Planning for Mobility Hubs:
Creating Great Transit Places

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Abstract

The Big Move is Metrolinx's Regional Transportation Plan (RTP) for the Greater Toronto and Hamilton Area (GTHA). This plan is the third element in the Province of Ontario's three part approach to environmental, social and economic sustainability in the region, with the *Growth Plan for the Greater Golden Horseshoe* and *the Greenbelt Plan* dealing primarily with land use issues.

Essential to the success of the Province's strategy is the efficient coordination of land use and transportation planning and the seamless integration of the different elements of the regional transportation system. The 51 Mobility Hubs across the GTHA are places where local and regional rapid transit services come together in areas planned to accommodate high densities of people and jobs in mixed use environments.

As the key nodes of integration in the regional transportation system, Mobility Hubs need to be carefully planned with consideration for complex transit operations, diverse stakeholder interests, short term as well as long term needs, and a number of geographic scales – from the station to the neighbourhood and the transportation network.

This paper discusses the Mobility Hub concept and compares it to the recent experience in planning for the future of the Kipling Interregional Station, the first Mobility Hub plan in the GTHA. Lessons are drawn for future Mobility Hub planning in the region and for similar efforts in other jurisdictions.

1. Introduction

The Regional Transportation Plan (RTP) developed by Metrolinx in 2008 for the Greater Toronto and Hamilton Area (GTHA) presents a 25-year vision to guide all transportation infrastructure investments in the region. The plan responds to a context of rapid and significant population growth and a strong provincial policy framework aimed at curbing sprawl, managing population growth, and improving the environmental sustainability of the region. The plan is also a response to a generation of under-investment in transportation infrastructure and a fragmented regional transit system.

With 75% of the regional mode share, automobiles are the transportation mode that people in the GTHA rely on. One in every four trips for all modes in the region crosses municipal boundaries. However, interregional transfers between the 10 different transit operators in the region are poorly coordinated. If transit is to attract a higher mode share, efficient integration of interregional transit services will be just as important as investing in transit infrastructure.

This paper will look at the crucial role of Mobility Hubs in the successful implementation of the RTP as nodes of interregional connectivity, and as special places where transportation and land use planning truly integrated.

The first section of the paper will outline the regional context of the GTHA and a brief history of Metrolinx, while the second section briefly outlines the content of the RTP. The third section presents the Mobility Hub concept as formulated in the RTP and subsequent work by Metrolinx.

The case study of the *Kipling Interregional Station Concept Design*, presented in section four, illustrates how the first Mobility Hub in the GTHA was planned for, and what lessons it holds for hubs across the region and beyond. A comparison between the Kipling station plan and the *Draft Mobility Hub* objectives in the concluding section helps illustrate some of the challenges in attaining the Mobility Hub vision and some real-life strategies of how the objectives can be achieved.

It is all about integration. This paper argues that successful inter-modal, interregional connectivity in Mobility Hubs depends on how successfully we integrate the broad range of stakeholders in the planning and design of these transit places and balance complex transportation operating needs with high standards of land use intensification and placemaking.

In another sense, integration is also necessary in achieving harmony when planning at different scales. The RTP is a high-level policy document at a regional scale. Mobility Hub planning occurs at the station, station area and surrounding community level. Understanding of the dynamics that play a role in shaping Mobility Hubs at a micro and macro level is absolutely necessary to achieving this integration.

2. Background

Metrolinx, and agency of the Government of Ontario

Metrolinx is the regional transportation authority for the GTHA. Metrolinx was established in 2006 as an agency of the Ministry of Transportation of Ontario. It is governed by a board of directors of citizens representing deep knowledge of the region's economic landscape as well as vast experience in the fields of planning, development and transportation.

The GTHA, located in southern Ontario, is Canada's largest urban region. It is also one of Canada's fastest growing urban regions. It has an approximate area of 8,242 km^2 and a current population of over six million people. The region comprises two single-tier municipalities (Hamilton and Toronto) and four regional municipalities (Durham, Halton, Peel and York), along with their 24 lower-tier municipalities (see Figure 1).

The GTHA will continue to be one of Canada's fastest growing areas in the coming decades. By 2031, the population of the GTHA is estimated to grow from 6 to 8.6 million people and from 2.95 to 4.33 million jobs[i]. Clearly, this growth will require a massive increase in transportation infrastructure; the issue is what form this infrastructure should take. The task assigned to Metrolinx by the Province is to plan, fund and build this infrastructure.

The Regional Context

The cities of Toronto and, to a lesser extent, of Hamilton are urban, built-up areas with high degrees of residential and employment density. The regional municipalities of Durham, Halton, Peel and York have suburban municipalities in the areas surrounding Toronto and rural municipalities towards the edges of their political boundaries.

Outside the City of Toronto proper, the GTHA has become increasingly dependent on private automobiles for mobility. The number of car trips on the GTHA's roads is increasing at a faster rate than that of the population: between 1986 and 2006 the number of trips made by automobile in the GTHA grew 56 per cent compared to a population increase of 45 per cent.

The current GTHA's region-wide mode shares are as follows:

Walk and cycle ***9%***

Transit ***16%***

Auto ***75%***

According to a study commissioned by Metrolinx on the economic costs of congestion in the GTHA, in 2006 the annual cost of congestion to commuters was $3.3 billion and the annual cost to the economy was $2.7 billion. If nothing is done to improve the transportation system, the cost of congestion experienced by GTHA residents will grow to $7.8 billion per year by 2031. The cost to the economy would experience a similar increase, with a reduction in Gross Domestic Product (GDP) due to excess congestion rising from $2.7 billion in 2006 to $7.2 billion in the same period.

Dependence on cars is in part a result of how communities have been built in the GTHA. Disperse, low density development has resulted in a pattern of travel that is less and less focused on downtowns and other core urban areas, and hence more difficult to serve by transit. The province's *Growth Plan for the Greater Golden Horseshoe*, adopted in 2006, addresses this by mandating the development of mixed-use, transit-supportive, cycling- and pedestrian-friendly communities.

Whether by car or by transit, one out of every four trips in the GTHA crosses a regional boundary. However, the GTHA's public transit system is currently comprised of nine separately-governed local transit agencies and one regional transit provider. This patchwork of systems is poorly integrated, making travel across boundaries by public transit an inconvenient, frustrating, unattractive and costly option for many travellers. Given the regional travel patterns, these arrangements need to change if transit is to attract a larger share of trips.

Regional rapid transit – transit service that connects different municipalities the GTHA – is comprised of the GO Transit commuter rail network and the Toronto subway system, with a historical emphasis on serving Downtown Toronto. (See Figure 2).

In short, the GTHA transportation system has not kept pace with population growth. The roads, highways, subways, streetcars, buses and regional rail services in the GTHA are being pushed to their limits, and customers are suffering with crowding and poor reliability.

Like other city-regions around the world, the GTHA must also prepare to deal with a number of challenges such as climate change, increased energy costs and peak oil, fast-paced urbanization, the shifting global economy, and an aging population.

Transforming how we travel around the GTHA is part of the solution to arresting climate change, achieving the province's greenhouse gas (GHG) reduction targets, reducing our reliance on oil, and shaping a more sustainable urban structure that protects natural and agricultural lands.

Metrolinx's Regional Transportation Plan: The Big Move

As part of its plan to deliver long-term sustainable transportation and better transit, the McGuinty Government introduced legislation to create the Greater Toronto Transportation Authority (later renamed as Metrolinx) on April 24, 2006.

Through the *Greater Toronto Transportation Act, 2006* The Greater Toronto Transportation Authority (GTTA) was created to play a critical role in planning for a seamless, integrated transit network so that people can use public transit to travel easily from Hamilton to Newmarket to Oshawa.

In spring 2007, GTTA Board members were nominated for terms of up to three years. The Board comprised 11 members, two nominated by the Province and the others nominated by regional and municipal councils in the GTHA.

As mandated by the *Greater Toronto Transportation Authority Act, 2006*, Metrolinx was to develop a Regional Transportation Plan (RTP) that:

- takes into account all modes of transportation;
- makes use of intelligent transportation systems;
- promotes the integration of local transit systems with each other and with the GO Transit system;
- works toward easing congestion and commute times, and reducing transportation-related emissions of smog precursors and greenhouse gases; and
- promotes transit-supportive development and the viability and optimization of transit infrastructure.

With an established Board, and a new identity as Metrolinx, the agency set out to develop the RTP through a comprehensive process of research, transportation modelling, stakeholder and public engagement.

On November 28, 2008, the Metrolinx Board of Directors voted unanimously to adopt the RTP, which we have named *The Big Move: Transforming Transportation in the Greater Toronto and Hamilton Area (GTHA)*. The Big Move is a landmark achievement. The municipal leaders on the Metrolinx Board have come together, with a single voice, to create a common vision for transportation in the region.

The RTP is the third piece in a three-part approach by the provincial government to prepare the GTHA for growth and sustainability. It builds on the *Greenbelt Plan*, which protects more than 1.8 million acres of environmentally sensitive and agricultural land in the heart of the region, and the *Growth Plan for the Greater Golden Horseshoe* (the *Growth Plan*), which manages population and job growth, and curbs urban sprawl. Together, these three initiatives will lead to the development of more compact and complete communities that make walking, cycling and transit part of everyday life.

The RTP fulfils the province's commitment to undertake further work and analysis to implement the transportation network and policies of the *Growth Plan for the Greater Golden Horseshoe*. It also meets the *Growth Plan's* directions that call for the transportation system to be planned and managed to provide connectivity among transportation modes, offer a balance of transportation choices, encourage the most financially and environmentally appropriate modes for trip-making, offer multi-modal access to jobs, housing and services, and shape growth by supporting intensification.

The Big Move is the blueprint for a more sustainable transportation future. It reaches out 25 years into the future to guide and direct decision-making. It sets out priorities, policies and programs for a future of complete mobility. The aim of the RTP is to achieve a transportation system for the GTHA that is effective, integrated and multi-modal. It presents a vision for the future in which transportation within the GTHA is seamless, coordinated and efficient, as well as a blueprint for how to get there.

The Big Move's Vision for the Future

The Big Move provides a bold vision for the future to guide investments in transportation.

In 25 years, the transportation system in the GTHA will ensure that our region has a high quality of life, a thriving and sustainable environment and a strong and prosperous economy. Our communities will support healthy and active lifestyles, with many options for getting around quickly, reliably, conveniently, comfortably and safely. Our transportation system will have a low carbon footprint, conserve resources, and contribute to a legacy of a healthy and clean environment for future generations. Our region will be competitive with the world's strongest regions. Businesses will be supported by a transportation system that moves goods and delivers services quickly and efficiently.

As a result of implementing the RTP,

- *The distance that people drive every day will drop by **one-third**;*
- ***One third** of trips to work will be taken by transit and **one in five** will be taken by foot or bicycle.*
- ***60%** of children will walk or cycle to school and there will be **six** times more bike lanes and trails than today.*
- ***All** transit vehicles will be accessible.*
- *A single, integrated fare card will be used for **all** transit trips.*
- *Emissions from passenger transportation will be cut in **half**.*

The RTP contains 10 Strategies that are needed to achieve the vision, goals and objectives of the RTP. Each Strategy includes Priority Actions and Supporting Policies. Priority Actions are specific and concrete actions that comprise a "to-do" list that is needed to implement the Strategy. These actions are broad in scope and include actions relating to legislation, policies, programs, planning and funding. Supporting Policies are policies that are needed to guide day-to-day decision making in support of each Strategy.

STRATEGIES
Strategy #1 Build a Comprehensive Regional Rapid Transit Network
Strategy #2 Enhance and Expand Active Transportation
Strategy #3 Improve the Efficiency of the Road and Highway Network
Strategy #4 Create an Ambitious Transportation Demand Management Program
Strategy #5 Create a Customer-First Transportation System
Strategy #6 Implement an Integrated Transit Fare System
Strategy #7 Build Communities that are Pedestrian, Cycling and Transit-Supportive
Strategy #8 Plan For Universal Access
Strategy #9 Improve Goods Movement Within the GTHA and With Adjacent Regions
Strategy #10 Commit to Continuous Improvement

Figure 3 illustrates the 25-year plan for highway and regional rapid transit improvements in the GTHA pertinent to Strategy #1 of the plan. The 60 projects shown represent a planned investment of over $50 billion. The infrastructure projects planned for in the Big Move are a crucial part of the overall 25-year plan. However, the full vision of the Big Move can only be achieved through the successful implementation of all ten strategies. The focus of this paper and the theme of the following sections is that of the role of Mobility Hubs in the implementation of the RTP. The development of a network of connected mobility hubs is one of the key actions under Strategy #7 of the RTP, which is concerned with making the connection between land use and transportation planning.

3. Mobility Hubs

The building blocks of the RTP are 51 mobility hubs across the transportation network (See Figure 4). Mobility hubs will be places of intensification and mixed land use, with high levels of pedestrian and cyclist priority, and a strong sense of place, that provide seamless access to the regional transit system.

The mobility hub policies of the RTP build on the overall policy framework established in the *Growth Plan*, particularly those related to *major transit station areas*. The *Growth Plan* defines *major transit station areas* as the area within a 500m radius (10 minute walk) of any existing or planned higher order transit station within a settlement area or

around a major bus depot in an urban core. *Major transit station areas* that are particularly significant for the regional rapid transit system are recognized as mobility hubs in the RTP.

Mobility hubs are *major transit station areas* with significant levels of transit service planned for them in the RTP, high development potential, and a critical function in the regional transportation system as major trip generators. They are places of connectivity where different modes of transportation — from walking to high-speed rail — come together seamlessly and where there is an intensive concentration of employment, living, shopping and/or recreation. In addition to serving as places to arrive, depart and wait for transit, successful mobility hubs have the potential to become vibrant places of activity and destinations in themselves.

Currently, many of these sites offer little more than vast parking lots, but they could be much more. The RTP imagines a future in which these areas become true mobility hubs, with local transit service, cycling and pedestrian networks, secure storage facilities for bikes, car-share drop-off areas and more. They will become locations for major destinations such as office buildings, hospitals, education facilities and government services. They will be places carefully designed to improve the transit customer's experience from the moment he or she approaches a station, by offering amenities such as heated waiting areas, traveller information centres, cafés and restaurants, as well as services such as daycares, grocery stores or post offices.

Municipalities across the GTHA have already embraced transit oriented development (TOD) as the new urban planning paradigm. With the passage of the *Places to Grow Act* and the *Growth Plan*, a higher standard of development is actively enforced through regional and municipal Official Plans to ensure a minimum level of density and land use mix to support transit use.

Mobility Hubs will be an extension of transit-oriented development principles by including and prioritizing an integrated, seamless interface of high quality rapid transit. As such, there are unique needs and opportunities that will be present at Mobility Hubs that require special planning consideration. With careful execution, these Hubs will be centres of activity and place, attracting opportunities for live, work, and play, all connected to the greater region through reliable, rapid transit.

As part of Metrolinx's work on Mobility Hubs, in October 2009 the agency embarked in the development of a set of guidelines meant to help all relevant land use, transit and transportation professionals in Mobility Hub planning. The guidelines will refine and clearly communicate the Mobility Hub concept while providing direction on how to plan and develop these special transit places.

The *Draft Mobility Hub Guidelines* are being developed through consultation with the document's future users, including municipal land use and transportation planners, urban designers and transit operators. As a result of the research and consultation work related to the *Mobility Hub Guidelines*, the project team has put forth twelve Draft Mobility Hub

Objectives. The twelve objectives are organized under the general themes of how to attain seamless mobility, the connection to land use, urban design and placemaking, and the implementation strategies required for the making Mobility Hubs successful as transit nodes as well as destinations.

Draft Mobility Hub Objectives (from Draft Mobility Hub Guidelines, in development)

Seamless Mobility

1. **Seamless integration of transit modes, systems, and routes for a high quality user experience**
2. **Mobility prioritized upon the following traveller transportation hierarchy:**
   - **(i) Trip reduction, shortening or avoidance**
   - **(ii) Walking**
   - **(iii) Cycling**
   - **(iii) Transit**
   - **(iv) Ride-sharing and taxis**
   - **(v) Single-occupant vehicles**
3. **Safe and efficient movement of people**
4. **A well-designed transit station as the focal point within a high quality public realm**
5. **Strategic parking management to reduce parking supply, support transportation demand management, promote transit ridership, improve pedestrian access to stations and major destinations, and to use land efficiently**

Transit supportive Land Use Planning & Placemaking

6. **A vibrant, mixed-use environment of higher land use intensity and local and regional destinations**
7. **Healthy and livable places that strengthen community identity**
8. **An attractive public realm with well-designed buildings, streets, and public spaces**
9. **A minimized ecological footprint through excellence in green design**

Implementing successful mobility hubs

10. **Creative, dynamic, and collaborative clusters of population and employment**
11. **Effective partnerships and incentives that foster increased public and private investment and capitalize on rapid transit investments**
12. **Flexible Mobility Hub plans that accommodate growth and change**

Planning for Mobility Hubs

Beyond the development of Mobility Hub Guidelines, Metrolinx has been actively involved in planning for Mobility Hubs across the region in partnership with municipalities and transit agencies. To date, Metrolinx has been involved in Mobility Hub planning work for five mobility hubs. Working in a partnership with the City of Mississauga, Metrolinx is currently working on plans for the Cooksville GO and Port Credit GO mobility hubs which integrate GO commuter rail services with Mississauga Transit services. A new study is underway to better integrate the Bloor GO Transit rail station with the TTC's subway, streetcar and bus services at Dundas West Station in Toronto. The following section will describe the recently completed Conceptual Plan for Kipling Interregional Station, at the western terminus of Toronto's Bloor-Danforth subway line, which was led by Metrolinx.

4. Case-study: Kipling Interregional Station, Lesson Learned

The Kipling interregional station area is identified as a mobility hub in the RTP. Following previous efforts to redevelop this site, Metrolinx was assigned the lead role for the design and implementation of the mobility hub by the Minister of Transportation in June 2008.

The Kipling interregional station includes the western terminus of Toronto Transit Commission (TTC) Bloor-Danforth Subway Line, a stop on GO Transit's Milton commuter rail line, and interregional bus terminals for the TTC, Mississauga Transit, and GO Transit (Figure 5 illustrates the location of Kipling station in the regional transit network). The site and is located in both a designated Urban Growth Centre, according to *The Growth Plan for the Greater Golden Horseshoe* and a hydro corridor. As such, the project impacts a wide range of stakeholders. Primary stakeholders include:

- Metrolinx/GO Transit
- TTC
- Mississauga Transit
- City of Toronto Community Planning
- City of Toronto Transportation Planning
- City of Toronto Transportation Services
- City of Toronto Urban Design Review Panel
- Hydro One
- Ontario Realty Corporation
- Transit Riders
- Local Community Groups and Residents

The vision for Kipling was developed within the context of the existing planning and urban design frameworks articulated in the City of Toronto's *Etobicoke Centre Secondary Plan* and *Urban Design Guidelines*, the existing work prepared as part of the previous design, the feedback provided by the City's Design Review Panel, and, most importantly, the mobility hub concept articulated in the RTP.

The following is a short chronology of project events leading up to the present date:

- *Mid 2003* – TTC initiates study to relocate Mississauga Transit Bus operations from Islington Station to Kipling Station in Toronto
- *December 2006* – TTC and City of Toronto approach Province to cost share Kipling Station re-development
- *July 2007* – City of Toronto Design Review Panel does not support the initial TTC proposal
- *December 2007* – Project leadership handed over to GO Transit
- *January 2008* – Design Review Panel does not support the revised scheme
- *May 2008* – GO Transit hosts a public design charrette for Kipling Station
- *June 2008* – Metrolinx requested to assume project leadership role
- *October 2008* – Metrolinx hires consulting firms planningAlliance, McCormick Rankin Corporation, and N. Barry Lyons to help develop a new design
- *July 2009* – Metrolinx finalizes the Design Concept Development Study, an urban design and schematic vision for the station and surrounding areas to establish the site as a mobility hub in support of the RTP and City of Toronto's urban design objectives
- *October 2009* – New design receives unanimous support from the Design Review Panel and is encouraged to head directly to site plan application. The Design Review Panel calls the new design "a drastic improvement on an impossible site" and illustrates "a leadership role demonstrated by Metrolinx doing the right thing"
- *Spring 2010* –Detailed design work in progress, project funded as part of Metrolinx' five year capital plan

Conceptual Plan for Kipling Interregional Station

The development of the conceptual plan was approached through two lenses. The first lens considered the immediate needs of the transit operators in developing a new interregional bus terminal. The second lens considered the long term vision to best realize the full potential of the site as a mobility hub. The two needs were developed in parallel with an eye to ensuring that work carried out in the short term would not preclude optimizing future development opportunities.

The final conceptual recommendations were structured into three phases;

Phase One represents a 2-3 year horizon and addresses the functional requirements of the previously developed scheme by GO Transit as well as those improvements in the latter iteration, while simultaneously addressing concerns about the public realm, architecture

and urban design identified by the Design Review Panel. Key features include (See Figure 5):

- Sustainable Design - LEED Gold for New Construction target
- Enhanced Pedestrian Access -
    - Major pedestrian promenades created along surrounding streets
    - At grade connectivity
- The creation of new civic space along a major street with landscaping, public art and possible retail opportunities
- A new bus terminal roof that is green and accessible with architecturally distinct entranceway at bus terminal. This feature also extends vertical circulation between the bus terminal and the main street level.
- Two pedestrian bridges providing access from the new civic space to the green roof, and from the roof to the main entrance for TTC services.

Phase Two represents a potential interim stage. It allows for an incremental development plan which accounts for contingencies in funding, approvals, and changing market conditions. A key feature of this phase is the re-alignment Aukland Road to the west to create development parcels and land value uplift opportunities, providing for a fuller integration of bus movement across the site between the TTC and interregional terminals, and increasing pedestrian circulation and amenities throughout the study area (see Figure 6).

Phase Three represents a long term vision for the site. Over an estimated 20-30 year horizon, this plan attempts to identify a framework for realizing the full potential of the Primary Study Area as a Mobility Hub. Key features of this phase include:

- The creation of additional development parcels through the re-alignment of Subway Crescent
- The provision of structured parking on the south side of the tracks
- Infrastructure improvements to capitalise on a future fully integrated fare system
- Improving passenger amenities for east and west access to the subway platform

Upon completion of phase three the project has been estimated to result in the creation of:

- $44M in total land value created (time of sales $)
- $637M in private investment attracted (time of sales $)

A Multi-Stakeholder Environment

Perhaps the project's greatest complexity was the involvement of a large number of stakeholders with diverse interests. As the GTHA's regional transportation authority, many of Metrolinx's Mobility Hub projects will cross municipal boundaries and each project can involve multiple transit agencies and municipalities. Moving forward

Metrolinx will be judged on how successfully we can achieve stakeholder consensus while maintaining the Mobility Hub vision.

Creating consensus amongst such a diverse group of stakeholders was very challenging. While similarities existed between most stakeholder objectives, the priorities placed on these objectives often differed, and in some cases were in direct conflict with each other. For example, the priority of the transportation planning and operations staff representing each transit agency was the efficient access/egress and flow through of buses within the Mobility Hub. In contrast, City of Toronto Community Planning was concerned with placemaking and the creation of a pedestrian friendly environment.

In this multi-stakeholder environment the major issues requiring consensus building were:

- Design, including a thorough understanding of area development plans to ensure "future-proofing" of infrastructure investments
- Construction
- Financial capital contribution
- Real property acquisition - including the coordination of multiple title land ownership
- Operating cost-sharing agreements
- The setting of conditions precedent

Throughout the project many lessons learned became apparent regarding achieving stakeholder buy-in for the creation of a proper Mobility Hub master plan. This buy-in remains critical throughout detailed design, construction and implementation. The following seven lessons learned were particularly prominent.

1. Mobility Hub's principles and objectives should be established and clearly communicated early on in the project as to avoid the risk of a compromised design and schedule delay brought about by differences in stakeholder project priorities.

2. Project objectives require high level buy-in by major stakeholders very early in the project to help establish credibility for the objectives.

3. A thorough, inclusive, and well established foundation document, such as the RTP, or the *Mobility Hub Guidelines* presently under development, can be used as the basis for the project's objectives. A document such as this provides further credibility and understanding of the reasoning behind the adoption of the project's objectives.

4. Reliable transit ridership and population density forecasts need to be developed. This is most important since planned regional rapid transit projects at Mobility Hubs may have varying implementation phasing timelines. Reliable density and ridership analysis is key to understanding the dynamics between station planning, station area planning and the larger surrounding community planning contexts.

Further, this analysis is essential in informing station capacity requirements, infrastructure and design considerations.

5. Participative community and stakeholder engagement through, such as a design charrette, builds trust between the parties ensuring that the resulting vision is based predominantly upon the issues that stakeholders feel are most crucial to them.

6. A thorough understanding of development plans for the area is much easier to achieve if the project team includes experts who not only have knowledge of local projects but also have a reputation for being able to see past individual priorities to achieve big-picture thinking.

7. Where multiple parties will be involved in the construction, maintenance and operations of a Mobility Hub facility, it is necessary to clearly delineate each party's roles and responsibilities from the onset. A Memorandum of Understanding (MOU), for instance, can cover issues such as financial matters, cost-sharing agreements, real property matters, design and construction matters, permission to enter, conditions precedent, and parking construction and management. After the completion of a facility's conceptual design, further clarification of roles should be pursued as to ensure a thorough understanding of the project's complexities.

5. The Kipling Interregional Station Concept Plan and the Mobility Hub Concept, a Comparison

As Metrolinx's first Mobility Hub pilot project, the conceptual plan for the Kipling interregional station and area was created prior to the completion of the draft mobility hub objectives. As such the design, while it meets many of the objectives of the mobility hub concept, misses the mark on a few of the objectives. This section compares the experience of developing the Kipling station Concept Plan with the Mobility Hub concept as developed in the RTP and the Draft Mobility Hub objectives that were presented earlier in this article.

Seamless Mobility

The phase one design effectively provides seamless mobility and a high quality user experience. Mobility was prioritized using the transportation hierarchy from the RTP, which is also adopted in the Mobility Hub objectives (See page 8, Objective #2). Pedestrians can transfer from the interregional bus terminal to the existing TTC or GO Transit rail service through an underground tunnel or at grade along pedestrian only promenades. Additionally, the adoption of a unified fare media will make it easier for users to transfer between the different transit services without having to search for exact change.

In relation to Objective #6, strategic parking management, parking at Kipling station has been redesigned to break up the extensive existing parking lots into smaller "parking rooms" and landscaping is used to screen parking and help mitigate the existing high traffic setting (see Figure 7).

Transit supportive Land Use Planning and Placemaking

The design for the immediate station area is a great improvement in terms of enhancing transit supportive land use planning and placemaking. Through the realignment of Aukland Road and Subway Crescent the final build out proposes the creation of five mixed-use development sites that will house 3,100 people in 1,650 units and include 31,000 square feet of retail space. These new residents will live in direct proximity to interregional transit service. The realignment of Aukland Road also allows for the creation of a pedestrian only promenade linking all transit services.

In terms of a minimized ecological footprint through excellence in green design, the new interregional bus terminal is to be built to a LEED Gold standard including the creation of an accessible green roof with landscaping and public art. The project also creates additional civic space and introduces station frontage along Dundas Street West, a main road.

Where the project falls short is in its scale. Greater attention could have been paid to the neighbourhood outside of the immediate station area. Future mobility hub projects should include a clear delineation between the immediate site area, called the primary zone, a secondary zone, and a tertiary zone with a radius of up to 800 metres. The Kipling interregional station plan focused on the design of the primary zone, a radius of approximately 200 to 250 metres. By providing greater attention to issues such as improved active transportation connections, parcel identification, and land uses beyond the immediate station area the project likely could have increased the distance that people are willing to walk to the transit station and had a greater impact on encouraging mode shift to transit, walking and cycling within the Mobility Hub area.

Implementing Successful Mobility Hubs

Much thought was put into "future proofing" the site to ensure that work in phases one and two would not limit the phase three vision, including the creation of new development sites along Subway Crescent, the extension of the green roof onto a decked surface, the conversion of surface parking to structured parking, and the possible western extension of the Bloor-Danforth subway line. The plan allows for excess surface parking to be converted to development sites as the absorption rate for residential and mixed-use development in the area increases. The vision also takes into account future rapid transit along Dundas Street terminating at Kipling station. While the project's technology and service start date have not yet been determined, phase two and three plans are flexible to accommodate this service.

As the Kipling interregional station is to be built in three phases, with total project build-out not completed until 2031, there is opportunity to develop effective partnerships and incentives that foster increased public and private investment and capitalize on rapid transit investments. The conceptual plan for the Kipling interregional station lays a strong design and policy foundation to develop these relationships. Moving forward this foundation will have to be supported by effective implementation.

As the City of Toronto's *Etobicoke Centre Secondary Plan* already existed and many of the objectives for the station area had been determined prior to Metrolinx assuming the project lead, it was determined that the plan would focus on the immediate station area. In planning future Mobility Hubs, transit agencies and the municipality should work together to determine how the plan will fit into the local planning process prior to initiation of a mobility hub Master Plan.

At this stage it is difficult to draw conclusive lessons learned as the plan is still in the detailed design stage. Three key lessons learned that can be drawn from a comparison of the Kipling concept plan and the Mobility Hub concept based on the Draft Mobility Hub Objectives include:

1. Future Mobility Hub master plans should include a clear delineation between the immediate site area, a secondary zone, and a tertiary zone to more effectively coordinate transportation and land use planning.
2. Early on in the planning process a decision should be made between transit agencies, relevant municipalities, and, if appropriate, Metrolinx, as to how the Mobility Hub master plan will fit within the existing local planning context.
3. It is essential to have a clear understanding of the future conditions of the Mobility Hub, both in transit ridership and operations, as in the land use and population density assumptions. Clarity and reliability is required in regards to transit ridership forecasts for all transit lines coinciding at the hub for the appropriate time horizons. Further, detailed and accurate information is also required for the land use and population densities expected for the area. This means that considerable research and analysis needs to be completed prior to the development of a conceptual plan for the station or station area.

Concluding Remarks, Next Steps and Related Initiatives

The successful planning and implementation of Mobility Hubs is crucial to the overall success of the Big Move, since Mobility Hubs are the key points of where interregional connectivity occurs. As such, Metrolinx will continue working alongside municipalities and transit agencies in planning for these special transit places. Work will also continue in the development and testing of the *Mobility Hub Guidelines* through consultation with all relevant stakeholders, including provincial ministries and agencies involved in land use planning and transportation, municipalities, transit agencies, and non-government actors as appropriate.

As current work on Mobility Hubs across the GTHA is concluded, ongoing evaluation of these projects will further elucidate lessons in the planning, design and implementation of Mobility Hubs to further refine the guidelines and inform the implementation of the complete network of Mobility Hubs across the region.

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[i] Ministry of Public Infrastructure Renewal (Now Ministry of Energy and Infrastructure), *Places to Grow: Growth Plan for the Greater Golden Horseshoe*, Queen's Printer of Ontario: 2006.

Figures:

Figure 1. Greater Toronto and Hamilton Area Context Map

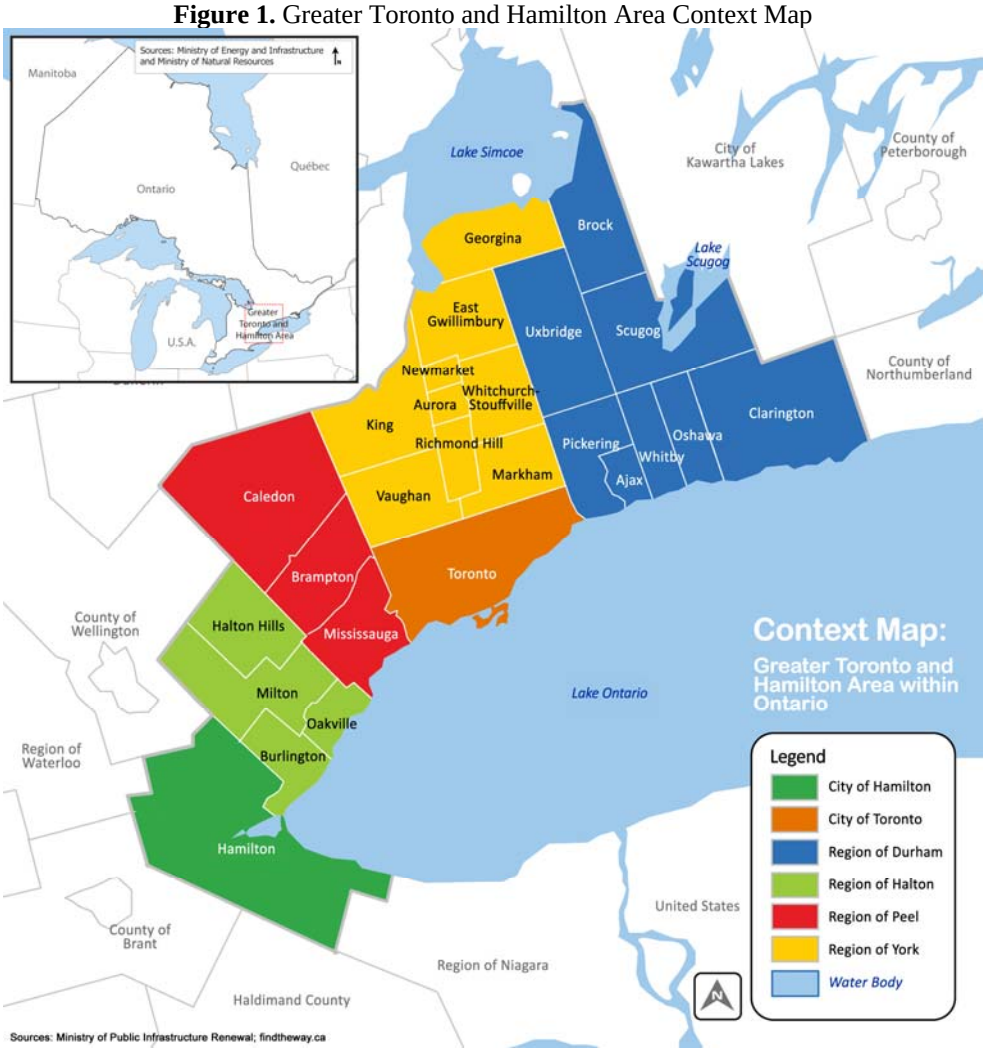

Figure 2. Existing Regional Rapid Transit and Highway Network in the GTHA

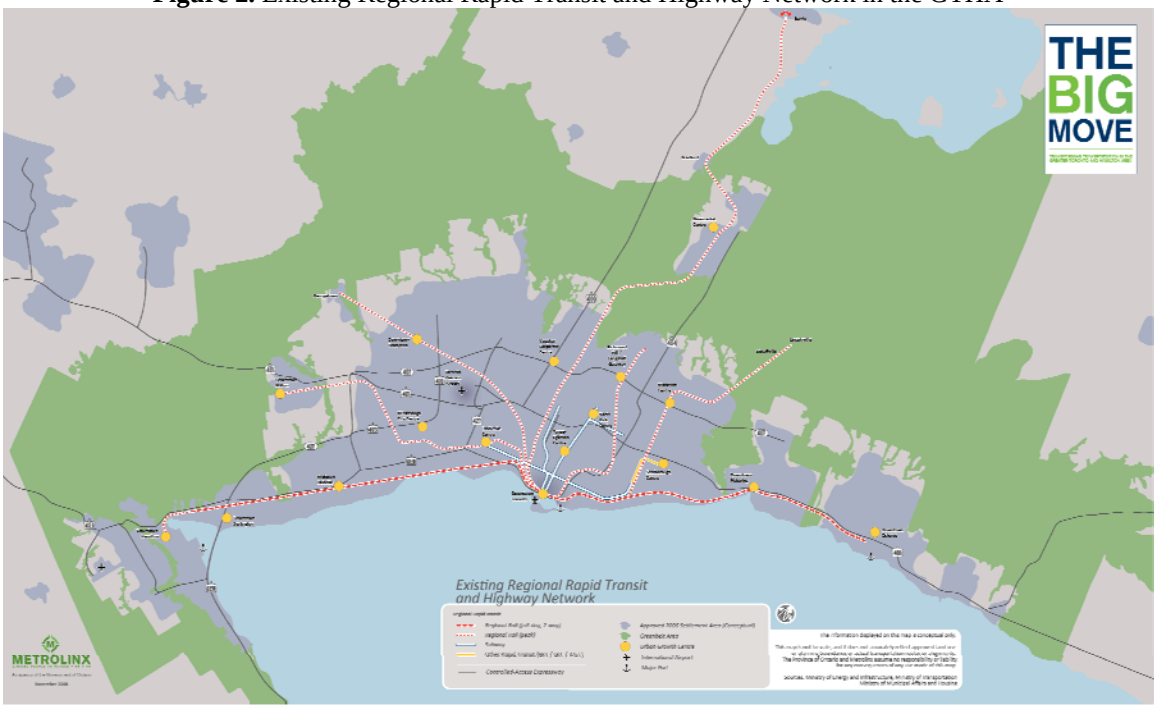

Figure 3. 25-Year Plan for the Regional Rapid Transit and Highway Network

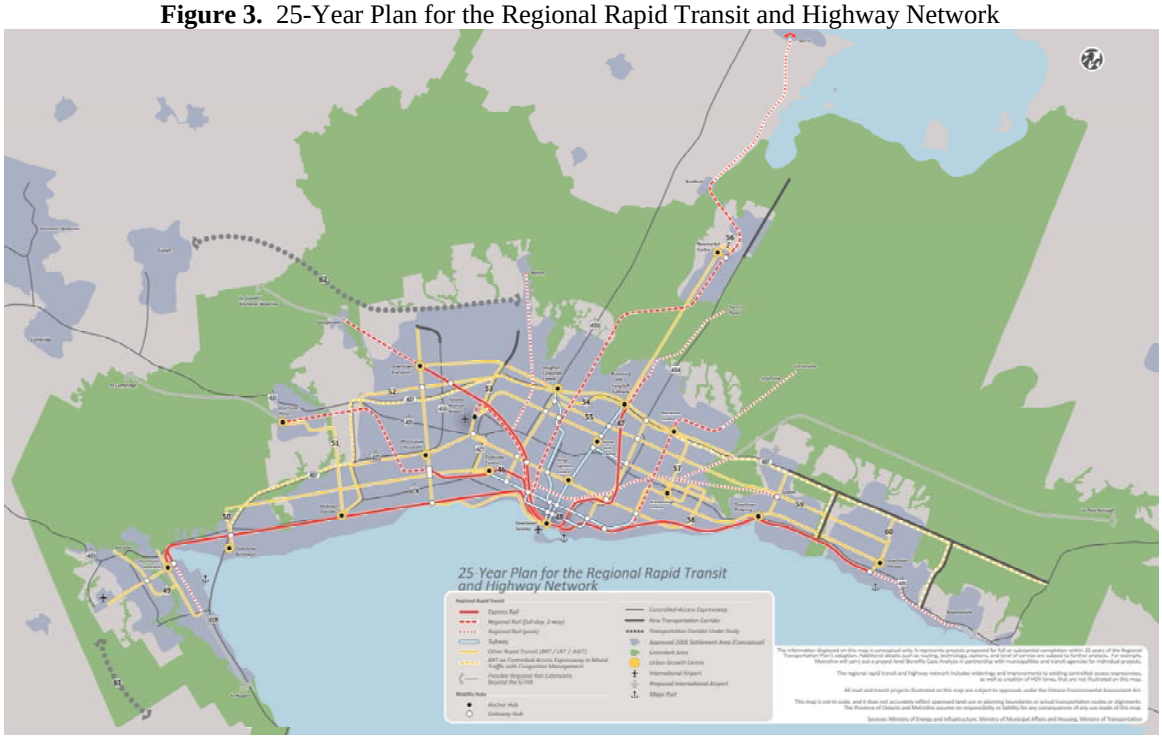

Figure 4. Location of Mobility Hubs across the GTHA

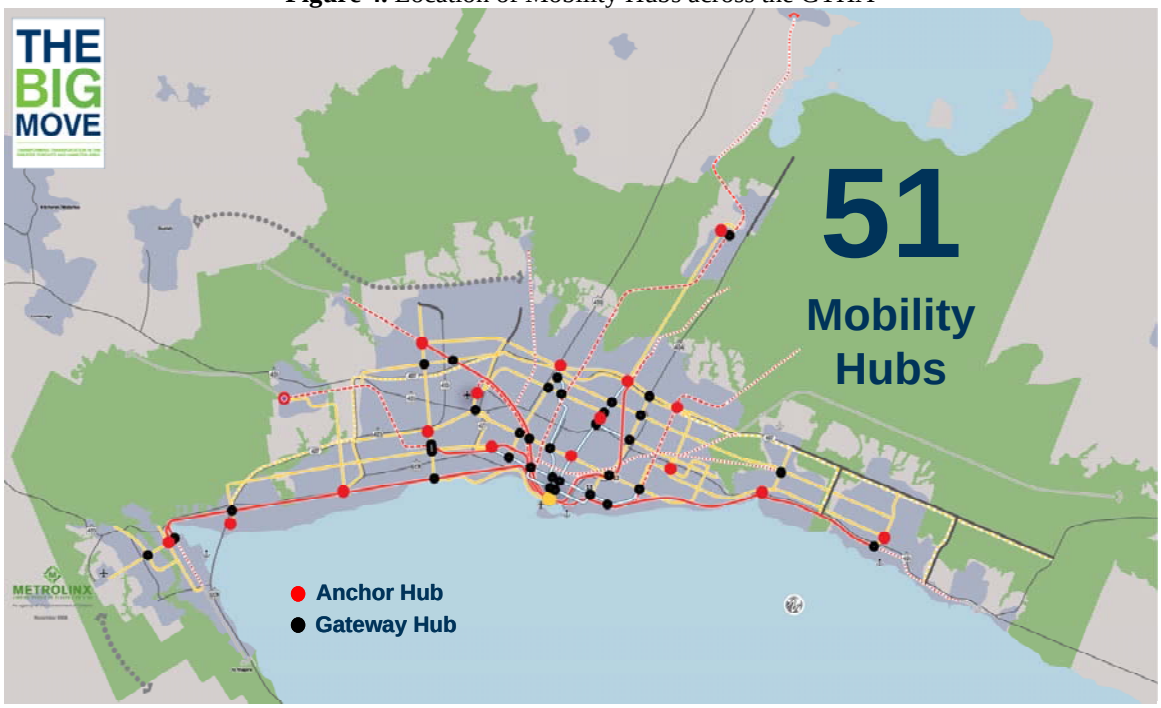

Figure 5. Rendering of Kippling Interregional Station Concept Plan Phase 1

Figure 6. Rendering of Kippling Interregional Station
Concept Plan Phase 2

Figure 7. Rendering of Kipling Interregional Station
showing “Parking Room,” bicycle parking, pedestrian bridge and bus loop