region north of the City of Toronto. The Surrey LRT is a two-phase plan that will begin with an 11-kilometre line entirely in Surrey, a populous and diverse suburb of Vancouver, and will connect to Vancouver's SkyTrain network at two points. Its second phase will extend to the suburb of Langley, although it is possible but unlikely this will use SkyTrain technology. It has engendered considerable opposition from residents, largely on the basis that the line should be built as an elevated SkyTrain line like the rest of Vancouver's rapid transit system (Skytrain for Surrey). Like other suburban transit projects elsewhere, LRT was selected for its perceived ability to "transform Surrey into connected, complete and livable communities, making the city and the region more vibrant, accessible, competitive and sustainable" (Translink, 2018). The Surrey LRT

will also be privately operated, despite Vancouver's decidedly underwhelming experience with transit P3 projects, such as the Canada Line (Siemiatycki, 2006). The Purple Line in Montgomery and Prince George Counties, Maryland is a 25-kilometre light rail line connecting four suburban centres, and it will be the largest public-private partnership transit project to date in American history. It will connect to the D.C. Metro subway at four points, and while it will have fare integration with Metro, it will be operated by a private consortium (Purple Line Transit Partners). The US$5.3 billion line running through affluent suburban Maryland stands in sharp contrast to the Baltimore's aborted Red Line LRT, which was cancelled by pro-highway, Republican governor Larry Hogan in 2015. The cancellation of the Red Line and the survival of the Purple Line is yet another example of the long-standing hostility towards the poor, and heavily African-American city in a largely white and suburban state (MacGillis, 2016). Much like similar projects elsewhere, The Purple Line is touted as an urbanizing force for the glamourous and growing suburban centres of Washington D.C., and was been touted as a major selling point for Montgomery County's Amazon HQ2 bid (Thornton 2017). The Hurontario LRT in Mississauga, a large suburb west of the City of Toronto, will traverse the busy spine and major transit route of the municipality. While the line will terminate in neighbouring Brampton to the north, the original plan to connect to Downtown Brampton was rejected by a city council vote amidst vociferous resistance from wealthy residents along the route.[9] While it will connect to commuter rail, the Hurontario is the only suburban rapid transit project that will not connect to a subway or light metro.

[9] As will be discussed in the conclusion, in spite of rejecting the LRT through its downtown, Brampton has launched one of the most successful suburban BRT-lite systems in North America, and considerably improved its local bus service as well.

Viva in York Region differs from these rail lines by being bus-based, but also by forming a network of rapid transit lines, rather than a single high capacity corridor. As of July 2018, it is also the most developed system, while the Purple Line and Hurontario Line have just begun preliminary construction work, and the Surrey LRT is slated to begin construction in 2019. By using Viva as a case study, this paper aims to reflect Addie's approach to suburban infrastructure research that "[f]ocusing on the relations between the suburban and infrastructure directs investigations towards common and transferable abstractions founded on sociospatial relations, rather than the contingent attributes of entities in isolation and the contextual specificity of particular locales" (2016, p. 281). As Viva has been operating for nearly a decade, it has extensive data on ridership and service levels. Viva also possesses the most extensive discursive record surrounding the urbanizing potentialities of suburban rapid transit, making it an excellent case study of suburban rapid transit.

"Next Stop: Urbanity" – Viva Bus Rapid Transit as an Agent of Spatial Transformation

Viva Overview

Viva is a BRT and BRT-lite system that serves five of York Region's[10] nine municipalities. It was conceived of in 2005, and launched in 2008 as a limited-stop, express bus service with distinctive vehicles and livery, dedicated "VivaStations," and off-board fare payment, but which did not yet operate in its own right-of-ways. Viva has been operated by a private contractor since its inception, but it has fare integration with the publicly operated York Region Transit (YRT), which oversees Viva and sets service levels. Through a major expansion plan known as

[10] York Region is an upper tier municipality containing five largely suburban lower-tier municipalities: Richmond Hill, Aurora, Vaughan, Newmarket, and Markham, and four primarily exurban and rural communities with considerably smaller populations.

VivaNext, YRT embarked on the construction of a network of dedicated "Rapidways," dedicated transit-only right-of-ways, in 2009. The first Rapidway along Highway 7 East in Richmond Hill and Markham opened in January 2015, and was followed by the Davis Drive Rapidway in Newmarket in November 2015, and the Highway 7 West Rapidway in December 2017, coinciding with the opening of the first TTC subway extension to York Region. As of 2018, Viva consists of four full service lines and two rush hour-only services that carry slightly over 33,000 passengers on an average weekday. With a total capital budget of $1.8 billion, of which the Provincial government is contributing $1.4 billion, Viva's full network of Rapidways is slated to eventually stretch along 34 kilometres of suburban arterials, with additional services at BRT-lite standard. VivaNext also envisions a second TTC subway extension into York Region that will stretch 7.4 kilometres north along Yonge St in Richmond Hill with five new stations, but this project is currently unfunded and is likely to be delayed until after the construction of Toronto's Downtown Relief Line can relieve pressure on the overburdened TTC subway system.[11] Once

Figure 3 - VivaNext Map as of 2017. (Image Credit: VivaNext)

[11] Toronto's Downtown Relief Line is currently slated for completion in 2031, although it is far from fully funded and the election of right-wing populist Doug Ford as premier in June 2018 has injected considerable uncertainty into the future of transit projects in Ontario.

complete, VivaNext will result in the longest, entirely suburban transit system in Canada or the United States running in a dedicated right-of-way, but it will almost certainly not be the most heavily used.

"Transit Eye for the Suburban Guy" - Viva's Spatial Imaginary of the Emergent City

While Viva experienced steady ridership growth for five years after its launch, ridership plateaued in 2013 then declined until 2015 and only reached its 2013 figure in 2017 (York Region, 2018). This seesawing ridership coincided with service cuts on many routes on both Viva and YRT service, particularly through off-peak service reductions and the discontinuation of service after 10:30PM on a number of Viva lines. Headways on off-peak service on some Viva lines was cut to once every 30 minutes in 2015 and up to 75 minutes for local services. By contrast, on the nearby TTC the maximum scheduled headway at any time on any bus route is 30 minutes. Viva has brought about a meaningful improvement to public transit in a sprawling, suburban region, especially during morning and afternoon rush hours, but the scale of its capital spending far outstrips investments made in bus service elsewhere in the GTHA. In spite of kilometres of red-painted, dedicated lanes and gleaming stations, the introduction of Viva has resulted in remarkably modest ridership gains, while nearby bus services, particularly on the dramatically overburdened Toronto Transit Commission (TTC), have been starved of both capital and operating investments despite carrying monumentally higher numbers of passengers. Rather than being presented as a means of transforming mobility in York Region, Viva has been expressly branded as a means of supplanting an existing suburban landscape with an urban one through a project of retrofitting and expanding suburban arterials into aesthetically-pleasing rapid transit corridors. While far more extensive than a streetcar loop

running in a gentrifying urban neighbourhood, Viva represents a similar prioritization of spatial planning (King & Fischer, 2016). This prioritization of spatial planning has undermined the use value of transit services in York Region, and prioritized the exchange value of real estate development that is slated to accompany the introduction of rapid transit infrastructure.

This is most evident in the new spatial imaginary of York Region that has been created through Viva's marketing and promotional materials, ranging from blog posts to renderings of future streetscapes to Youtube videos (Keil and Addie 2015). Rather than promoting itself as improved public transit, VivaNext sketches out an improved and *urban* York Region. By creating new urban centres in York Region, Viva is intended as a means of bolstering the region's global standing within intermunicipal competition, and this is widely reflected in its discursive practices. Viva continually stresses the transformative power of rapid transit as an agent of spatial change in a suburban landscape in need of an urban revamping. In references to Amazon HQ2, VivanNext's blog goes so far as to claim "We are building it so they will come." Novelty and innovation are also stressed constantly, so that buses are not merely buses, but rather "rapid transit vehicles." Fairly standard features of rapid transit, such as off-board fare payment, all-door boarding and dedicated stations are depicted as novel and innovative, which they certainly are for York Region, but are commonplace features for rapid transit.

Figure 4 - VivaNext as the harbinger of the urban (Image credit: VivaNext Youtube)

The introduction of RapidWays is granted tremendous transformative power in York Region, allowing low slung warehouses to sprout into condominium towers inhabited by former suburbanites who have enthusiastically embraced the trappings of urban life. Keil and Addie explain that

> These urbanizing discourses are explicitly tied to ideas of built form and function. They constitute elements of an alternative regional development model and spatial imaginary gravitating around a central suburban axis (as opposed to established corridors within the city of Toronto itself) that challenges the territorial centrality of the urban core, the political primacy of the City of Toronto authorities and conceptions of urbanism abstracted from the pre-war city (2016, p. 899).

Viva signals the continuing shift towards polycentricity in the GHTA by demonstrating the ability of suburban actors to secure large amounts of capital funding for public transit infrastructure that is intended to attract the features and forms of development normally associated with urban centres. Yet, at least as of 2018, Viva has not brought about a shift in suburban mobility in York Region, and its urbanizing capacity still has far to go. Viva's annual report touts that "[s]ince 2006, approximately 1.7 million square feet of new office space in 20 office buildings has been created within York Region's Centres and Corridors served by Viva" and that a Viva-equipped York Region has also seen a "469% increase in multi-story residential buildings" (York Region Transit Corporation, 2016). Yet the report makes no mention of ridership or service levels, focusing only new transit infrastructure and its resultant developments. York Region's emphasis on spatial transformation through the presence of rapid transit infrastructure has

resulted in service levels that are often below comparable transit agencies, and has resulted in the major overbuilding of transit infrastructure relative to demand.

Conspicuously absent from any Viva materials is any discussion of affordability. In part due to massive capital investments and comparatively low transit usage in York Region, YRT captures the dubious distinction of being simultaneously the most heavily subsidized transit agency and the most expensive single fare in Canada. A single cash fare is $4, compared to $3.25 on the TTC, and the YRT per ride subsidy was $4.49, more than quadruple the corresponding figure on the TTC (Palisoc, 2014). YRT has also announced further fare increases in both 2018 and 2019 (York Region Transit, 2018a). Despite clear evidence that lower fares are an excellent means of increasing transit usage, this approach has been notably absent from the GTHA. Rather than focusing on improving the experience and affordability of transit users, Viva's marketing materials strive to enlist transit users in a project of urbanization. The plateaued ridership of YRT serves to indicate that the efficacy of this approach has been decidedly underwhelming if the purpose of new transit is taken to be shifting mobility towards more sustainable modes. Although in an encouraging step starting in April 2018, YRT will embark on a one-year pilot program to test out a half-priced monthly pass for low-income transit users (York Region Transit, 2018b). However, the pilot project has received remarkably little attention in YRT and Viva's online presence, going unmentioned by Viva, and receiving

only a single Facebook post from YRT in 2018, while YRT's Spotify Playlist was advertised seven times in the same period (York Region Transit Facebook, N.D.).

York's Regions Places of Transit – Vaughan Metropolitan Centre as The Imminent City

Through two provincial plans, *The Big Move* (2008) and *Places to Grow: Growth Plan for the Greater Golden Horseshoe* (2006), York Region has four centres (Vaughan Metropolitan Centre, Markham Centre, Langstaff Gateway/Richmond Hill, and Newmarket Centre) that are identified as both mobility hubs, nodes where multiple forms of rapid transit intersect, and as growth centres, where high-density development will be concentrated. These provincial plans tightly couple speculative real estate development and the introduction of new rapid transit as the primary components of growth in the GTHA. As such, these mobility hubs/growth centres currently exist as embryonic downtowns to varying degrees, hybrids of typically suburban land use patterns and built form, and smatterings of more urban development and infrastructures. Enright explains that "[t]ransportation networks here become important not necessarily for their use value (as a means of circulation and vehicles for movement), but for their ability to manufacture and identify new sites for redevelopment" (2013, pp. 806-807). While they may feature improved public transit infrastructure, York Region's growth centres are all located in close proximity to major highways, the traditional lifeblood of North American suburbs. As York Region will remain auto-dominated for the foreseeable future, the desired urban character of these growth centres may fall short of the visions put forth by VivaNext.

Vaughan Metropolitan Centre (VMC) has received the largest investment in transit infrastructure in York Region. VMC is the terminus of the newly extended TTC Line 1 subway and a major YRT/Viva hub. As of 2018, VMC exists as a curious neighbourhood of parking lots, discontinuous sidewalks and bike lanes, several rather dispersed condo towers, light industrial,

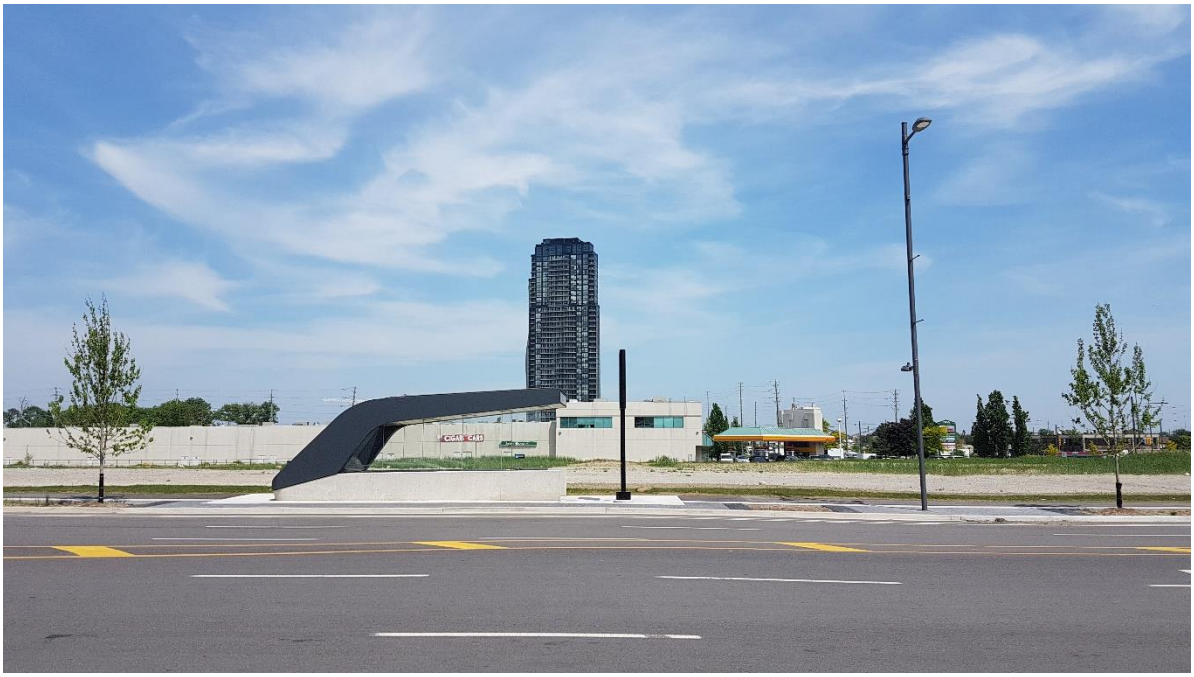

Figure 5 - Postsuburban landscape of Vaughan Metropolitan Centre. A subway entrance and a condo tower coexist with strip malls and vacant lots.

big box retail, and a single office tower. While billboards proclaim the imminent dawning of a new downtown, Vaughan Metropolitan Centre is presently neither particularly metropolitan or central. VMC is lavishly equipped with a subway station, a massive VivaStation on Highway 7, and a nine-bus bay terminal for local YRT service, yet these riches of transit infrastructure remain woefully underused, and demonstrate that transit in VMC serves as a means of enabling further speculative real estate development that may never materialize. While it will be used by YRT local buses, VMC's $32.1 million local bus terminal, the Smartcentres Place Vaughan

Metropolitan Centre Bus Terminal,[12] is severely overbuilt. In a grand overestimation of the appeal of infrequent local bus service, VivaNext's website explains that the terminal will be "in the centre of everything that is anything" (2018). It has nine bus bays, but for the foreseeable future it will only serve three routes that collectively carry under 5,000 passengers a day. The VivaStation on Highway 7 allows for easy transfer to the subway, but still requires transit users to pay two full fares to transfer to the TTC. That such a fairly fundamental aspect of fare integration continues to elude transit users is a sharp illustration of the long-standing austerity on the part of the provincial government when it comes to supporting transit operations. By contrast, YRT riders at VMC can freely transfer to Brampton's Züm, which while useful carries a far smaller number of passengers when compared to the TTC.

Viva Rapidways and The Inescapable Form of the Suburban Arterial

While VivaNext does envision two subway extensions to York Region, the plan largely relies on transforming suburban arterials to accommodate transit, pedestrians, and cyclists as a strategy to urbanize York Region. Yet, rather than repurposing already generous suburban arterials to more readily accommodate a more diverse set of travel modes, through VivaNext York Region has elected to widen suburban arterials so that vehicular capacity is not reduced. Fillion (2018) describes York Region's morphology as comprised of 79 largely mono-functional "superblocks" delineated by highways and suburban arterials, with fairly limited connections within individual blocks. Fillion proposes that "the development trajectory of the dispersed suburb is therefore not one of further intensification of existing zones, but one of replication"

[12] Quite possibly the lengthiest and most awkwardly named public transit facility in Canada.

(2018, p. 137). VivaNext and the strategy of concentrated growth around transit nodes do represent attempts to break from the past modes of development that have so far structured the built form of York Region, but they do not necessarily pre-empt the continuation of earlier processes of suburbanization or existing suburban patterns of mobility.

VivaNext is essentially a project of suburban renewal along busy arterial corridors. As of 2018, three RapidWays have been completed in York Region, consisting of two median bus lanes and stations, widened sidewalks, improved landscaping, and paint-buffered bike lanes.

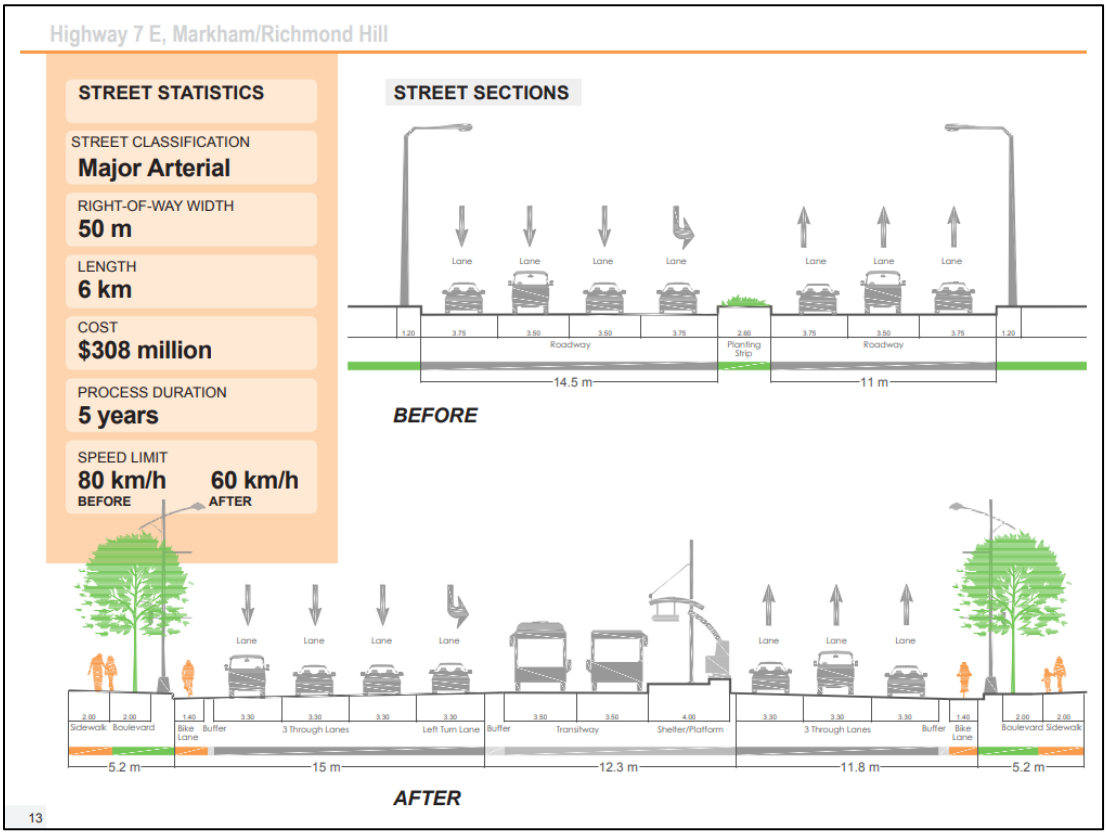

Figure 6 - Illustrating the transformation of Highway 7 into a "complete street," this diagram shows how the roadway was widened from 28 metres to nearly 39 metres. (Image credit: Complete Streets for Canada)

Highway 7 is a major east-west arterial crossing through the southern portion of York Region. Highway 7 is served by two full service Viva lines and a peak hour only Viva service, with RapidWay construction completed along much of the corridor. Highway 7 now features and improved pedestrian realm, rapid transit and cycling facilities, and speed limits were reduced by 20 km/h to 60 km/h. And yet, while they may have improved the aesthetic appearance of the street, the

Figure 7 - A gargantuan intersection immediately outside of the Vaughan Metropolitan Centre subway stop. Even with improved streetscaping, Highway 7 remains daunting for pedestrians and cyclists. (Image credit: Alex Gatien)

installation of Viva Rapidways has resulted in the substantial widening of already generous suburban arterial roads. The street has gone from seven lanes at intersections with a width of 28 meters to ten lanes at intersections with a curb to curb width of nearly 40 metres. While the appearance of the road has been improved, its function to move as many vehicles as possible at high speeds has remained effectively unchanged, and in terms of scale is now more daunting for a pedestrian to cross. Highway 7 has been touted as a "Complete Street" by Complete Streets for Canada, an advocacy and research organization (2017). While the introduction of Rapidways has reduced accidents along the corridor, the preservation of the number of lanes for private vehicles means that Rapidway construction is more expensive and complex than simply repurposing existing infrastructure to better accommodate transit.

Further north, Viva Yellow runs along Davis Drive in Newmarket, roughly 35 kilometres north of the City of Toronto. Davis Drive received a $261 million makeover to construct just

under three kilometres of bus right of ways that opened in 2015. Like Highway 7, Davis Drive's vehicle lanes were maintained, which required property acquisition and several expensive bridge widenings to accommodate the addition of two bus lanes. While ridership has increased by 50% since the launch of Viva Yellow when compared to the previous local routes, it is only used by slightly more than 1,200 riders a day, roughly the same as the TTC's 140th busiest bus route. Dedicated bus lanes have the capacity to move 8,000 people *per hour*. Viva Yellow's ridership represents a capital investment of $215,000 per rider. Meanwhile the oft and justifiably maligned, one-stop Scarborough Subway Extension (SSE) in Toronto[13] is currently budgeted at $3.56 billion, is expected to attract roughly 28,000 daily passengers, at a per rider capital cost of $127,000.[14] The Scarborough Subway Extension has been subject to a seemingly unceasing cycle of debate, political maneuvering, phony studies, cries of protest from urbanite commentators, grassroots movements advocating for a return to light rail, tri-party consensus on the subway, and so on. While on a smaller scale, Viva Yellow represents a considerably higher capital investment per rider than the SSE, but the project has not been accompanied by years of uncertainty and a torrent of political squabbling. Despite being separated by only 50 kilometres, Viva Yellow and the SSE highlight the dysfunctional, and piecemeal approach to planning new transit projects in Ontario, but also serve as a telling juxtaposition of depoliticized transit infrastructure in an outer suburb with urban aspirations, and a hyper-politicized project in an inner suburb fueled by suburban resentment often directed at "urban" streetscape

[13] The Scarborough Subway Extension is a one-stop addition to Line 2 of the TTC's subway. Promoted by Rob Ford, a pro-car former Mayor from inner suburban Toronto, it replaced a provincially funded light rail line with seven stops. As of 2018, its final cost is expected to be more than $3.56 billion. The extension is presently in the initial planning stages, but the election of Doug Ford as premier of Ontario in June 2018, who has expressed support for a three-stop subway extension, could further delay the process.

[14] However, the capital cost per new transit user for the SSE is far higher than Viva Yellow.

features such as bike lanes and light rail lines. Viva's strategy of maintaining vehicle lanes is an effective, yet rather costly means of assuaging suburbanite motorists that their vehicles will be accommodated in the urban future of York Region.

Conclusion – The Possibilities of Equitable Suburban Transit

Bus Landscapes of the In-Between City

While Viva certainly has lead to real improvements in suburban mobility for some residents of York Region, the expensive fares, non-existent fare integration with the TTC, rush hour-only routes, poor local service, and infrequent service outside of rush hour severely hamper the ability of public transit to serve as a viable alternative to the private automobile in York Region. The focus on infrastructure and the aesthetic reordering of streets as a means of attracting speculative, real estate capital has meant that service and fare affordability have been rendered tertiary concerns. While the continued lack of fare integration with the TTC rests with Metrolinx at the provincial level, York Region and Metrolinx have built considerable physical infrastructure to integrate both Viva and local bus service with the newly constructed subway extension, yet riders must still pay a double-fare to transfer onto the TTC. The current spate of transit projects set forth in The Big Move are on an unprecedented scale for Ontario, but they do not necessarily represent improved transit service. Rather, new transit projects in the GTHA are often valorized for their mere existence and ability to serve as an amenity to attract real estate capital.

As such, relatively cost-effective measures to improve public transit are often starved for funding, particularly if they involve increased operating subsidies. As just one example, a

relatively modest plan to improve existing express bus service and add a number of new routes in Toronto was approved in 2017, with a capital budget of $34 million over ten years (Toronto Transit Commission, 2017). Once fully implemented, it is expected the express bus services on the TTC will be used for 70 million trips a year, more than three times the annual ridership on York Region Transit. Yet express bus service improvements have acquired no political champion or funding from upper levels of government. Several individual TTC bus routes carry more passengers than the entire Viva network combined, yet funding for improved bus infrastructure in the City of Toronto has been virtually non-existent. While there are some loosely enforced, rush hour-only bus lanes, Toronto is only home to a single bus-only right of way, the York University Busway, which has been rendered largely obsolete by the opening of the subway extension to Vaughan Metropolitan Centre.

Toronto's inner suburbs, with high concentrations of poverty, people of colour and recent immigrants, are landscapes of suburban arterials where buses form the dominant mode of public transit. Young and Keil characterize Toronto's marginalized inner suburbs as "the in-between city," defined by "a combination of obsolescence and overburdening through the (local) state" (2014, p. 1593). Toronto's in-between city shares many similarities with York Region's auto-dominated mega grid, albeit it remains denser and is generally better served by still inadequate public transportation. While whittled away to a fragment of its initial scale, Transit City put forth a vision of an inner suburban landscape connected to rapid transit via light rail lines, and represents a similar blending of spatial and transportation planning as represented by Viva's Rapidways (City of Toronto/Toronto Transit Commision, 2005). Addie explains that "LRT lines would operationalize a state spatial strategy integrating marginalized

inner suburban 'priority neighbourhoods' (home to many low-income and visible minority residents) into the urban fabric *of the city* while stimulating economic investment in, and radically transforming modernist, autocentric landscapes" (2013, pp. 204-205). With only one of the eight originally proposed lined currently under construction in mid-town Toronto, the impact that Transit City could have had on Toronto's inner suburbs remains largely speculative, but it serves as a reminder that the dynamics of spatial planning through new transit do not necessarily have to further speculative real estate development as their principle goal.

Service First BRT in Brampton

In contrast to the extremely modest approach to improving suburban bus service in the City of Toronto and the urbanizing project of Viva in York Region, Brampton Transit's Züm stands as one of the most successful plans to improve suburban public transit in Canada or the United States. Brampton is a suburban municipality of 570,000 people located immediately to the west of York Region and northwest of the City of Toronto. Brampton Transit launched a BRT-lite service branded as Züm in 2010, and it now consists of five lines that connect to neighbouring transit agencies. While it has co-fare agreements with most neighbouring local transit agencies, which include free transfers to YRT and reduced fares for transferring to GO Transit, like all other local transit agencies, Brampton Transit still does not have any sort of fare integration with the TTC. Unlike Viva, Züm is publicly owned and operated by Brampton Transit, and while it is branded separately, it is not accompanied by an expectation of bringing about urban transformation of a sprawling suburb. While dedicated lanes are planned in the future, Züm is currently a BRT-lite system with dedicated stops spaced at wider distances and more frequent service than local buses. With a capital investment of $285 million, Brampton has

launched five rapid transit corridors for slightly more than the cost of Viva Yellow in Newmarket. Brampton has a far smaller population than York Region, but Züm has proven to be a remarkable success, and as of 2017 carries nearly 20,000 more passengers than the Viva network. Brampton Transit has enjoyed the highest transit ridership growth rates in Canada for several years running, with ridership growing a stellar 18.4% from 2016 to 2017, while during the same time period, TTC ridership shrank by 0.8% and YRT grew by a modest 1.2% (York Region, 2018). Brampton Transit has also steadily improved service on local routes while introducing rapid transit. By focusing on improving both rapid and local service as complimentary elements of a transit network, Brampton Transit has far outperformed YRT in terms of attracting riders at a small fraction of the capital cost of the Viva network.

Towards Equitable Suburban Transit

While not without drawbacks, improvements to bus service generally represent the least costly and often quickest way to improve public transportation, particularly in suburban areas. Keil and Addie observe that "BRT may help integrate regional space but the necessary splintering of local and express routes privileges particular journey types, riders and regional rhythms of mobility" (2016, p. 904). This certainly can be the case, particularly if BRT lines are implemented at the expense of local transit, but as Brampton demonstrates improving both rapid and local transit simultaneously is an extremely effective way to grow ridership. Not only can the introduction of express or rapid bus service increase ridership, but it can also substantially improve the experience of existing transit riders. The introduction of Viva has seen the splintering of public transit into state-run and private operation in York Region, but this arrangement has not been adopted by other express or BRT services in the GTHA, such as in

Mississauga, Brampton, Durham Region or the City of Toronto. However, Metrolinx has espoused a rigidly ideological drive to ensure private operation of new rail rapid transit lines, with the exception of those in the City of Toronto itself. At present, it is likely that the Hurontario LRT in Mississauga will be privately operated, although considerable public opposition has arisen surrounding the private operation of Hamilton's future light rail line, and the Amalgamated Transit Union Canada has launched a well-funded "Keep Transit Public" campaign (Amalgamated Transit Union Canada, 2018). Ultimately, the longstanding failure of the provincial government to adequately support transit operations in the GTHA, with some very limited exceptions, is the greatest obstacle in creating a coherent network across the region, especially with regards to linking the City of Toronto to its immediate surrounding suburbs through an integrated fare system. Despite the advent of Metrolinx as a coordinating body for infrastructure construction and regional transit operations, its existence has not resulted in a coherent approach among transit agencies to new transit infrastructure or improved service in the GTHA.

Suburban rapid transit lines do possess potentially transformative characteristics, but can also serve to retrench and reinforce existing inequitable distributions of wealth, power, and access to services. Addie explains that "[n]odal connectivity integrates space into distinct topological landscapes that internalise power geometries and processes of uneven development at the same time as they make multi-locality life possible" (2016, p 275). Suburban rapid transit projects have so far embraced discourses of urbanization through the construction transit infrastructure, rather than fostering alternative conceptions of suburban mobility. However, more modest scaled projects to improve suburban public transit that have

not involved building expensive transit right of ways, such as Brampton's Züm, have generally not been accompanied by similar expectations of urbanization.[15] Advocates of more equitable suburban transit systems should be wary of the enlistment of new transit as a vehicle for urbanizing the suburbs through market-rate densification, and ensure that the improvement of transit service on a network-wide basis is a key element of any plans to improve suburban transit systems. New transit infrastructure is an essential component of shifting suburban mobility in a more sustainable direction, but it is equally vital to ensure that it forms part of an integrated public transit network that is affordable, reliable and easily accessible.

[15] However, that does not mean similar expectations are not present elsewhere in municipal discourses, such as in Brampton's Official Plan, rather that public transit is not treated as a vessel for spatial transformation.

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Part Three:

Places of Transit Photo Essay

Drawing on trips to England and Italy, and visits to suburban Toronto, this photo essay depicts the "places of transit" that are create in proximity to public transit infrastructure. It is an exercise in urban landscape photography that seeks to depict the forms of housing and office development that are occurring in both central cities and urbanizing suburbs in Canada and Europe. The photo essay aims to highlight that transit-oriented development tends to lean heavily towards processes of urbanization in suburbs through the construction of large amounts of market-rate development. Such an approach is doubly speculative, as it anticipates both a major increase in development as a result of transit access, and simultaneously assumes developments will create the necessary ridership to make the often extremely expensive infrastructure worthwhile. Drawing on *Exercises in Urban Reconnaissance*, the photo essay aims to show that "[i]nfrastructure is the in-between that produces complexity out of chaos, the systemic element that generates organisation, the framework that models development and growth" (Tripodi, N.D.). As such, it is important to note that transit does not necessarily lead to development, nor does its absence inhibit it, but rather can serve as a force capable of sculpting the built form if state and private industry spatial strategies are in alignment.

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Figure 8 - Postsuburbia. A billboard in Vaughan Metropolitan Centre that does not advertise a specific product or development, but rather boldly announces a downtown. The billboard is located in an empty field sandwiched in between a Home Depot, and a major highway.

Figure 9 - The nearly completed, $34.5 million SmartCentres Place Vaughan Metropolitan Centre Bus Terminal. The awkwardly named facility will accommodate three bus routes with a combined ridership of under 5,000 people.

Figure 10 - Postsuburbia continued. Taken from a highway overpass, the image shows one of York Region's prospective Amazon HQ2 sites in the foreground. Highways, big box retail, megaplexes, condos, bus rapid transit, and a subway stop are all within easy walking distance, but would you walk in this environment?

Figure 11- VivaStation in Markham Centre. Despite claims of "rapid transit," the branch of Viva Purple serving Markham's gradually developing downtown only runs once every 30 minutes outside of rush hour.

Figure 12 - Unionville GO Station in Markham. Despite nearly 40% of users living within 3 kilometres, 0% of GO passengers arriving at the station walk or cycle. To cover the 900m distance from Markham Centre requires walking nearly 1.8 kilometres.

Figure 13 - Tram in suburban Florence.

Figure 14 - Light rail station and adjoining transit-oriented development in the form of low-rise apartments in Scandicci, a suburb of Florence.

Figure 15 - New and older apartment buildings in Milan. Located immediately next to a commuter rail station.

Figure 16 – This dreamscape of late capitalism could be anywhere. It is located within a short walk of a major train station in Central Milan.

Figure 17 - Gleaming office towers loom over luxury housing immediately next to a station on Milan's newest Metro line.

Figure 18 - Transit pastoral in suburban Milan.

Figure 19 - View from the tube of massive construction immediately next to the station in north-central London.

Conclusion – Thinking About Transit

While critiques of public transit under neoliberalism are certainly welcome and useful, advocates for a more just and sustainable transportation system may find that to articulate alternative visions of public transit may be a somewhat more difficult task. In recent debates surrounding transit construction in the GTHA, empirical arguments have frequently been subsumed to parochial and opportunistic politicking. In spite of a seemingly overwhelming case against its construction, advocates for the Scarborough Subway Extension of the Bloor-Danforth Line in Toronto have managed to steer the project through a variety of hurdles put forth by politicians and advocacy groups attempting to use arguments rooted in empirical data to oppose the subway project and return to a light rail-based alternative. The project enjoys all-party support in the provincial legislature, and has been able to reliably secure majority support and mayoral backing in Toronto's City Council. The project has already undergone massive cost increases, with a further escalation of costs expected to be announced in the near future, but with city council's acquiescence the release of updated cost estimates has been delayed until after the municipal elections in the fall of 2018, even though they will be ready beforehand (Pagliaro, 2018). The rather dismal recent track record of progressive advocates in Toronto when it comes to questions of the routes and technological choice involved in building new transit infrastructure serves demonstrate that purportedly rational and fact-based discursive practices surrounding transit may be far less effective than their proponents may believe.

Measures such as a low-income fare pass and an improved express bus network do serve to promote more equitable access to transit in the City of Toronto, such measures pale in comparison to the scale of investments being made in projects such as the Union-Pearson

Express or the subway extension to Vaughan Metropolitan Centre. The massive service increases and infrastructure investments being made into Regional Express Rail represent a desire to improve certain scales of public transit journeys, namely those from urbanizing suburban centres to the core of the City of Toronto. Young and Keil explain that "infrastructures that are built to connect centres actually disconnect those non-central spaces that lie in-between" (2010, p. 88). Advocates for a more equitable transit system should not inherently oppose new infrastructure by any means, but rather should recognize that transit ridership and the lived experiences of transit users will be best served by concurrent investments in both transit operations and new infrastructure. While the current wave of investments in infrastructure underway in the GTHA will certainly improve public transit in many respects, both in the forms of infrastructure envisioned, and the lack of operating support and specific policies, such as fare capping or free inter transfers between systems, serve to limit the effectiveness of capital investments in public transit.

Shifting towards a use value orientation for public transit requires a sea change in how transit is conceived that must be situated within a broader reconception of the sub/urban. With regards to public transit, this could take the form of placing the emphasis on planning in the experiences of transit users themselves. Transit Centre, an advocacy and research organization, advocates for a far more nuanced perspective rooted in the experiences of transit users. They propose eliminating the distinction between "choice" and "captive" riders, and argue that embracing the diversity of transit users and incorporating those perspectives into every aspect of transit planning and operations (Higashide & Accuardi, 2016, p. 23). They also emphasize that transit riders value service frequency and reliability improvements above all other factors,

and that while not unwelcome, measures such as free wi-fi do little to induce transit use (Ibid, p. 58). Quite simply, the use value of public transit as a means of moving cheaply, quickly and comfortably matters far more to transit users than grand schemes of urbanization or architecturally ornate transit facilities.

Beyond equity, a deeper understanding of sustainability and public transit is also necessary. As climate change becomes an increasingly dire global crisis, a shift towards collective mobility is often touted as a potential means of reducing greenhouse gas emissions from transportation. Unfortunately, transit is not necessarily a sure way to reduce greenhouse gas emissions. Saxe et al (2017) calculated that the Sheppard Subway Line in Toronto may take up to 35 years to begin offsetting the greenhouse gases produced by its construction. Underground projects require massive investments of not only money, but also materials and energy. Recent subway projects in Toronto, such as the Sheppard Line and the subway extension to Vaughan Metropolitan Centre, have attracted relatively few new transit users, rather they have largely shifted bus journeys to a different form of transit. Similarly, the Scarborough Subway Extension (SSE) is expected to produce slightly over 2,000 additional transit journeys a day while adding considerable amounts of travel time to bus commuters (Pagliaro, 2017). The SSE is rendered even more costly by failing to make use of an existing surface transit corridor used by the Scarborough RT. Similarly, the expansion of suburban arterials in York Region to accommodate Viva Rapidways adds considerable construction costs while maintaining the auto-dominant character of the corridor. The repurposing of existing infrastructure should be a priority for progressive advocates of equitable and sustainable public transit. Suburban arterials offer an excellent opportunity for this approach, which may soon

take place with the Finch W. LRT in Toronto's inner suburbs. However, the TTC has espoused creating transit-priority corridors on Toronto's suburban arterials since at least the agency's 2003 Ridership Growth Plan. While not only potentially capable of furthering transit equity, a more incremental program of network-wide service improvements may also produce far fewer greenhouse gas emissions than focusing limited resources of extremely capital and resource intensive projects that are relatively ineffective generators of new transit journeys.

Planning for a more equitable and sustainable transportation system requires a field that seeks to address and rectify the myriad of environmental, social and economic challenges that become ever more pressing. Goonewardena writes that:

> Neoliberalism legitimates a historical situation in which the 'economy' subjugates every aspect of human life to its own putatively autonomous laws, often with inhuman consequences. Progressive planning strives for exactly reverse: to guide economic interaction among other social relations according to human processes far more radically democratic than the ones we now possess (2003, p. 215).

While this is certainly easier said than done, a radical transformation of our transportation system will only really occur within a radical transformation of a much broader scale. Keil proposes "that the urbanization of the world has the potential (in no way reached at this point) of liberation from the contradictions and oppressions of the capitalist-colonialist juggernaut of industrial societies" (2018, p. 5). Practicing transportation planning that is participatory,

democratic and aligned with furthering social inclusion, economic justice and environmental sustainability is at the very least a starting point brimming with potentialities.

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