ADDRESSING CHALLENGES TO MOBILITY HUB IMPLEMENTATION AT SUBURBAN COMMUTER RAIL PARKING LOTS IN GREATER TORONTO

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ABSTRACT

This paper examines the issue of parking demand and station area office development at station area mobility hubs. Metrolinx, the Provincial regional transit-planning agency in the Greater Toronto and Hamilton Area, has identified mobility hubs at locations with high transit connectivity and potential for mixed-use intensification. The Mobility Hub Guidelines provide a vision that emphasizes placemaking and station functionality. Attracting the desired form of development to mobility hubs will require a new approach to parking management and station access. This must address market realities and the double parking burden between the station and new developments. A variety of approaches are considered which could be implemented in various combinations at different mobility hub locations. These approaches include fine-tuning parking standards, reducing parking demand and facilitating a modal split shift in station access. The paper highlights that a number of innovative approaches are available, but will require proactive involvement from interested agencies.

Key Words: Mobility Hubs, Parking Demand Management, Office Development

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1. INTRODUCTION

Recognizing that a wearing congestion problem in the region is significantly rooted in employment location and commuting patterns, Ontario has embarked on a vision of comprehensive land-use and transit planning around mobility hubs. Identified through the Provincial regional transportation agency, Metrolinx, these hubs are envisioned as places of high connectivity and intensified land-use. The concept offers the promise of improving commuting efficiency while simultaneously enhancing rider experience and the prominence the public transit network. With planning still in its infancy, areas identified as mobility hubs take a wide variety of forms with differing levels of existing placemaking and a typology distinguishing certain contextual characteristics. This paper concerns mobility hubs situated within emerging suburban centers that are currently surrounded by large amounts of surface parking. It is a set up which is not conducive to the vision established in the Mobility Hub Guidelines. To overcome the challenge presented by surrounding surface parking planners will have to utilize a comprehensive new approach. While in the past, free parking capacity has been viewed as a driver of ridership growth, this paper will assert why this paradigm should be discarded in favour of converting surface parking into transit supportive developments that support the mobility hub concept. Acknowledging the challenges to achieving this new approach, the paper will provide a robust conceptualization of the parking conversion issue and discuss a variety of strategies towards it. Various combinations of these strategies will be necessary at different mobility hubs sites in order to achieve the envisioned urban form. Yet a sustained dedication to the new approach will be needed.

2. METHODOLOGY

It is not yet fully understood how mobility hubs in the Great Golden Horseshoe will be realized. A number of questions remain to be answered as the focus move to the site-specific level. The great extent of work completed to date largely consists of visioning. Accordingly, the focus must now switch to implementation and translation of the mobility hub principles so that they can be imbedded in local land-use policies. Implementation must involve the formulation of a development regime in station areas that can prioritize, coordinate and advocate for station area development. Broad questions concerning parking demand management, station access and the scope of agency mandate are currently being considered.

This paper works within this context to discuss the consideration of future approaches to development on lands currently occupied by surface parking lots. This issue will be addressed above a site-specific level to comment on the broad issue of how surface parking can successfully be turned into desirable development at GO parking lots in general. The objective is to amalgamate the multitude of complex facets of this issue into a single conceptual element of mobility hub implementation. This will be accomplished by splitting the issue into the two core areas of station area office development and station access strategies.

Station area office development will be assessed based on a literature review of its implementation in other locations and the market realities within the Greater Golden Horseshoe. The literature analysis will be divided into an assessment of the

necessary characteristics of successful station areas as well as their role within regional employment and economic strategies. Key informant interviews, examination of related development proforma and analysis of market conditions have been used to comment on the potential for suburban station area office clusters and related challenges. A similar literature review was conducted around station area access strategies. Findings from this literature review were combined with an analysis of station access statistics provided by GO Transit in order to comment on the nature of the station access problem and potential courses of action. Key informant interviews also included discussions of station access and were used to guide research and discussions. The overall process of the literature review and discussions with key informants was guided by the research questions.

Research questions were developed with regard to Metrolinx presentations on the subject of mobility hub implementation. Informal consultation with Metrolinx staff isolated a problem that was current and relevant and that addressed an apparent conflict between functional and development concerns. Methods of attracting office development and strategies for replacing parking were two key areas identified to focus research. Accordingly, the research questions were established to focus on the central question of how to develop lands currently use by parking without compromising mobility. This is the core question of this research. Additional research questions identify more specific elements of this initial question including the use of phasing to convert parking lots, types of uses and a specific focus on office development. The question involving office development should not be construed as

precluding other land-uses but is meant to identify that high-density employment uses are of particular interest in station areas. The final research question is intended to encapsulate others before it in a way that specifically ties back to a holistic consideration of the approach towards this issue.

Research Questions:

- How can transit agencies and local municipalities coordinate phasing to convert surface parking into developable land without compromising station functionality?
- What types of uses could and should be attracted to mobility hub areas?
  What impediments exist to attracting these uses?
- How can more office development be realized in station areas?
- How should Metrolinx conceptualize its role in station area development and management of the surface parking land bank?

Building on the research questions, the literature review was further focused on several subjects necessary to understand all parts of the issue. The first focus involved theoretical work around the role of station areas, their role in the city as well as work around the design of such areas and interaction between business and urban design. Another important focus was on parking demand management and reduction strategies, including critical assessments of the role and effects of excessive parking supply. This pertained both to commuter rail park and ride lots as well as to the types of development that could be built within them. A final general topic was the management and development regime of such station areas.

A total of seven key informant interviews were conducted with individuals involved in a range of expertise. These included planners with public agencies, experts in parking demand management, commercial leasing brokers and academics. Informants were selected so as to range from a close understanding of GO Transit parking lots to more abstract expertise in the general concepts involved. Interviews focused both on the issue of managing demand for commuter parking lots and strategies for attracting development. Confidentially was a condition of consent for all interview subjects and insights have been neither quoted nor sourced accordingly. Interviews have instead been used primarily to guide research direction and assess potential recommendations.

3. POLICY REVIEW

The impetus for mobility hub planning comes from within a broad shift in Ontario's land use planning framework. Beginning in 2005 the provincial government began a concerted effort to consolidate growth and infrastructure planning in a way that utilized existing assets while promoting desirable development. The effort resulted in the Growth Plan for the Greater Horseshoe, a document that guides all municipal Official Plans and broadly directs the future patterns of growth in the region. This policy shift created a focus on intensification, directing substantial amounts of growth into the existing build boundary. A significant step towards this was the identification of Urban Growth Centers (UGC) at locations already well served by required infrastructure. This recognition of the role of infrastructure, especially with regards to public transit, included a commitment to direct infrastructure spending on projects that are conducive to the Growth Plan and its principles. Facilitating increased transit ridership by linking land use and infrastructure investment.

The new land-use planning regime was initiated through the Places to Grow Act. This legislation set the objective that future growth be accommodated in a coordinated manner that enhances global competitiveness, values public investment and makes use of existing infrastructure. This legislation gave the Province the ability to initiate broad plans and to direct and enforce their conformity on municipalities. The Growth Plan for the Greater Golden Horseshoe (Growth Plan) acted on this new power in 2006.

Growth Plan for the Greater Golden Horseshoe

The Growth Plan brought about a substantial change and posed many new challenges to municipalities and local governments. A central component of the plan was the allocation of residential and employment growth planning numbers to each upper-tier and single-tier municipality in the region. All municipal governments have been required to update their Official Plans to plan to their share of the province's growth targets; this process remains ongoing and is at various stages in different municipalities throughout the region. The challenge for municipalities is further increased by the Growth Plan's requirement that 40% of all new residential growth must take place within the existing urban boundary starting in 2015. New development occurring on greenfield land is required to follow the principles of 'complete communities.' Overall development averages across a municipality must meet a density standard of at least 50 jobs and residents per hectare.

The Places to Grow Act contains provisions allowing the province to make amendments to municipal plans without recourse for appeal. This fact crystallizes the considerable pressure on municipalities to meet residential and employment growth targets through infill development. For many municipalities in the region, the prescribed growth pattern represents a substantial shift away from what had become customary. The need to facilitate growth at key infill locations identified as mobility hubs must be considered within this context. Municipalities and developers must look for new forms of development in order to meet the ambitious growth requirements put forward by the province. Addressing mobility hub

implementation should therefore be considered as an important way of meeting the challenges of the Growth Plan and creating new best practices in infill development. Although mobility hubs are not specifically part of the growth they compliment the spirit of its policy direction and indirectly support its implementation.

Urban Growth Centers

The Growth Plan included the identification of 25 different Urban Growth Centres (UGC). Section 2.2.4 of the Growth Plan lays out the concepts behind UGCs and their corresponding requirements. The province, in consultation with each municipality, established the locations and clarified the approximate borders of the UGCs in a 2008 technical paper. Many of these areas are congruent with sites identified as mobility hubs.

Figure 1: Locations of Urban Growth Centres

Source: Ministry of Energy and Infrastructure. *Size and Location of Urban Growth Centres in the Greater Golden Horseshoe, 2008.*

The growth plan indicated that UGCs would serve distinct but complimentary roles for the public and private sectors. For the public sector they serve as focal points for institutional and public service investments including supportive transit infrastructure. For the private sector, UGCs are intended as magnets for attracting investment from significant employment uses and as places that could absorb substantial amounts of new residential and employment growth.

Finally, the Growth Plan established specific density requirements for UGCs which differed depending on their location relative to the centre of the region. Those within the city of Toronto were mandated a minimum of 400 jobs and residents per hectare. This number decreased to 200 jobs and residents per hectare for the rest of the municipalities on the Toronto side of the Greenbelt and 150 jobs and residents per hectare for the outer municipalities, on the far side of the Greenbelt relative to Toronto. It should be noted that for the purposes of this paper, the target of 150 jobs and residents hectare applies to the suburban mobility hubs in question. While mobility hubs are not legally bound to Urban Growth Centres they have deeply complimentary objectives and vision. The mobility hub can be seen as seeking ways to constructively implement Growth Plan principles.

The Big Move

Working within this policy emphasis of coordinating infrastructure and land-use planning, Metrolinx, the Province's regional transportation agency, has developed plans to guide transit planning and maximize the potential of station areas. Transportation

planning in the Greater Golden Horseshoe is described in the visioning document *The Big Move*, the regional transportation plan (RTP) produced by Metrolinx in late 2008. The RTP creates a vision for a broad transportation across the region over the next several decades, laying out plans for improved customer experience and a more comprehensive network across the entire region. The RTP identifies nine 'big moves' as priority areas that will have a transformative impact. The seventh big move is "a system of connected mobility hubs" (Metrolinx, 2008).

Mobility hubs are mentioned throughout *The Big Move* as focal points for improvement of customer experience, promotion of active transportation, support of high-density development and as anchors of major services. In support of this priority action, the document proposes several courses of action to pursue the realization of mobility hubs within a strategy of creating transit supportive communities. Parking is mentioned considerably in this section through two recommendations. The first is to create multi-stakeholder roundtable to create a comprehensive study on parking standards, designs, costs and implementation. This point notes specifically that the transition from free to paid parking and the segregation of parking costs from fare revenue should be studied. The second major reference to parking references updating municipal parking and zoning by-laws to include a variety of new ways of recognizing parking, establishing maximum parking and reducing minimum requirements.

Regarding implementation, the RTP recommends increasing public investments towards mobility hubs and taking full advantage of development tools such as TIFs. Perhaps more

noteworthy however there is also mention of developing a "transit related urban development capability to lead or facilitate development (Metrolinx 2008, pg 47). Finally, the RTP also lays out the foundations for a set of guiding principles around the objective of mobility hub design. These are listed under strategy 7.20 and are transcribed in Figure 1 and guide the mobility hub guidelines.

Figure 2: BIG MOVE Priority Action 7.20

Stations on the regional rapid transit network shall be planned, located and designed to:

- Maximize transit ridership
- Maximize integration of transportation service
- Prioritize access by transit, walking and cycling;
- Optimize transit cost-effectiveness and operational considerations;
- Maximize integration with the surrounding neighbourhood to create a walkable environment;
- Optimize development opportunities.

Source (Metrolinx 2008, pg51)

Mobility Hub Guidelines

The Metrolinx *Mobility Hub Guidelines* (MHG) were released in early 2011 and represent a continuation of the work proposed in the RTP as well as previous green papers. The guidelines themselves are a compliment to *The Big Move.* While some municipalities have begun to incorporate mobility hubs into the Official Plans, the guidelines themselves are not legally binding. Explicit within their preamble is a mention of their position within the framework of the Growth Plan for the Greater Golden Horseshoe and the Greenbelt Act. This is most obvious in the overlap between the MHG and the urban growth centers identified in the Growth Plan. Mobility hubs help to address

Figure 3: Mobility Hub Locations in the GTHA

Mobility Hubs as identified in The Big Move, November 2008.

Source: Metrolinx. Mobility Hub Guidelines. 2011

how they will interact with the new public transit infrastructure considered necessary for their successful implementation. Within this policy context, the guidelines themselves are highly subordinate. They are not binding on municipalities. Instead they are meant to coordinate planning at transit hubs across the region and demonstrate how to maximize land use and interconnectedness at centralized and important parts in the regional system.

The guidelines identify mobility hubs as "places of connectivity where different modes of transportation – from walking to riding transit – come together seamlessly and where there is an intensive concentration of working, living, shopping and/or playing" (Metrolinx 2011, pg 4). Broadly, the guidelines focus on the objectives of 'seamless mobility' and 'placemaking.' A third objective is included regarding implementation. Parking is discussed as one of the four objectives relating to seamless mobility. The guidelines for parking include a focus on both establishing proper sizes of the commuter parking implementing area based parking approaches. Regarding the size of parking, the guidelines speak to reconciling parking with very specific needs as well as long term development and ridership potential. There is also a reference to reducing parking demand through local transit agencies. Regarding parking management the guidelines address the inclusion of pricing as part of transportation demand management program that includes area-wide standards and modal split considerations. The guidelines create extensive visioning of placemaking and give emphasis to cultivating vibrancy through high-density mixed-use built form that is pedestrian supportive. Emphasis is also placed on the specific of creating an attractive public realm and prioritizing environmental sustainability.

Interestingly, the guidelines also discuss implementation strategies that include ways to build partnerships and attract private investment. A core theme of this includes potential strategies to attract developers. Such strategies are mentioned as ideas and are not developed great in great detail. Approaches mentioned include: tax grants, municipal bonds, density exchanges, application fast tracking, development permit systems, flexible zoning, parkland dedication provisions, infrastructure financing and the development of special management bodies.

Finally, the guidelines contain a typology of mobility based on both transportation and placemaking criteria. Placemaking typology is noted as 'Urban Context' and ranges from those in downtown Toronto to 'unique destinations.' For the purposes of this paper two types of mobility hubs will be examined 'emerging urban growth centers' and 'suburban transit nodes.' It should be noted that several suburban mobility hubs fit within the category 'historic suburban town centers' and are not necessarily surrounded by large amounts of surface parking. Data from GO Transit indicates that these stations tend to have lower ridership levels. Mobility hub implementation at these stations will largely be a different issue from what is being discussed in this paper.

4. THE CURRENT SITUATION

Against the policy backdrop of Mobility Hubs and the Growth Plan for the Greater Golden Horseshoe is a very different existing situation on the ground. Fittingly, the mobility hubs of tomorrow face their greatest challenges from the troubled mobility models of the past. Some of the most promising sites that could one day be developed into hubs that fit the Mobility Hub Guidelines are currently occupied by large amounts of surface parking. Table 1 outlines the parking provisions at GO Stations on the rail network. Many of these stations include parking lots in excess of 2000 spaces. With the exception of a few locations, these spaces are entirely surface parking, usually of utilitarian design that does very little for placemaking.

As the previous review of the mobility hub guidelines indicated, these areas are envisioned to consist of a high quality public realm that enhances the rider experience, while promoting connectivity and pedestrian priority. The guidelines give a significant emphasis to placemaking and intelligent parking management that is not currently present at most stations. Overall, the current parking arrangement at most stations is in conflict with the guidelines for several reasons. These reasons are strong enough that they justify the need for a new approach to parking despite its current importance in station access.

Parking as a Barrier to Mobility Hub Implementation

Firstly, many of the parking lots in their current state pose a problem for walkability for station access. Because many of the suburban mobility hubs are surrounded by such a large degree of surface parking, access to the stations for those using active means of transportation are impeded. The experience of walking through a large parking lot is not conducive to vibrant place making. Secondly, the parking lots are aesthetically unfavourable from a perspective of urban design. Designed along lines of utility the parking lots are drab and grey and convey a sense of temporary use, effects that are counterproductive to placemaking.

The final, and most significant problem posed by surface parking is its fundamental contradiction with the central mobility hub goal of integrating station functionality with surrounding use. A high degree of functional integration is what distinguishes the mobility hub concept in a addition to the notion of Transit Oriented Development (Horowitz, 2011). Station infrastructure is envisioned directly and seamlessly connecting with the land uses around it. Yet because of the sheer footprint of existing surface parking surrounding uses have the feeling of being highly separated from the transit station itself. At many stations the nearest alternate land use to the station building can only be accessed after crossing large parking lots with few pedestrian amenities and little animating activity. In order to integrate the function and placemaking aspects of transit stations, surrounding uses will have to be brought much closer to station facilities. These three assumptions

are not meant as an exclusive list but as indication of the assumptions guiding the need to convert existing surface parking.

As GO Transit solidified its core service as a commuter connection between the suburbs and the central business district it continuously expanded free surface parking lots to attract more riders. The size and scale of the parking provided by GO Transit should not be understated. The agency has come to think about parking as a

Figure 4: Parking at Oakville GO Mobility Hub

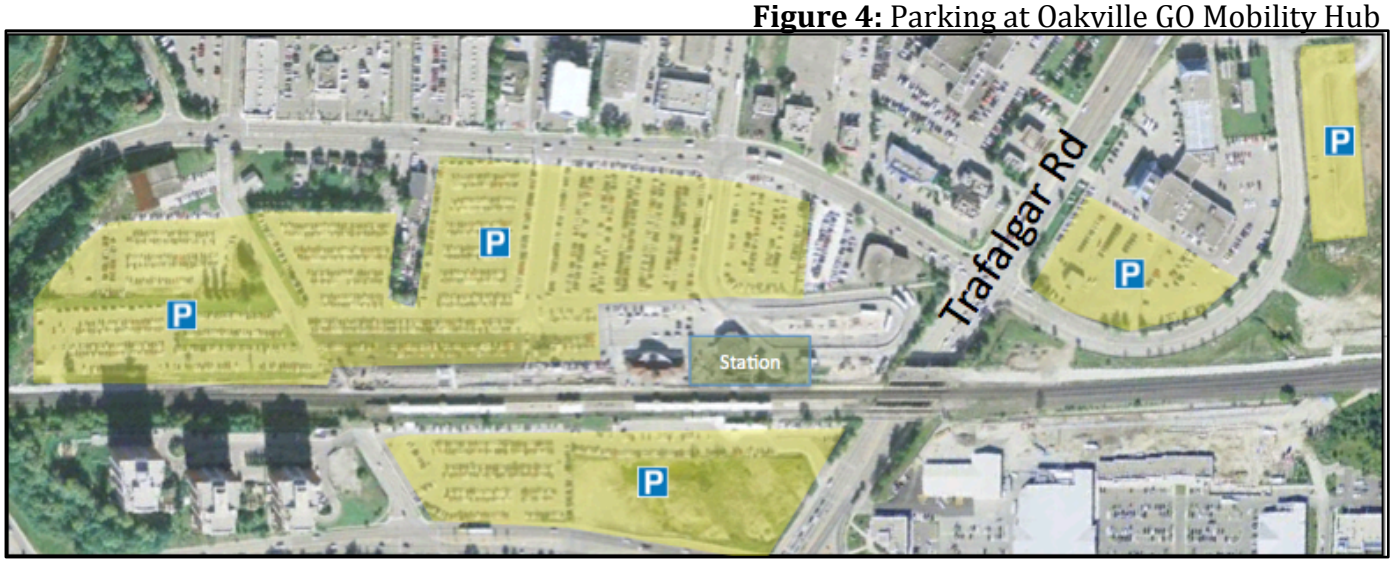


Figure 5: Parking at Cooksville Mobility Hub

driver of ridership growth. New parking spaces fill up quickly meaning that, providing more parking is a safe way to increase the number of people willing to use the service. This notion has been empirically grounded in other jurisdictions (Merriman, 1998), with some caveats and will be discussed later. The doctrine of adding parking for ridership growth has long influenced investment decisions. Significant amounts of recent stimulus funding for GO Transit have been allocated towards new parking resulting in a further substantial increase in spaces both in structures and surface lots. This situation has lead to facetious suggestions that GO is a parking agency that also runs a transit system. (Munro, 2011)

The Scale of GO Transit Parking Operations

A review of unofficial parking information on GO's station profiles revealed a total of 55,742[1] parking spaces at rail stations system-wide. This information is presented in complete detail in *Table 1*. A common municipal zoning requirement for parking spaces is that they be of a minimum size of 16.5m^2 (City of Burlington, 2012), if this were the case at GO it would mean that approximately 92ha of space is devoted to parking lots system wide. Of the system wide number, 18,575 parking spaces, about 33% of the total, are located at stations identified as mobility hubs. To put this in perspective, the analysis in *Table 1* labeled 17 stations as mobility hubs, translating into roughly 30% of the 56 rail stations system wide. From this simplistic analysis we can make the assumption that mobility hubs are not currently unique in terms of

[1] This number was reached by adding the number of parking spaces listed on the station profile available on the 'Stations' section of the GO Transit website. (www.gotransit.ca)

their amounts of parking and if anything may be places with slightly more parking provision than the system average. Using the figure of 16.5m^2 as the size of one parking stall, it can be estimated that there is about 30.6ha of land at mobility hubs currently devoted to surface parking; a significant development potential.

At some of the stations with the highest potential for mobility hub implementation the total number of parking spaces is substantial. Oakville GO Station, the center for the Oakville Midtown Urban Growth Center, currently has 2724 parking spaces at four different lots; the third largest parking facilities in the system. The Langstaff GO Station, an anchor for the Langstaff Gateway intensification project currently has 1137 spots. Cooksville Station, the closest station to Mississauga City Centre and with connections to the proposed Hurontario LRT has 1459 spots.

Despite the substantial number of parking spaces currently available in the system, trends in recent years have shown an increased push to build even more parking based on capital subsidy from higher levels of government. In February 2009 the federal and provincial governments jointly announced a spending package of $500 million for parking lot enhancement at 12 different sites in the GO system (Flynn 2009). This package included funding for a 1000 space parking structure at Oakville GO (ibid). In 2011 alone, GO added 3500 parking spaces at nine different stations (McNeil, 2012). Parking expansion continues across the system with six different stations identified as targets for parking lot expansion projects in the near future (McNeil, 2012). A full account of parking at GO Train stations is included in *Table 1*.

Table 1: Amount of Parking Spaces at GO Train Stations

GO Train Station	Number of Parking Spaces
WHITBY	2,958
CLARKSON	2,878
OAKVILLE*	**2,724**
BRONTE	2,424
APPLEBY	2,422
BURLINGTON*	**2,273**
OSHAWA*	**2,242**
AJAX	2,148
BRAMALEA*	**1,991**
PICKERING*	**1,958**
AURORA	1,725
ALDERSHOT	1,619
MEADOWVALE	1,600
UNIONVILLE*	**1,506**
COOKSVILLE*	**1,459**
GUILDWOOD	1,348
STREETSVILLE	1,329
RICHMOND HILL	1,229
MAPLE	1,146
LANGSTAFF*	**1,137**
MILTON*	**1,082**
ROUGE HILL	1,041
RUTHERFORD	983
BRAMPTON*	**962**
MOUNT JOY	953
PORT CREDIT*	**922**
EGLINTON	840
EAST GWILLIMBURY	839
LISGAR	788
DIXIE	778
ERINDALE	770
MILIKEN	725
SCARBOROUGH	635
BARRIE SOUTH	623
GEORGETOWN	614
MOUNT PLEASANT	611
ETOBICOKE NORTH	530
MALTON	525
OLD CUMMER	439
KING CITY	358
BRADFORD	322
AGINCOURT	308
ORIOLE	286
LONG BRANCH	281
MARKHAM	266
NEW MARKET*	**265**
STOUFFVILLE	243
MIMICO	173
ALLANDALE	150
LINCOLNVILLE	150
WESTON	110
HAMILTON*	**54**
BLOOR*	**0**
DANFORTH*	**0**
KIPLING*	**0**
UNION*	**0**
TOTAL	**55,742**
Mobility Hub Sub Total	***18,575***

Source: www.gotransit.ca Station Profile Information

* Shaded stations indicate those identified as part of a mobility hub

Comparisons with Other Systems

To better understand the numbers involved with GO Transit's parking facilities it is useful to look at other comparable North American transit operations. This paper proposes four systems comparable to GO Transit; MBTA in Greater Boston, MTA Metro-North in New York, BART in the Bay Area and METRA in Chicago. All of these operations run commuter rail systems oriented to bring suburban populations into a central business district, operate in large metro regions and all have substantial parking assets. Limitations to the comparison include each agency's differing governance structure and market area. BART is a cross between commuter service and local subway while the MBTA in Boston deals with commuter rail amongst a variety of other local services. A comparison of the provision of parking along with factors indicating a transit system's size, number of annual trips and number of stations, can be found in *Table 2.*

From this comparison, several noteworthy observations can be drawn. The comparison does seem to establish reasonable grounds that GO may have an over supply of parking. This is most notable in the comparison with the MTA's Metro-North rail service that offers a comparable amount of parking to a substantially larger amount of riders. When ridership numbers are divided across the days of the year, it is shown that GO provides roughly one parking space for every 2.4 riders whereas New York's MTA roughly offers a space for every 3.6 riders. Overall, GO's parking number appears relatively high when compared to the ridership levels of its peers. Only Boston has a lower daily rider to parking space ratio that may be

explained by smaller weekend ridership. Secondly, GO Transit is the only operator of the high-profile commuter oriented operations described here that does not charge for parking. This should not be construed that GO is the only operator to offer free parking, as the list of comparable agencies shown here is far from complete. It does however indicate that in several American centers comparable to Toronto charge for commuter parking is the standard practice. Several of these

Table 2: Comparing Parking and Ridership across North America

Operation	Annual Passenger Commuter Rail Trips (millions)	Total Number of Parking Spaces	Daily Passengers to Parking Space Ratio[2]	Number of Stations	Parking Lot User Fees	Parking Lot Management
GO Transit[3]	**48.8**	**55,742**	**2.39**	**58**	**Free**	**Public**
MBTA-Boston[4]	10.7	31,400	0.93	133	Paid	Public / Private Mix
MTA Metro North- New York	74.7[5]	57,200[6]	3.57	120[7]	Paid	Public / Private Mix
BART – San Francisco Bay Area	107.6[8]	40,000[9]	7.37	44[8]	Mixed	Public
METRA Chicago[10]	81.4	54,000[11]	4.13	240	Paid	Private

[2] Calculated by dividing annual ridership by 365, then further dividing by number of parking spaces

SOURCES:

[3] McNeil, Gary. "GO Transit President's Board Update." February 16, 2012

[4] Massachusetts Bay Transportation Authority. "Ridership and Service Statistics – 12 Edition" 2009.

[5]z MTA. Metro-North Railroad Total Ridership [2011 actual figures]. Retrieved February 2012. http://mta.info/persdashboard/agencies/mnr/cp/55512_chartmth.htm

[6] MTA. MNR Parking Information. Retrieved February 2012. www.mta.info/mnr/html/parking.htm

[7] MTA. "About Metro-North Railroad." Retrieved February 2012. mta.info/mnr/html/aboutmnr.html

[8] BART December 2011 Ridership Report. 173.236.146.14/ridership/Ridership_December2011.xlsx

[9] Wilson, Richard. Strategies for Action in Bart Station Areas. BART. October 2000.

[10] METRA. "Ridership Report 2011 Factsheet." 2011.

[11] Illinois Regional Transportation Authority. "Metra system wide commuter rail parking inventory assessment: final report." 1987.

jurisdictions also contract-out the management of all, or part of their parking assets to private operators.

These two key observations suggest that free parking has caused a distortion in parking demand relative to comparable systems, which have been able to accommodate larger ridership with less parking. Related to this is another observation that is not indicated in *Table 2.* GO Transit is distinguished by its exceptionally high cost recovery which sits at over 90% of its operating budget (GO 2020). By comparison, most other North American systems hover at or around the 50% cost recovery mark with both the Metro-North and MBTA commuter systems falling below it (GO 2020). This comparison indicates that because GO receives a comparatively low operating subsidy there is likelihood that the costs of its high amount of parking are included in fares. This fact is compounded by the fact that American systems have greater access to subsidy from the Federal government.

Current Station Access Modal Splits

A picture of the current situation with the identified mobility hub sites would not be complete without a discussion of the numbers around station access. These numbers are provided in *Table 3* divided into both urban and suburban groups for mobility hubs. Without this distinction the overall average numbers would be highly skewed as both types of station locations have very different characteristics. While the urban situated stations demonstrate a critical potential for a high walking modal share, these stations currently account for very little actual ridership. Thus the

suburban stations, with their large amounts of land and ridership base are the best focus of analysis on the station access.

Table 3: Station Access at Mobility Hubs (2009-2010)

Station	Method of Arriving at Station (%)						
	Driver of Vehicle	Drop-Off	Local Transit	GO Bus	Carpool	Bicycle	Walking
Suburban Context							
LANGSTAFF	69.9	15.0	1.6	0.0	3.1	0.0	10.3
MILTON	68.4	17.4	4.1	0.7	3.8	0.0	4.4
UNIONVILLE	64.9	15.1	15.1	0.5	2.7	0.0	0.0
OSHAWA	62.6	15.0	4.9	14.2	2.3	0.0	0.2
BURLINGTON	61.7	13.5	7.8	9.0	2.5	0.6	3.9
BRAMALEA	59.3	16.0	11.8	7.8	4.5	0.0	0.7
PICKERING	55.5	16.6	18.1	0.2	2.1	0.4	6.6
BRAMPTON	52.5	20.1	7.4	7.6	3.9	0.6	7.6
OAKVILLE	50.3	19.7	21.5	1.0	1.8	0.3	4.5
COOKSVILLE	46.4	19.7	11.9	0.6	4.2	0.0	1.2
PORT CREDIT	45.8	16.5	11.9	0.6	1.1	0.0	23.4
NEW MARKET	32.9	29.4	7.9	1.9	1.9	0.0	18.6
Suburb Average	**55.9**	**17.8**	**10.3**	**3.7**	**2.8**	**0.2**	**6.8**
Urban Context							
HAMILTON	15.4	20.3	34.0	1.7	0.6	1.7	25.1
BLOOR	13.6	13.6	0.0	0.0	0.0	0.0	72.7
DANFORTH	11.7	0.0	6.0	0.0	0.0	0.0	76.3
KIPLING	29.2	46.0	8.4	0.0	4.0	0.0	12.4
Urban Average	**17.5**	**20.0**	**12.1**	**0.4**	**1.2**	**0.4**	**46.6**
Overall Average	**46.3**	**18.4**	**10.8**	**2.9**	**2.4**	**0.2**	**16.7**

Source: GO Transit 2009-2010 Biannual Ridership Survey

The most obvious figure presented here is that station access overwhelmingly relies on the automobile, with a full 73.7% of riders relying on a private vehicle to get them to the station. This number is encouraging for a future strategy of diverting parking towards passenger drop-off lanes but does little to address long term

concerns around the infrastructure restraints of station areas at peak times. Further trends in the data are difficult to discern as some stations, such as Langstaff include a high rate of riders who drive but also a significant amount of people who walk. The variable nature of the numbers reveals that each station context is fundamentally important to understanding its access characteristics. While there is a connection between modal split and amount of parking available it is not definitive. Oakville has the largest number of spaces but ranks in the bottom half of the top single occupant modal splits boasting a large significant amount of transit ridership.

The Oakville example highlights a few different areas where specific analysis should be undertaken to determine the best practices that have lead to station access anomalies. Pickering and Unionville are also stations that have been able to achieve a level transit ridership well above the average for GO Stations. The data further reveals that carpooling may be a potential for future reduction of parking demand, as it is currently quite low at only 2.8 of riders. This is a segment that would have substantial incentive to grow if GO were to start charging for parking, as currently there is little enticement for riders on the relatively short drive to park for free at the station. Bramalea and Cooksville stand out as stations that should be studied regarding their higher than average rates of carpooling.

Active transportation access numbers are relatively low across the suburban hubs especially in the category of cycling, averaging only 0.2% of riders. This low statistics underscores the challenges of providing safe cycling accessibility in the

busy traffic areas that surround stations as a result of their large parking. It also speaks to the challenges of providing secure bike parking and of attracting cyclists amongst GO's core ridership. Pedestrian access is considerably higher and presents more reason for optimism about station area development. Pedestrian access is highest amongst locations that fall under the category of 'historic suburban center' but is also substantial in areas that have hosted relatively new intensification and development. These trends compliment the literature surrounding Transit Oriented Development (TOD), which suggests that development in close proximity to a station area tends to attract self-identifying transit users who will walk to commuter rail stations (Cervero, 2010). These trends are reason for optimism about ridership growth from intensification and development of station areas.

GO's station access information underscores the need to understand the very specific community context and the nature of the GO rider. With the agency's core business centered on taking commuters into the central business district certain assumptions about the GO rider as an office worker apply. The requirements of working in an office are likely part of the reason for the low modal split from cycling. It is also essential to note that the GO rider is a choice rider, with around 80% of passengers having access to a personal automobile (GO 2020). The realities of living in a suburban environment mean that it is reasonable to assume that many GO riders require a personal vehicle and associated expenses as a matter of daily life.

The Context for a Review of Parking Supply Approach

The context for the issue of surface parking is framed by two converging forces that exist across the region, currently in solitude of one another. These two forces are trends in job sprawl and the future of station accessibility. Land use planners have long struggled to attract new office development into planned centers or established downtowns. For very practical financial reasons, office development has instead largely tended to avoid established areas in favour of greenfield locations with access to provincial highways and the opportunity to build low-cost surface parking. Several factors, including the policy shift described in the previous chapter may be changing this force in ways relevant to mobility hub implementation.

Over the past two decades office development in the GTA has concentrated in the suburbs along major provincial freeway corridors that are poorly served by public transit (CUI, 2011). This phenomenon that may be described as job sprawl, is a significant factor in the level of congestion in the GTA. Significant office clusters have been developed around highway 407 in Markham, Meadowvale in Mississauga and the Airport Corporate Center. The low public transit modal split in this new office developments combined with the large land parcels required to accommodate surface parking has begun to hamper their future development. Traffic congestion into these areas is reducing the desirability to employees while low-density development is leading to a future scarcity of developable land. As the areas that have been the focus of office development over the past decade reach build-out, the there is a unique opportunity to direct future office growth in a way that supports

sustainable transportation and promotes more desirable work places. Regional planners will have the choice of designating new office lands along freeway corridors to attempting to direct this development to attractive station areas.

The other important consideration is station accessibility, a looming and unanswered question. It is commonly acknowledged that parking lots cannot grow indefinitely and as the number of vehicles has expanded, so have congestion problems around stations areas at peak periods. This congestion has created an unsustainable situation for both local municipalities and GO's customer base. As parking has continued to expand rapidly the number of riders arriving by local transit has remained stagnant (GO 2020). Improvements in local transit services feeding into the GO network have failed to keep pace with the increased capacity of GO services. As congestion around stations increases transit to the station becomes less reliable as buses are stuck in traffic. This reduction in transit reliability further encourages riders to arrive by personal vehicle. It is a problem that stands to be greatly exacerbated in the future as the Ontario Government has promised all day two-way service on all GO lines. If this improvement is implemented it will increase traffic accessing stations and place further strain on the surrounding infrastructure. Furthermore, the Toronto Transit Commission (TTC), the region's largest transit operator, has recently successfully eliminated its free parking lots for monthly pass holders and has begun charging extra for parking in its commuter lots.

Heading into a period of major expansion, GO Transit faces a potential turning point similar to the potential shift in regional office development. The opportunity, and need for a new approach to station access is clearly presented. With the TTC having begun charging parking, GO has an opportunity to follow suite and end its subsidy of those who choose to drive. Furthermore, the large amounts of infrastructure dollars being poured into parking facilities, included large new structured parking, provides a unique opportunity for a shift in policy that matches a shift in rider experience.

5. LITERATURE REVIEW

The study of station area development as it relates to challenges of surface parking and station accessibility necessitates a range of considerations. Beginning with the general concept of the station area itself, its role in the city and the unique challenges of development regimes in these areas. Scoping to a practical lens this analysis focuses on the concept of Transit Oriented Development and its applications in North America. As has been previously outlined, TOD and station area development are highly reliant on access, which in many circumstances must mean parking. In light of this, there is a need to explore the concept of parking demand management; its principles and tenets as well as its potential implementation tools. Having been extensively applied in a variety of contexts TOD, and parking management can be further analyzed to distill some expectation of its effects on ridership and resident behaviour. The importance of this information can be viewed in a cyclical relationship. Transit operators must understand the ridership offset potential from TOD while planners must understand the thresholds for possible reduction of parking requirements. Parking requirements, in turn, are fundamental considerations in the final piece of the puzzle: the attraction of office development. While many mobility hubs sites are already prime sites for residential intensification, special attention is required to attract high quality employment uses. This requires understanding the barriers to development and providing the framework needed to shift the current pattern of job sprawl an office market that is transit supportive. Finally, the study must include practical implementation,

examining the most productive forms development partnerships and management regimes and the best role for public agencies.

Conceptualizing Station Area Development

The concept of station area development has been explored at large in various contexts throughout the world in locations ranging from international business centers to relatively modest suburban transit oriented developments. A common theme is that station areas are exceptional locations not only in their potential to attract investment but in their social and psychological roles. These unique roles of station areas underlie their economic importance and connection to city-region competiveness. Bertolini describes the Place-Node model of understanding the role of station areas. This theory identifies a balance between placemaking and station function as a formula for successful station areas (Bertolini, 1999). Placemaking features in the public realm include a live mix of destinations and uses such as residents, commerce and employment activity. The station element refers to transit infrastructure and function wherein a station must have multiple lines, serve as an important point of connection and have the appropriate degree of accessibility. Against the backdrop of long-term trends of urban decentralization, the station area is the last vestige of interaction between actors not otherwise connected. The station area therefore becomes an essential location of interaction for those economic activities that require intensive personal interaction (Bertolini, 1999). Through its position, outlying the central city but strongly connected to it, station

areas can become critical tools to shaping decentralization forces in favourable ways that promote compact urban form and efficient mobility (Bertolini 1999).

Bertolini's assertions regarding the need for office concentration are backed by an extensive body of employment research arguing that forces of globalization have lead to increased focus of industry and occupational clusters. Predominant scholars have pinned this phenomenon as a defining feature of the contemporary economy (Porter, 2000; Morgan, 2007; Nolan, 2011). Within the context of the Toronto area's mobility hubs, this notion underscores the role that station areas can play in regional employment planning. Successful station areas must be have proximity to a healthy central business district and furthermore must be able to capture decentralization forces in strategic ways (Bertolini, 1999). Both of these situations are clearly present in the GGH where the GO network provides the most direct, effective connections to a thriving CBD while being situated in a vast region of decentralization. The Toronto area continues to be strongly shaped by decentralizing forces and should leverage the opportunity to focus development in order to promote better mobility.

Specific Parking Standards for TOD Areas

Studies about the effects of TOD on transportation habits, and in turn parking demand show mixed results based on the types of uses. Generally, residential TODs show encouraging trends of reduction in automobile trips while office developments are less effective. Residential areas have been the focus of TOD

transportation habit studies and have generally found that residents are five to six times more likely to take transit than average (Cervero, 2006). These numbers are qualified however by the notion that decision to locate in these areas likely indicates a predisposition towards transit use (Cervero, 2010). Studies show that residential development in TOD areas tends to retain excessive parking supply because municipalities almost always fail to adjust parking standards (Cervero, 2010). Importantly, it was also found that while transit ridership increases, many residents retain possession of at least one automobile for trips outside of their commute (Cervero, 2010).

A 2004 study in California showed that effectiveness of TOD Office parks is also mitigated by a continued supply of free parking (Lund et al., 2004; Cervero, 2006). In San Diego it was found that 83% of commuters were still offered free parking while only 17% were offered a transit pass subsidy (Lund et al., 2004). The difficulty comes back to the market conditions; TOD remains situated within a broader development context where free parking remains the standard (Shoup, 2005). Residents of TOD areas, generally considered more open to using public transit, still drove to work 95% of the time when their employer offered free parking (Lund et al., 2004). This can be contrasted with 45% of TOD residents opting to use transit when their employer does not offer free parking (Lund et al., 2004). Suburban office ridership studies have been carried out in Washington, DC and San Francisco. (Cervero, 2006). In San Francisco it was found that one in six workers at suburban office locations commuted using higher order transit (Cervero, 2006). Significant

factors influencing commuter onto transit included: availability of free parking, feeder bus service quality, and employer transit subsidies (Cervero, 2006). The most predominant deterrent to taking transit was found to be 'trip chaining,' in which commuters had to stop at various locations along their trip, most often at places to drop off or pick up children (Cervero, 2006). This final barrier could be addressed through land-use at mobility hubs that compliments rider trip chaining needs.

Office Development Ridership Increases

An important consideration in station area planning is the increased ridership facilitated by park and ride facilities. In some cases, it may be argued that parking capacity is a necessary way to increase transit ridership. Studies have shown that increased parking capacity often does correlate to increased ridership levels (Merriman, 1998). Office densities around station areas in suburban settings have however also been found to increase ridership levels. It is estimated that every additional 100 employees per acre can increase rail ridership by 2.2% on average (Cervero, 2006). This observation is qualified by a general consensus amongst writers on the subject that office development must be in close proximity to stations for this correlation to apply (Cervero, 2006; Jones Lang Lasalle, 2011). The office ridership situation underscores the need to incorporate employment in transit corridors as a ridership generator and to have those station areas include high quality connections to office locations. This information is also essential in understanding station area parking replacement ratios for developments on existing surface parking lots as ridership loss from parking can be offset by the development.

Parking Demand Management

A considerable body of literature is emerging around the issue of parking demand management. A segment of this literature argues that current attitudes towards parking lead to its oversupply with great detriment to other planning goals (Shoup, 2005; Littman, 2006; Blais, 2010). The route of this problem is seen be the separation of cost from demand; a phenomenon which upsets the natural balance of the market distorting the creation of an efficient interaction of demand and supply. The provision of parking facilities comes at enormous cost, yet estimates for the amount of this cost that is borne by user fees ranges from 1%-5%(Shoup, 2005) to 5%-13% (Blais, 2010). This low level of direct recuperation means that the cost of providing parking must be passed on in other ways including through higher housing prices and the cost of goods (Blais, 2010). The cost of providing this parking is considerable and is estimated at around $2000/ space for surface parking and $20,000/space for structured parking in North America (Victoria Transport Policy Institute, 2011). In the GTA specifically construction costs for parking structures is estimated at $70/square foot for above ground and $130/square foot for underground facilities (Altus Group, 2011). Although the costs of parking vary considerably based on local land value, these construction costs, when bundled with operating and maintenance expenses mean that each parking space can cost between $30 and $200 every month (Victoria Transport Policy Institute, 2011).

Yet the costs of parking over-supply extend much further through their effect on built form, where decreases in density lead to an increase in vehicle miles travelled.

This phenomenon is a key driver of urban sprawl (Blais, 2010; Shoup, 2005) and its associated social, economic and health impacts. Shoup has described the system as a self perpetuating loop in which more parking leads to less density, greater car dependence and even more parking (Shoup, 2005: 129). One study of the effects of implementing minimum parking standards for residential apartment buildings in Oakland, California revealed a 18% increase in housing costs and a 30% decline in density (Shoup, 2005; 145).

Aside from the removal of market conditions, the oversupply of parking is ensured by both the standards of most municipal planning department and by perceptions of demand from developers. Municipal parking standards penalize developers who would otherwise attempt to minimize surface parking (Blais, 2010). These minimum parking standards are usually based on peak-demand figures provided by the Institute of Transport Engineers. The figures are largely assessed on locations that are not accessible by transit or in more dense environments conducive to walking; the goal being to cover the worst-case scenario of parking demand (Shoup, 2005). Comprehensive studies of office developments in California and Chicago with parking at minimum local requirements revealed an actual peak parking demand was only 56% and 68% of supply respectively (Wilson, 2000; Shoup, 2005). This points to the necessity for refined parking standards based on the specific inputs of a building site (Shoup, 2005); something that could have a significant effect when applied to sites in mobility hubs, which will have an inherently high degree of transit accessibility.

Based on the figure of 56% peak parking occupancy, as described above, further extrapolations can be made about the cost of the minimum parking standards. These costs are driven by the reduction in density as building envelopes become smaller in order create room for parking (Shoup, 2005). If the minimum parking standards found in the California study had reflected the actual demand for spaces, the buildings could have been able to achieve a 42% increase in size, a 48% increase in land value and a 37% increase in property tax revenue (Wilson, 2000). These figures speak to the lost development potential in the office sector borne both by developers and the public. The reduction in built form capacity reduces the profitability and potential size of a building while also decreasing the amount it could contribute back to the city.

Despite the benefits of reduced parking standards, many developers remain convinced of the necessity to provide parking, likely viewing it as an important consideration for tenants and buyers. Minimum parking standards in and of themselves are however only one side of the issue of parking over-supply. Studies from the UK demonstrate that even in central London, parking spaces are listed as an important consideration by residential homebuyers (Shoup, 2005). Perhaps nowhere can this more clearly be seen however then in the retail sector, which views parking as fundamental to business viability; setting minimum standards based on demand during 19 hours, spread over ten days each year (Urban Land Institute, 1999). To counteract these conditions scholars point to the need to

introduce paid parking, or where this is inappropriate implement a tax on parking spaces; something practiced in many parts of the world (Blais, 2010).

Paid parking is the most direct and effective solution to the problem of parking over supply (Shoup, 2005, Metropolitan Transportation Commission, 2007). When users are charged for the use of a parking space, the subsidy is either reduced or eliminated helping to restore a more natural market. Because it is deeply ingrained in the local market, the effectiveness of paid parking can vary based on the conditions of a very specific area. Studies from the regional transportation planning agency in the San Francisco Bay Area show that depending on the price of the parking fee and the availability of alternate options, paid parking can reduce demand between 5-30% (Metropolitan Transportation Commission, 2007). Willingness to pay for parking is based on an intricate array of user considerations about the value of convenience (Shoup, 2005). As such, it is not necessarily a regressive tax because it bases its charge on how much an individual is will to pay for extra convenience in each particular situation (Shoup, 2005). San Francisco is a notable example where intelligent parking systems are being deployed to match parking charges carefully to demand, helping to ensure that spots will be available for those who need them most (Berg, 2012). Revenue from parking can and should effectively be invested back into the local community. The introduction of parking fees has been tied to Parking Benefit Districts in several cities including Pasadena and Austin, Texas (Shoup, 2005). In both of these cases parking benefit districts helped to reduce central area decline and are generally supported by stakeholder.

Investing the revenue from a parking district back into the area that it serves provides a direct and tangible benefit to those affected, building consensus and support for a potential controversial situation.

Parking Demand Reduction Strategies

Drivers naturally do not want to pay for parking; a preference that manifests itself in commercial decisions and the culture of local planning (Shoup, 2005; 23). Considering this ingrained culture of parking over supply, it its unlikely that the phenomenon will be easily broken by an education of costs or a single shift in policy. Yet the need to for a new approach to parking for developments in mobility hubs remains necessary to realization of the vision established through the mobility hub guidelines. Therefore public agencies and planners must consider a variety of other proactive approaches to parking demand reduction. The literature identifies two central tenets of a centralized parking reform approach. The first involves building community buy-in through stakeholder consultation and active involvement (Shoup, 2005; Littman, 2006; TriMet 2007) while the second identifies the need to tie new features to direct tangible benefits (Shoup, 2005). Alternative potential strategies include shared parking, unbundled parking, car sharing and transit eco passes.

Shared parking involves the very simple idea of using the same parking lot for two adjacent uses that have alternating peak parking demand periods. The key to this approach is the times that parking is used and the spatial relationship between uses. Before implementing shared parking, planners must carefully understand the

specific situation and ensure that there is not a significant amount of time overlap (Smith, 2005; Metropolitan Transportation Commission, 2007). In GO Station lots, peak-parking demand corresponds with that of peak office time, eliminating the possibility of shared parking in this regard. The static nature of GO parking, in which vehicles remain in place for an entire, essentially eliminates the possibility of shared parking with working hour parking demands. Restaurants and entertainment facilities however are found to have a peak parking demand period in evenings (Smith, 2005), opening up possibilities for shared parking arrangements with uses such as movie theaters and other entertainment facilities. Residential developments are another land use with parking demands periods mirroring GO stations. While residential spaces are usually tied to a specific use, there are opportunities for sharing of visitor parking requirements. While retail centers do not offer sufficient demand distinction from GO, they are common locations for shared park and ride facilities. A 1999 survey of select large U.S. shopping centers indicated that 13% of respondents provided transit park and ride facilities (Urban Land Institute, 1999). Overall, the shared parking approach allows for a reduction in total parking spaces by reducing inefficiencies providing separate peak period parking for all uses. In GO Station areas it may reduce the parking requirements for certain entertainment uses.

Unbundled parking involves removing all or some of the parking requirements for a specific development and replacing it with a separate fee that is then used to provide shared parking. In residential properties unbundled parking refers the

separation of the price of a parking spot from the price of the residential unit; thus underscoring the true cost of providing parking and restoring market conditions (Metropolitan Transportation Commission, 2007). This clear articulation of the cost of providing parking is one of the greatest benefits of unbundled parking (Shoup, 2005). While developers usually intimately understand these costs, they may be less clear to planners, the process of setting in-lieu fees for parking clarifies the issue for all involved (Shoup, 2005). In commercial and office development unbundled parking usually takes the form of cash in-lieu payments which allow developers to avoid minimum parking requirements by contributing to the cost of shared parking structures.

This approach yields several advantages including flexibility for developers, single stop parking, historic preservation, consolidated infill, reduced variances and better urban design (Shoup, 2005; 231). By providing a single location for parking, those using an area need only to park once to visit multiple destinations, improving convenience and reducing traffic. Facilitating flexibility, in-lieu fees can allow for development approaches that work with site specifics such as historic structures and removing surface parking to allow new infill development. The in-lieu fee paid by a developer is used to build shared parking, usually in the form of a neighbourhood parking structure. Planners have the option of allowing public or private ownership of shared parking facilities depending on specific conditions and goals. Public management may result in higher construction costs but allows for a higher quality of design and economies of scale in parking management (Shoup,

2005). The most important component of in-lieu fees for planners is the price at which these fees are set. The price of each parking space offset should be set at the cost of providing the space minus the capital value of owning the space had it been included in the property (Shoup, 2005; 237). This situation provides the proper incentive to developers to accept the in-lieu option. Importantly, a cash in-lieu program must also be met with a reduction in parking requirements as higher square feet to parking spot ratios necessarily lead higher and potentially off-putting, in-lieu charges (Shoup, 2005). Cash in-lieu fees have successfully been used in Santa Monica, California to meet the parking demands of a commercial and office district using a network of publically owned parking structures (Shoup, 2005; 235). Unbundled parking can help reduce parking demand as part of comprehensive process that exposes the parking subsidy, promotes flexibility and incorporates a simultaneous reduction in minimum standards.

The other main component of demand reduction strategies is the idea of a parking spot cash-out usually in the form of transit Eco Passes. The idea of parking cash out involves providing users the option of receiving a monetary benefit in place of the resources that would otherwise be required to building and maintain their parking space. This cash-out hinges on the ability of employers to reduce their parking supply (Blais, 2010). It is an approach that provides a financial incentive to employees to use alternate means of commuting while removing the subsidy that transit users pay to those who choose to drive (Blais, 2010). California has had a law in place since 1993 requiring that eligible employers offer a cash-out option to

employees (Shoup, 2005; Blais, 2010). Review of its effectiveness has shown a 12% take-up rate with a 17% reduction in single occupancy driving (Blais, 2010) and 13% reduction in parking demand (Shoup, 2010; 263). Cash-out programs may also offer employees transit passes instead of a parking space; an option that is most effective in locations already served by transit. This approach converts a subsidy of parking spaces into a subsidy for the transit system, helping to sustain local transit operators. The largest limitation on this program is that its financial benefit is dependent on existing excess capacity on the transit system. Because of the high marginal cost of increasing service capacity, transit eco-passes become less viable when they result in the need for new transit capital costs (Shoup; 2010). Combining this program with unbundled parking approaches can increase the number of eligible employers who are able to reduce their allowance within shared parking.

'Car sharing' programs are seeing increasing use in major North American centers, offering members low-cost, short-term access to an automobile. Research indicates that car share programs tend to attract uses who already have between 0-1 cars and that they are successful in reducing dependence on second vehicles. A study conducted after the first two years of a San Francisco Car Sharing program indicated that 21% of members had reduced their total number of vehicles (Cervero and Tsai, 2003). Although the overview in *Table 4* indicates a low demand reduction from Car Sharing, such programs do offer reasonably reliable ways to reduce parking demand. Portland, Seattle and San Francisco all have programs in place to offer

employee transit pass programs through local transit operators (Metropolitan Transportation Commission, 2007).

Table 4: Effectiveness of Parking Demand Strategies

Policy Option	Reduction in Parking Demand
Parking Pricing	5-30%
Shared Parking	10-20%
Reduced Minimum Parking Requirements	10-15%
Unbundled Parking/ Cash Out	10-15%
Transit Passes and Incentives	5-10%
Car Sharing	3-5%

Source: Metropolitan Transportation Commission, 2007

Attracting of Office Development

Literature suggests that the cost of providing parking at mobility hubs in order to accommodate the burden of increased density. An initial assessment of land value would suggest that office development should be naturally attracted to station areas. GO rail services have been estimated to bring about a 20%-50% premium within 800m of the station area (Metrolinx, 2009b). Further studies indicate that development potential is increased with more frequent, all-day services and with station area accessibility infrastructure (Metrolinx, 2009a). Planned capital improvements to GO Train services should therefore further increase station area land value. An analysis in Greater Vancouver found that suburban office locations within 500m of a rapid transit station had around 1/3 the vacancy rate and an 8% higher rental rate than those further from transit (Jones Lang Lasalle, 2011). Yet while these increased values are largely beneficial in many ways, they pose distinct

challenges for the office market where competition to find low rent is important. Increased land values can serve to reduce a developer's return on investment in a market where commercial rates are highly competitive.

A pro forma analysis was conducted by the Canadian Urban Institute examining why office development has stalled in the Mississauga City Centre while it was flourished in nearby Meadowvale and Airport Corporate; both with no higher order transit. The analysis found that the City Centre location provided unprofitable opportunities for development largely because of the increased value and the added cost of structured parking (CUI, 2008). Apart from these two factors, the development pro forma was largely comparable. Yet the cost of building structured parking, which was almost $17million higher, led the City Centre development to represent a net loss on investment while a comparable site elsewhere offered nearly an 8% return (CUI, 2008). With these market conditions it is easy to understand why office development in Mississauga City Centre has been stalled for several decades (CUI, 2008).

Office development in the Toronto region has seen several significant trends in recent years, the most predominant being decentralization into the suburban area known by its 905 area code (CUI, 2011). In 1981 almost two thirds of the region's office space was located in the financial district, within close proximity to the city's subway lines, today 54% of office development is located at distance from higher order transit (CUI, 2011). Growth in the 905 regions has focused in several broad

clusters including Meadowvale, Airport Corporate Centre, the Burlington-Oakville corridor, and the 407/404 cluster (CUI, 2011). Notably, none of these clusters are in urban growth centers and few overlap with any long-term transit plans. The trends pushing office growth to this area include tax policy discrepancies and lower rents (CUI, 2011). Although some employers cite difficulty attracting young employees to suburban office locations (CUI, 2011), the trend towards growth in these areas remains strong. Compounding decentralization of the office market, the traditional CBD has highly specialized around the financial services sector at the expense of other economic clusters (CUI, 2011). These trends in the GTHA can be seen as part of broader global trends towards employment decentralization (Bertolini, 1998). This decentralizing emphasis, in which lower rents are valued higher than the amenities of the CBD is telling for efforts to attract development to mobility hubs. These areas will have to find ways to reduce the cost of parking provision in order to become competitive, as it is unlikely they will otherwise be financial competitive with other office clusters.

Implementation of Station Area Development

Several jurisdictions in North America have developed detailed station area development policies and procedures. These agencies have made policy commitments to play an active role in station area implementation. In Portland, Oregon transit operators have entered in public-private partnerships (P3) with local economic development corporations in order to facilitate development on station park and ride facilities including a large medical office complex (TriMet, 2007). Such projects demonstrate the potential of P3 arrangements in station area development

with proactive work by transit agencies. The Bay Area Rapid Transit (BART) system has developed comprehensive methodology for encouraging transit-oriented development and studying the parking replacement ratio by which a development must replace the spots on which it was built. The focus of these guidelines is to determine where the parking replacement ratio can be reduced without compromising station ridership (Wilson, 2005). Finally, the Washington Metropolitan Area Transit Authority (WMATA) has a detailed site a station access manual to guide station site and access planning (WMATA, 2008). This manual provides criteria for establishing a hierarchy of station access, station design attributes and necessary features of join development.

Clear articulations of the role of state in station area development come largely from European sources. In these cases the vision for state involvement appears to take a high-level coordination approach in setting the goals and parameters of development corporations (Bertolini, 1998). There is recognition that station areas are unique and different policy goals and visions will be present in each location. Development schemes in station areas are comprehensive in nature, taking place over many years and phases. As such, it is important that development partnerships be established to enhance longevity through political and economic cycles (Bertolini, 1998). Governments can also play a role ensuring appropriate parcel size divisions to prevent against stagnant or overly monotonous areas (Trip, 2007).

6. A NEW APPROACH

The two forces of demand for office development and the need to find a more sustainable way to accommodate station access, are both fundamentally intertwined with the issue of parking. Accordingly, this chapter will discuss ways to alter the comprehensive approach to parking management within station areas including the needs of station access for commuter parking and new uses anticipated within the station area.

To move beyond the current situation of parking dependent ridership numbers and hampered development potential two core strategies may be employed. These strategies involve targeting both of the core problems around station area access and development. The first strategy must focus on reducing the parking requirements of GO riders themselves. To this end, the transportation modal split for station access must be shifted more towards local transit. This can be accomplished by correcting the demand imbalance caused by the subsidy of free parking and using the corresponding funds to provide incentives for transit users. The second core strategy must deal with the parking requirements of the new uses that mobility hubs hope to attract. A double burden of parking needs in mobility hubs means that station area development will not be able to use traditional suburban parking patterns. Alternative approaches will have to be implemented to appropriately reduce the parking needs of station area development while providing incentive to developers and tenants.

Correcting Incentive Signals – Paid Parking

In attempting to shift the station access behaviour of riders, agencies should pay careful attention to the way that policy decisions incentivize certain actions. Providing free parking is a policy that not only gives incentive to drive to transit stations but inadvertently is a disincentive to the use of public transit (Blais, 2010; 145). Because the provision of parking facilities is a considerable cost to transit operators, providing these facilities for free amounts to a subsidy of driving to the station (Blais, 2010; 145). Because GO Transit obtains over 90% of its operating budget through fares (GO 2020) the cost of providing this subsidy to parking is borne by all who use the system. The parking subsidy therefore increases the fare burden for those who choose alternate means of station access meaning that they are taxed to help pay for parking spaces that they do not use. This amounts to a penalization of desired behaviour in order to reward what is less desired. This model is designed for a system so reliant on riders parking at stations that other considerations are negligibly marginal.

Referring back to the station access modal splits discussed previously it is readily apparent that this model no longer applies to GO's mobility hubs. At busy stations like Oakville, Cooksville and Port Credit only half or less of riders benefit from this parking subsidy. Providing free parking at GO stations amounts to providing a disincentive for riders to chose alternative means of station access. Funding a means of station access that competes with local transit operators inadvertently hinders the goal of shifting the modal split more towards transit.

This fact alone provides a compelling case for implementing paid parking at GO stations. Yet the case for paid parking can also be made in a variety of other ways. As parking is a very tangible issue affecting a wide constituency, special attention will have to be paid to political optics. North America's oversupply of parking likely originates at least in part from its popularity (Shoup, 2005; 22). Overcoming this popularity can accomplished through a mix of strategies that tie new revenues into tangible benefits. It may also be accomplished by appealing to the encompassing range of actors advocating paid parking. Many economists recognize that parking is a form of subsidy and that charging for parking is an effective means of taxation (Shoup, 2005; 512). When then Mayor of Toronto, David Miller commissioned a blue ribbon panel into fiscal stability in 2008 its report back included recommendations to make better use of the cities assets including its large parking facilities (Mayor's Fiscal Review Panel, 2008).

Addressing Feasibility Concerns

The perception that charging for parking could drive away riders was an argument long considered by the Toronto Transit Commission as well. With sizable parking assets around some its stations at the end of subway lines, the TTC was concerned that removal of free parking would cause suburban riders to return to their cars. In the wake of paid parking implementation on the TTC in 2009 ridership levels have continued to increase with late 2011 ridership up 5.2% over the same period in 2010 (TTC, 2011). Through the parking charge the TTC also gained a significant new

revenue source that was projected to generate $9.47 million in 2011 (TTC, 2011). This new revenue source was obtained through relatively modest parking fees of $5 in the morning and $2 in the afternoon; parking is free on weekends and evenings.

Although there are significant differences between GO Transit and the TTC the later's experiment with paid parking demonstrates an important point about the factors influencing commuter travel decisions. The majority of the TTC's large commuter lots are located at the fringes of its heavy rail services and can be said to cater to commuters using them as access points to the transit system, largely for commutes into the central business district. That commuters are still willing to pay for parking at the edges of the central city and continue the rest of their commute by public transit speaks to the price elasticity of demand for parking.

In order to consider price elasticity of demand it is necessary to consider parking demand management within the context of the overall commuter shed. Demand for parking at GO Stations would only decrease with the introduction of paid parking if those using the lots could find alternatives. For commuters to be able to change their travel patterns they would have to access the station by alternative means or find parking in the central business district (CBD). To be able to change commuting patterns to park in the CBD there would have to exist there a supply of parking large enough to accommodate a significant change in demand. Commuters cannot change their travel patterns if the parking supply in downtown Toronto cannot accommodate them at an appropriate price point. The case of the TTC implementing

paid parking without experiencing a decline in ridership demonstrates that the supply of parking the CBD is likely already insufficient to facilitate a high price elasticity of demand at commuter parking lots in the suburbs. The figures for parking supply in Toronto's CBD further support this. A 1999 study of parking supply in major global CBDs showed that Toronto CDB had a parking space to job ratio of only 0.11, a figure much lower than the international average of 0.34 (Kenworth and Laube, 1999). That the CDB only has enough parking to accommodate approximately one tenth of its employees shows that demand for transit is unlikely to shift. A change in the price of parking at suburban commuter lots should not decrease the demand for spaces in these lots because of limited alternative options and latent demand. Commuters that deemed paying for parking unacceptable would likely be driven onto local transit instead; a favourable policy outcome.

It may be argued parking price elasticity of demand is greater on GO Transit because it offers less frequent and more expensive service than the TTC. Yet the physical supply of parking in the CBD, coupled with the capacity constraints of the roads leading there remain constant. From a cost perspective it is intuitively unlikely that downtown will be able to compete with suburban parking pricing, especially considering that the large capital investments to build the suburban parking supply have already been made. Furthermore, within the Toronto context, significant development pressure in the downtown core continues to reduce the supply of cheap surface parking.

Finally, the case study of the TTC reveals that charging for parking will likely be limited to peak periods for inbound commuters. The assumptions about price elasticity described here apply to riders traveling to the CBD on traditional work schedules. This is likely why the TTC charges for parking only on weekday mornings and afternoons. The result of a large concentration of office parking downtown is a parking oversupply during non-business hours that dramatically drives down prices. In the long-term, regional planners should consider ways to reduce parking over supply across the region as a means of reducing the price elasticity of demand at commuter stations.

Despite the merits of removing the parking subsidy by passing on the true cost of parking to those using it, the issue must also be considered in the broader context. The significant degree of car ownership amongst GO riders combined with the auto dependent skewed modal splits in the GTA's outer regions means that parking will be an important consideration for the foreseeable future. While a significant shift in station access modal splits may be possible, new uses being attracted to mobility hubs will carry their own parking requirements. Using current parking requirements and practices at mobility hub sites will create an unattainable double burden of parking. Because of this, any strategies to address the mobility hub parking problem will also require considerations for reducing the parking requirements of station area development.

Reducing Minimum Parking Standards

As is outlined in the literature review, parking standards are usually set using external figures from the Institute of Transport Engineers who make calculations based on the worst possible scenario and do not account for context. A study in California revealed that only around 3% of municipalities conducted their own parking studies (Cervero, 2010). A national survey in the United States revealed that 75% of cities maintained or exceeded suburban parking standards in TOD areas, leading to a parking over supply (Cervero, 2010). As was also discussed in the literature review there is a solid body of research demonstrating that TOD can reduce parking requirements, showing a link between office parking demand and proximity to higher order transit (Cervero, 2006). This connection, when considered within the general oversupply of parking created by the current lack of pricing (Shoup, 2005; Blais, 2010) demonstrates that minimum parking should be removed from station area development. Removing minimum standards does not mean however mean abandoning parking considerations. Automobiles should be seen as an essential part of the transportation mix, and an adequate supply of parking should subsequently be considered essential to station area success and vitality. Office developments look to provide parking because their tenants demand it, removing parking will reduce the competitive advantages of station areas relative to other potential office locations.

Parking should therefore be accommodated using a variety of alternative means that combine with strategies to reduce demand such as modal split and parking fees.

Maximum parking standards should not be relied upon exclusively as they may be circumvented through minor variance and do not naturally utilize the market. Unbundled parking will be an important tool to facilitate a desirable urban form while meeting parking needs. As discussed in the literature review cash in-lieu fees may be charged in order to contribute to the costs of providing shared structured parking to serve an area. This type of parking arrangement reduces inefficiencies and allows for greater flexibility to subsequently implement additional demand reduction programs. Such programs may take the form of increased car sharing space, cash-out in the form of transit eco-passes and demand responsive real time pricing. Phasing will have to be carefully arranged in this regard to allow gradual price increases to further reduce demand, within market parameters, and allow further intensification using existing parking facilities.

7. IMPROVING STATION ACCESS MODAL SPLIT

GO cannot sustain long-term ridership growth based on the model of passengers driving to free parking lots. Any notion that parking can accommodate growth is dispelled by GO's ambitious expansion goals. These goals aim to shift 80-85% of passengers travelling into the CBD from the regions surrounding the City of Toronto onto transit. The agency's goals further include implementing service every 15 minutes for peak and 30 minutes for off-peak times. A corresponding large increase of commuters cannot and should not be parking in station areas.

The station access situation described previously revealed that significant alternative access patterns are already found in passenger drop-off, walking and carpooling. Passenger drop off is undesirable as a major strategy in the long term because it fails to address the problem of traffic congestion in station areas. Clogging local roads with vehicles dropping off passengers reduces local desirability, hampers station area walkability and hurts the efficiency of local transit. While carpooling offers an attractive short-term solution to reduce the parking requirement it also falls short in the long term. Parking supply is finite, regardless of reductions in the needs of parking spaces per passenger. While Metrolinx has begun more aggressively pursuing carpool strategies, it remains a relatively marginal method of station access. Walking is of course a desirable method of station access and has great potential to become a more important feature of the station access mix as development in station areas increases. However, walking access is limited by GO's inherently large station catchment areas that rely on attracting riders who

live or work beyond walking distance from stations. Cycling is a promising alternative access mode that offers the potential to relieve station area congestion and serve a larger catchment area. Currently fulfilling a relatively small portion of station access, cycling should be further encouraged by investing in infrastructure such as bike lanes and secure storage facilities at each end of a passenger's trip.

The only method of station access that can address both large catchment areas and station area traffic limitations is local transit. This section will illustrate how improving the modal split towards a greater share of riders accessing GO through local public transit is the only sustainable long term solution to accommodate ridership growth. Furthermore, this section will assess the current state of coordination with local transit providers, isolating areas of difficulty and proposing ways to address them using new parking related revenue sources.

Existing Efforts to Encourage Local Transit Ridership

Recognizing the benefits of integration with local transit operators, GO has initiated two core efforts to encourage this mode of station access. The most prominent method is the local fare subsidy which means that riders taking the bus to a GO Station are only charged 65 cents as opposed to a fully transit fare. This subsidy to local transit operators costs GO around $7 million annually (GO 2020). Considered against the cost of providing parking this subsidy represents excellent value. A structured parking space in the United States is estimated to have an amortized monthly cost of at least $125 (Shoup, 2005; 185) meaning that one 1500 spot

parking garage can be estimated to cost around $2.25 million annually on its own. Surface parking spaces also carry significant operating costs. Using a conservative estimate of $730 annually for the amortized cost of a surface parking spot, surface parking across the GO system can be estimated as a $40 million annual burden.

The relatively modest cost of subsidizing local transit rides provides a very tangible benefit to commuters. As an example, Oakville Transit, which carries 21.5% of passengers to the Oakville GO Station, charges a regular fare of $3.25 meaning that the special GO fare of 65 cents provides a significant incentive to connecting commuters. GO's other core local transit integration initiative, the Presto fare card, helps to facilitate this special fare by automatically including the GO subsidy in appropriate local fares. The integrated fare payment offered by the new Presto system also creates an improved level of convenience for passengers to transfer between multiple transit operators; enhancing transit connectivity at mobility hubs.

Challenges for Local Transit

Despite these efforts however, rider take up of the local fare subsidy has been stagnant across the system for a number of years (GO 2020). This situation has to do with a number of factors and helps to illustrate the need for a comprehensive approach to network integration. As was discussed in Chapter 3 GO's passengers can overwhelmingly be classified as choice riders; 80% of train riders have a car available to them. This fact cannot be overstated and means that planners will have to work actively to provide the incentive to use local transit. Furthermore, in many

of the target markets of GO Transit, significant expansion of the urban boundary has occurred in recent years continuing a pattern of non-transit supportive development. Although GO's station catchment areas have gained new population they have become physically more challenging to serve using local transit.

One of most significant challenges to integrating local transit operations is the coordination of schedules. When passengers have to wait considerable amounts of time at the station in order to board a bus there is an obvious disincentive. This problem will become more challenging as train frequencies increase in the future and as two-way travel becomes more common. Apart from working with local partners on coordinating schedules a key strategy may be to use mobility hubs themselves as a means of improving the experience of waiting for a connection. Considering the low-density of ridership sheds feeding into GO Stations it is reasonable to assume that viable local transit frequencies will result in some inevitable wait times between connections; despite best efforts at coordinating schedules. If riders could spend their time between connections more productively, shopping or accessing services in a mixed-use environment they may be less. This approach could include simply improving the quality of local transit waiting areas as is described within the Mobility Hub Guidelines.

Another significant problem relates back the recurring issue of traffic on the road network around station areas. As parking continues to expand traffic conditions around stations further deteriorates. Local buses are caught in this traffic and

experience reduced reliability as a result. Anecdotal evidence suggests that this is a major concern of those who would otherwise be inclined to use local transit. GO's scheduling requirements mean that trains cannot wait for late local connections. This situation could be improved through greater frequency on the GO network; current headways can mean an hour delay because of a mixed connection. A further strategy may be to invest in transit supportive infrastructure around station areas.

Paying for Improvements to Local Transit Service

Based on the strengths of the argument for increasing the attractiveness of local transit a strong case can be made to make this the beneficiary or revenue gained from charging for parking. Discussing strategies for implementing paid parking, experts in the field emphasize the importance of providing using the new revenue to provide tangible benefits to those burdened with the new charge (Shoup, 2005; . Considering the wide breadth of public realm improvements needed at mobility hubs there will likely be significant competition amongst spending projects for parking revenues. Despite the range of needs, integration with local transit operators is a highly compelling spending target because it is applicable to all GO customers, is highly tangible and most importantly significantly advances other planning goals.

Investment in local transit and related infrastructure will be an important focus, especially early in the implementation process. Attracting more riders to local transit could reduce parking demand thereby helping to increase station access.

Transit funding fits within the phasing strategy illustrated in *Table 4.* Parking experts also point out that paid parking works best in situations where transit operates significantly below capacity (Shoup, 2005) which is currently the case in certain GTA suburban municipalities.

There are several specific programs that meet the needs and goals of Metrolinx following the implementation of paid parking that should be considered. The first is transit support infrastructure around station areas. This could include items such as bus queue jump lanes, bus-only lanes and improved signage and shelters. Because these projects are relatively expensive funding from parking could be used as grants to fund cost sharing of such projects with local municipalities and other partners. Accompanying media can reinforce the connection between the parking charge and new transit offerings. These local transit grants could also be used for marketing and branding campaigns to increase visibility of local transit the fare subsidy. Another potential option could be to use parking revenue to increase the local transit subsidy. This should be done in ways that are most tangible to riders such as free connections on select days or during certain periods.

Improving the local transit modal share is an essential component of mobility hub implementation that fits within the context of questions around the future of GO's parking strategy. Riders who currently park at stations must be convinced to use local transit and new strategies to encourage this behaviour must be formulated to compliment new fees on parking.

8. STATION AREA DEVELOPMENT STRATEGY

In order to reach the potential of the mobility hub site it will be necessary to attract significant amounts of the appropriate type of development as described in the Mobility Hub Guidelines. Yet mobility hubs, as station areas, face the double challenge of accommodating the substantial service needs of two groups of users. Developing land around station areas increases the servicing and access needs of those lands in addition to the existing accessibility pressure coming from increasing transit service and ridership. This situation almost certainly results in increased costs on the site, something that can be extremely challenging while trying to attract private development. Any effort to attract quality private development must pay careful attention to the proforma of development proposals.

Making Parking Arrangements Work for Development

A station area development strategy must therefore address the challenges around parking in order to achieve the desirable forms of private development. As has been previously discussed, developments on existing surface parking in the station area face a double burden of parking in which they must provide for their own needs while compensating for the lost spaces on their land parcel. The cost of providing structured parking alone is often enough to make an office development in a suburban context financial unviable. Considering decentralizing trends that have seen strong growth in office clusters on the urban periphery, the costs for office sites in station areas must be considered within a competitive environment. With

land values higher than many greenfield sites, station areas must offer amenities to compensate. The attractive public realms, density and placemaking sought in these areas require alternatives to surface parking. Yet in the competitive office lease market developers are often unable to pass the costs of alternative parking on to tenants. Recognizing this fact the GTA municipalities of Mississauga and Markham have both begun to study potential strategies to accommodate office parking without pricing developments out of competitiveness in Mississauga City Centre and around Unionville Mobility Hub in Markham.

Advantageous alternative parking arrangements can be used in various combinations to overcome the disadvantage of the double burden for parking. Applying these strategies to station areas must be accomplished in a way that does significantly increase station costs. Parking strategies that can reduce demand and facilitate flexibility have been discussed extensively and include items such as unbundled parking, parking cash-outs and station area access hierarchies. By promoting alternative means of commuting into the area, inherently an advantage of station districts, parking demand can be reduced allowing for the relaxation of minimum parking standards. This can be further coupled with cash in-lieu of parking options that further benefit both the public and the developer by increasing building envelopes while building public assets and attractive urban form.

Considering Future Market Conditions

The tremendous potential of station areas and natural demand for areas of high mobility and visibility should not be forgotten. Although current market conditions favour suburban locations with excess parking, the fundamentals are in place for these conditions to change in the mid to long term. Data already clearly indicates higher land and values and a rent in proximity to rail transit and demand for residential units is strong. These values suggest latent demand for space in station areas if financial barriers can be overcome. Development strategies should leverage this demand, especially in the residential sector to achieve alternate goals. Highly profitable residential components may be included in office proposals in order to improve pro forma and pay for expensive parking structures. This approach was undertaken with the new Telus Gardens office tower in downtown Vancouver, where there is a feeling that the large office project could not have been built without a residential component (Lazurik, 2012). Furthermore, station areas have the potential to utilize their position relative to established business centers such as the Toronto CBD in order to create business corridors along GO Transit lines. Viewing the entire corridor can allow for a critical mass of transit ridership and a shift in market demand for office space. Benefits analysis for the Lakeshore West GO Train corridor already includes the notion of a business corridor between Toronto and Hamilton populated with nodes of development along the route (Metrolinx, 2009a). This situation should be considered as part of the higher level planning for attracting office employment to station areas.

An Overall Strategy

With the vision of a business corridor in mind, station area development must also give consideration to the long-term potential of its land bank assets. As congestion continues to increase public transit ridership there will be pressures to maintain public lands in order maximize the revenue from increased parking charges or to wait on increases in land value and improvements in market condition. It should be noted however that research on station area access suggests that surface parking sties will have to be opened up to attract initial development and build the market. Phasing approaches should be carefully planned to maximize public capture of increases in land value. A representation of these phasing approaches can be found in *Table 5.* However, surface parking is not a viable long-term land use in station areas, and in its current state acts as a hindrance on development potential and value of public assets.

Finally, station area development strategies must develop a set of guiding principles and priorities. These principles should be made publically available in a document supportive of the Mobility Hub Guidelines that outlines a methodology for approaching joint development in station areas to make this process clear to development partners. A development strategy must necessarily include an articulation of the agency's mandate and its expectations of parking replacement. Both of these points speak to the agencies perception about the relative weight of station area development. A transit agency must clearly decide whether facilitating station area development is within its mandate and back this position. In the case of

Metrolinx a strong case can be made that encouraging and facilitating station area development is within mandate. Extensive work has already been completed to this regard and regional planning is embedded with a clear understanding of the fundamental link between transit planning and land use. This mandate ties in with the methodology for creating a parking replacement formula in which goals must be established against which to judge specific station area development proposals.

Table 5: Potential Phasing at Surface Parking Sites

	Timing			
Strategy	***Now***	***Short Term***	***Midterm***	***Long Term***
Implement Paid Parking at all GO lots	■			
Invest Parking Revenue in Local Transit	■	■		
Build Market Conditions for Office Development		■		
Eliminate Municipal Minimum Parking Standards		■		
Invest in Public Realm Improvements and Unbundled Parking		■		
Attract Marquee Projects and Public Buildings		■		
Invest in Structured Shared Parking			■	
Create TIF zones and incentives in station areas			■	
Open Portions of Parking Land to Development			■	
Use TIF zones as catalyst for public amenity funding			■	■
Reduce Over-Supply of Parking Across the Region				■
Transit Oriented Office Corridors				■

9. RECOMMENDATIONS & CONCLUSION

RECOMMENDATIONS

The phasing strategy outlined in *Table 5* provides an outline of the kinds of actions that will be needed to overcome the barriers posed by parking requirements and the challenges of attracting office development. An important first step will be a move towards paid parking across the GO system. This will end the subsidy that inflates parking demand and provide a modest new revenue stream. Introducing paid parking will be an intricate process and must be managed in a way that creates stakeholder input. The benefit that can be achieved by the new charge must be articulated to system users who should have access to input on setting priorities for how new revenue should be spent. Revenue from paid parking should be used to remove maintenance funding from general fares. Remaining revenue should be used in station areas to work towards improved local transit access and public realm quality in the station area as per the mobility hub guidelines.

A second general step can be described as building the market conditions for office development in station areas. This must include a comprehensive approach that works with local municipalities to ensure that cost barriers to office development are addressed. Recognizing that current market conditions do not permit developers to profitably build underground or structured parking, cash in-lieu programs should be developed with the help of Metrolinx. These programs can coordinate the development of common parking garages that remove or reduce the parking burden on individual developments, facilitating density and increasing

intensification potential. As part of the study of parking options, Metrolinx should also work to explore the range of other available parking management strategies such as shared parking and transit eco-pass programs.

Beyond the issue of parking provision, Metrolinx must also look at ways of working with municipalities to address infrastructure deficiencies in mobility hubs such as new grade separations, public amenities and servicing. Tax Increment Financing (TIF) zones have the potential to help finance these necessary improvements but lack significant precedent in Ontario. Metrolinx should explore the possibility of providing institutional capacity for municipalities to form TIF zones. Finally, an important step to building the office market in mobility hubs is to have public sector offices lead by example. Metrolinx should work to encourage that public offices be located in station areas to help spur a critical mass of activity.

As the office market in station areas develops, Metrolinx can begin to place greater emphasis on encouraging development within existing surface parking sites. Continuing a strategy of unbundled, shared parking facilities, coordination with local municipalities should reduce minimum parking standards in mobility hubs; the eventual goal being their elimination. A key component to development on surface parking lots will be the establishment of the parking replacement ratio. This ratio should be encompassed within clear guidelines and process for developments looking to build within GO parking lots.

Parking demand in station areas should be reduced as much as possible over the long term. This facilitates lower parking burdens for developments and would allow for a more favourable parking replacement ratio. Regardless of the effectiveness of parking demand management in mobility hubs, the ability to charge market prices for parking is dependent on conditions in the broader region as a whole. Thus, in the long term, reducing the regional oversupply of parking should be considered an important strategy for successful mobility hub implementation.

Long term actions on development in mobility hubs should be guided by the vision of establishing business corridors along major public transit corridors. Space around most stations is limited and each mobility hub is situated within its own specific context. Yet when combined along a corridor, mobility hubs have the potential to reach a critical mass of office and other uses. Planned fast, frequent service along transit lines can connect businesses within mobility hubs to other business areas in a way which gives them an appealing competitive advantage. Market conditions should increasingly favour such corridors with increasing congestion and fuel prices. This concept should be pursued foremost on lines with established hubs at either end such as Lakeshore West, which is anchored by the downtowns of both Toronto and Hamilton. With increasing amounts of employment focused around transit and in mixed-use areas, parking requirements can be reduced on a regional scale, allowing for greater intensification potential and reducing the market inclination towards the subsidy of free parking.

CONCLUSIONS

Free surface parking around transit stations is neither sustainable in the long-term nor conducive the goals laid out in the Mobility Hub Guidelines. Evidence suggests that free parking creates a distortion in demand and a potential surplus of supply. Across North America many commuter transit services charge for parking. In addition to offering a new revenue source, paid parking can benefit GO by stabilizing parking demand and providing funding for further station area investment.

Planning for transit oriented office development is essential to regional mobility, successful transit nodes and ridership growth. Despite potential, market conditions and financial barriers currently impair progress. The prohibitive cost of structured or underground parking is one of the most significant such barriers. Alternative parking demand management techniques have the potential to reduce these barriers and provide the flexibility needed to transition station areas with changes in market demands. A change in market conditions will come slowly but can be anticipated based on fundamentals of increasing highway congestion, fuel prices, provincial policy, land availability and competitive advantage.

Implementing the necessary measures to facilitate the desired form of development will take involvement from public agencies that should clearly articulate that this is within their mandate. Station area development, accommodated through flexible approaches to parking management has the potential to improve rider experience, transit agency financial stability and regional congestion problems.

APPENDIX:
Surface Parking Maps at GTA Mobility Hubs

This appendix is meant to give a visual illustration of the physical layout of surface parking at suburban GO stations identified as mobility hubs. Lands devoted to park and ride facilities are shown in yellow while the general area of the station facilities are indicated in green. The maps illustrate the degree to which surface parking tends to isolate the station from its surrounding uses. Aerial images also begin to show the development potential of the surfacing lots in places where they occupy large, suitably shaped parcels of highly desirable land. Maps presented in this appendix should be considered approximate and are intended to provide a general visual illustration only.

OAKVILLE

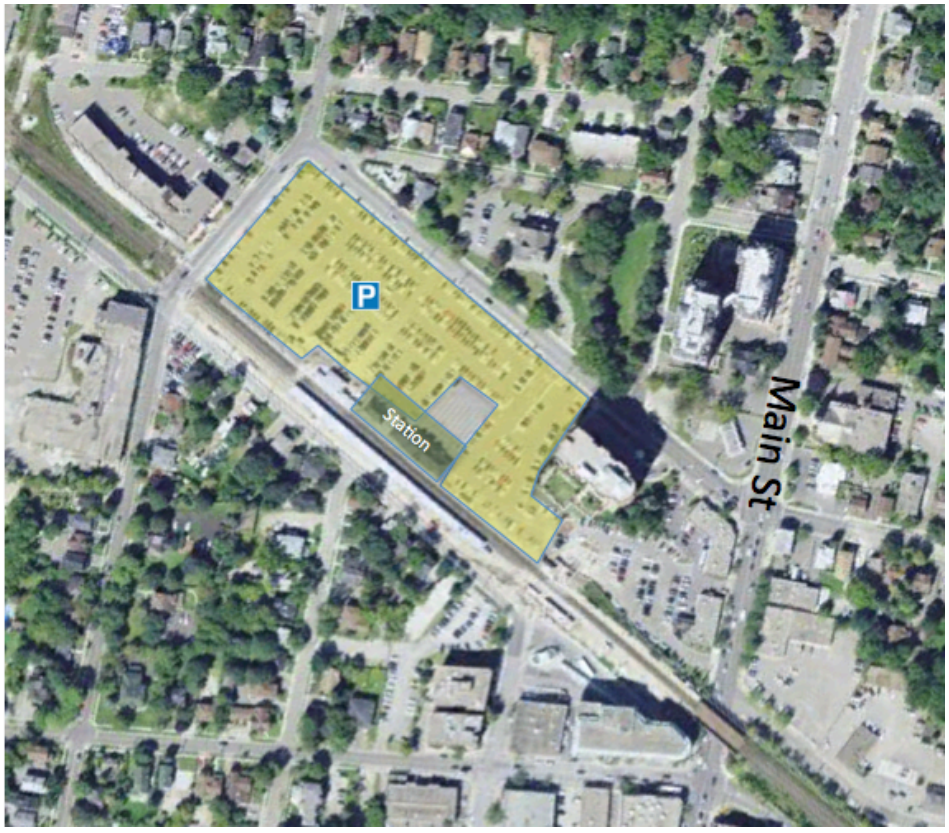
COOKSVILLE

BURLINGTON

BRAMALEA

OSHAWA

BRAMPTON



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