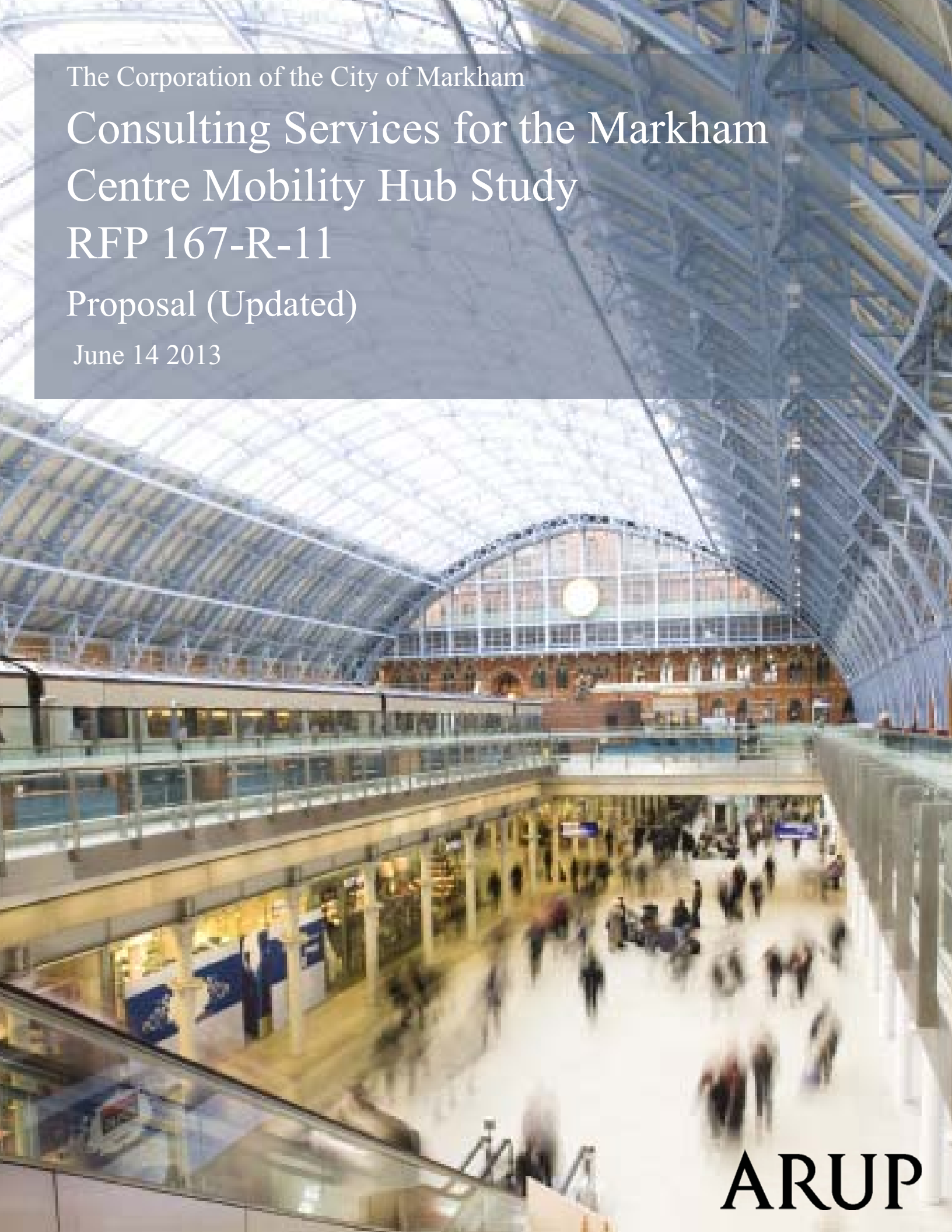


The Corporation of the City of Markham

Consulting Services for the Markham Centre Mobility Hub Study RFP 167-R-11

Proposal (Updated)

June 14 2013



ARUP

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 219145-00

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ARUP

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Appendix A

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Executive Summary

Initial Contract Award

On 26 August 2011, the City of Markham issued a request for proposals for qualified and experienced consultants to prepare the functional design for the Markham Centre Mobility Hub/Station. Following a period of careful consideration by the City, this contract was awarded to Arup on 8 November 2011.

Updated Terms of Reference

The City issued a revised Terms of Reference (ToR) in February 2013 which adjusted the scope of the work, moving away from a functional station design and towards the development of a conceptual plan for Markham Centre and its catchment. However, Arup found it challenging to respond to this and maintain an efficient workplan.

Following discussion with City staff, we agreed to follow the workplan used by consultants to Metrolinx as they prepare mobility-focused, conceptual development plans for the areas around their 51 mobility hubs. This approach allows for the logical development of a sound and comprehensive planning framework of the station catchment, which extends beyond Metrolinx-owned land and station footprint.

The Arup-led team will work with the City, its consultants, other stakeholders, and the public to prepare a plan. This plan will take into account (and in some cases may challenge) work completed by consultants in the context of the master planning, land use and transportation planning, and Environmental Assessment studies undertaken to date.

Study Deliverables

This study will output a Markham Centre Mobility Hub Concept Plan. This will inform a complementary Markham Centre Precinct Plan, focussed primarily on the lands in the vicinity of the east precinct/mobility hub.

Arup will be responsible for preparing both of these documents under this contract. They will reference each other but will each be discrete documents.

In time, we hope our work will inform an update to the Markham Centre Secondary Plan, the area's statutory development blueprint.

The Consultant Team

Arup is the prime consultant. To provide the full range of skills required, Arup is subcontracting with the following partners: Brook McIlroy Inc (urban designers

and engagement specialists); Adamson Associates (architects); Cushman & Wakefield (real estate market advisory); and Turner & Townsend cm2r (costing).

1 Project Understanding

1.1 Markham Centre Regional Centre

Though city building and good planning, the Markham Centre Regional Centre will realize the land use and transportation vision established by the Government of Ontario, the Regional Municipality of York, and the City of Markham, as expressed by:

- Ontario's *Provincial Policy Statement* and the *Growth Plan for the Greater Golden Horseshoe*;
- Metrolinx's *The Big Move*, the regional transportation plan for the Greater Toronto and Hamilton Area, and the *Mobility Hub Guidelines*;
- The *York Region Official Plan*; and,
- The *Markham Official Plan*, which includes the Markham Centre Secondary Plan (Official Plan Amendment 21), and precinct plans for the Remington Downtown, Times Uptown, and Markham Centre East areas.
- Work is also under way for the City of Markham's Main Street Unionville Precinct Master Plan Study, which may explore potential land use and transportation connections and linkages with the Markham Centre mobility hub.

The City has initiated the Markham Centre Mobility Hub Study, to evolve the development of the Markham Centre Regional Centre (bounded in red in the image below), and the Markham Centre mobility hub (generally bounded by the blue 800 m radius circle).



Figure 1: Markham Centre Regional Centre (bounded in red) and Markham Centre Mobility Hub Tertiary Zone (bounded in blue).

1.2 Mobility Hub Status

Markham Centre is identified as one of 51 mobility hubs in The Big Move, the Regional Transportation Plan prepared by Metrolinx. Among 92 priority actions, 9 are identified as ‘Big Moves’ as they are considered vital to the delivery of the 25 year Plan. Big Move #7 is detailed below.

BIG MOVE #7: Create a system of connected mobility hubs, including Anchor Hubs and Gateway Hubs, at key intersections in the regional rapid transit network that provide travellers with access to the system, support high density development, and demonstrate excellence in customer service.

Markham Centre mobility hub is centered around Unionville GO station in an area with significant development potential. Unionville enjoys the status of a mobility hub because it is served by GO Transit’s Stouffville regional rail line, York Region Transit/Viva’s local and rapid transit buses, and the proposed 407 Transitway bus services.

Big Move #7 makes it clear that mobility hub status also confers development potential. Unionville station is envisioned as the heart of what is planned to be a vibrant, intensive, mixed-use downtown area, the starting point, from which a unique, intensive, and vital city centre will grow.

In the heart of the mobility hub, an efficiently designed multi-modal transportation facility seamlessly connects local and rapid transit lines with pedestrian and cycling routes and the road network. Urban-scaled, well-designed residences, offices, shops and entertainment facilities are added to the mix, to create a unique place that is an origin and a destination.

In addition to being a place for new homes, offices, and shops, the Markham Centre mobility hub will be the home of the Pan-Am Games venue and other proposed facilities, including MISTA and MSECC.



Figure 2: Conceptual vision for Markham Centre’s Simcoe Promenade (Metrolinx/VivaNext)

1.3 Definition of Mobility Hub Study Area

According to Metrolinx, mobility hub studies are conducted:

- To provide a concept plan for the area within the *800m Tertiary Zone*;
- To demonstrate how the mobility hub will look and work over the long term;
- To inform more detailed planning; and
- To ensure the land use and transportation plans for the area are well integrated and support future growth.

Yet confusion remains over the specific area captured by a ‘Mobility Hub’. The term is most commonly used to describe the area within 800m (10 minute walk) of the main station. The 800m ‘Tertiary Zone’ (see Figure 3) of the Markham Centre Mobility Hub is bounded in blue in Figure 1.

Less commonly known is that the term ‘mobility hub’ is also used to describe the area within 6km (10-15 minute drive) of the main station. This is known as the ‘Catchment Area’ and Figure 1 shows that this includes the whole of Markham Centre as well as Markham Town Centre (and Unionville Main Street).

In this Markham Centre Mobility Hub Study, the focus of our concept planning will be the 800m Tertiary Area.

We also anticipate that the Catchment Area (including the Markham Centre Secondary Plan lands) will need to be studied in more detail than in most previous mobility hub studies. Most previous hubs are located in built-up areas and have established road networks, topography and servicing patterns.

The reason for the difference is that the development potential of the Tertiary Zone is significant and is starting from a very low base. So the impact of development on the surrounding catchment within 800m of Unionville station will be greater than at other mobility hubs located in established urban areas. The transportation analysis, for example, will need to be more comprehensive in scale and coverage than in most previous mobility hub studies to be sure that it is identifying opportunities and constraints on the location and scale of development. **This larger ‘Catchment Area’ covers all of the Markham Centre Secondary Plan lands.**

To complete the picture, the Secondary Zone is within 500m (5 min walk) and the Primary Zone is within 250m (2.5 min walk) of the main station.

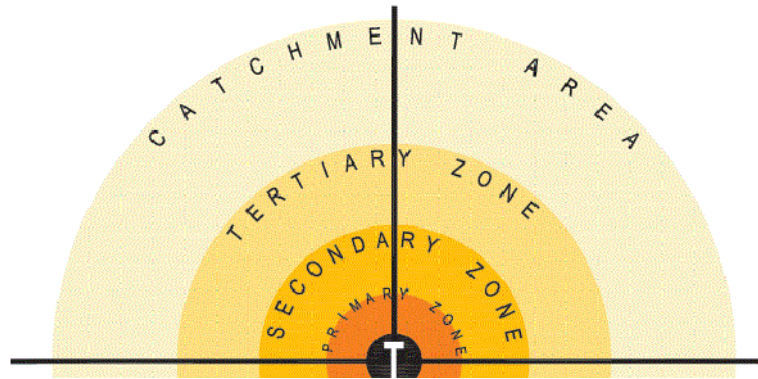


Figure 3: Mobility hub catchment zones (Metrolinx)

Generically, in a mature mobility hub, development near the transit station will be of a denser nature, with mid- and high-rise buildings clustered together, featuring a mix of residential, employment, and retail uses. Here, safe walking connections are a primary planning consideration. Further from the station, development becomes smaller in scale and may only feature one use. Cycling, transit, and vehicular connections become increasingly important as distances between buildings increase.

To guide the planning and development of each of the 51 mobility hubs, Metrolinx's *Mobility Hub Guidelines* establishes broad area definitions:

Primary zone: This is the area with the greatest potential for improved connections between the various modes of transportation. The highest intensity and greatest mix of uses are encouraged within this area. The zone is determined by identifying development sites that are close to the transit stations, which, with proper planning and development, could contribute to achieving the mobility hub vision. The higher pedestrian traffic levels and development densities in this zone command higher land values. Office, retail, and similar commercial uses benefit from locating in this zone.

Secondary zone: At many urban hub locations, typical study recommendations for this area might include improved transit availability and connectivity, façade improvements to existing buildings, and streetscape enhancements. Here, leisure uses and less mainstream retail uses mix with higher density residential uses.

Tertiary zone: This is the transition zone from the mobility hub to the broader neighbourhood. Here, residential uses become more dominant. Within this zone, the layout of streets, green spaces, and local centres becomes important to discourage sprawl and encourage non-car modes of transport.

Catchment area: This is the broader area of influence outside of the hub.

1.4 Other Mobility Hub Studies

To the best of our knowledge, Metrolinx has commissioned eleven mobility hub studies across the Greater Toronto and Hamilton Area.

Four are complete:

1. Dundas West-Bloor Mobility Hub (Toronto);
2. Cooksville Mobility Hub Master Plan Study (Mississauga);
3. Port Credit Mobility Hub Master Plan Study (Mississauga); and,
4. Weston Station Master Plan (Toronto).

Four are nearing completion:

5. Midtown Oakville Mobility Hub Study (Oakville)
6. Caledonia Station – Eglinton Crosstown LRT (Toronto);
7. Kennedy Station – Eglinton Crosstown LRT (Toronto); and,
8. Mount Dennis Station – Eglinton Crosstown LRT (Toronto)

Three are underway:

9. Bramalea GO Station (Brampton);
10. Bronte GO Station (Oakville); and
11. Kipling GO Station (Toronto).

With the guidance and (non-financial) support of Metrolinx, some municipalities have initiated their own mobility hub studies. One example is the work Brook McIlroy and Arup are jointly working on examining mobility hubs and major transit station areas for the City of Burlington. The aim is to understand the potential of the hub area as it is anticipated that they will form the pillars of their transportation strategy.

1.5 Case Study: Dundas West-Bloor Mobility Hub Study

The Dundas West-Bloor Mobility Hub Study is an example of best practice in mobility hub studies, see Figure 4.

Completed in June 2011 by Metrolinx and Brook McIlroy, the Dundas West-Bloor Study developed a long-term vision for the Bloor GO Station, the Union Pearson Express station currently under construction, Dundas West Subway Station, and the surrounding lands in Toronto.

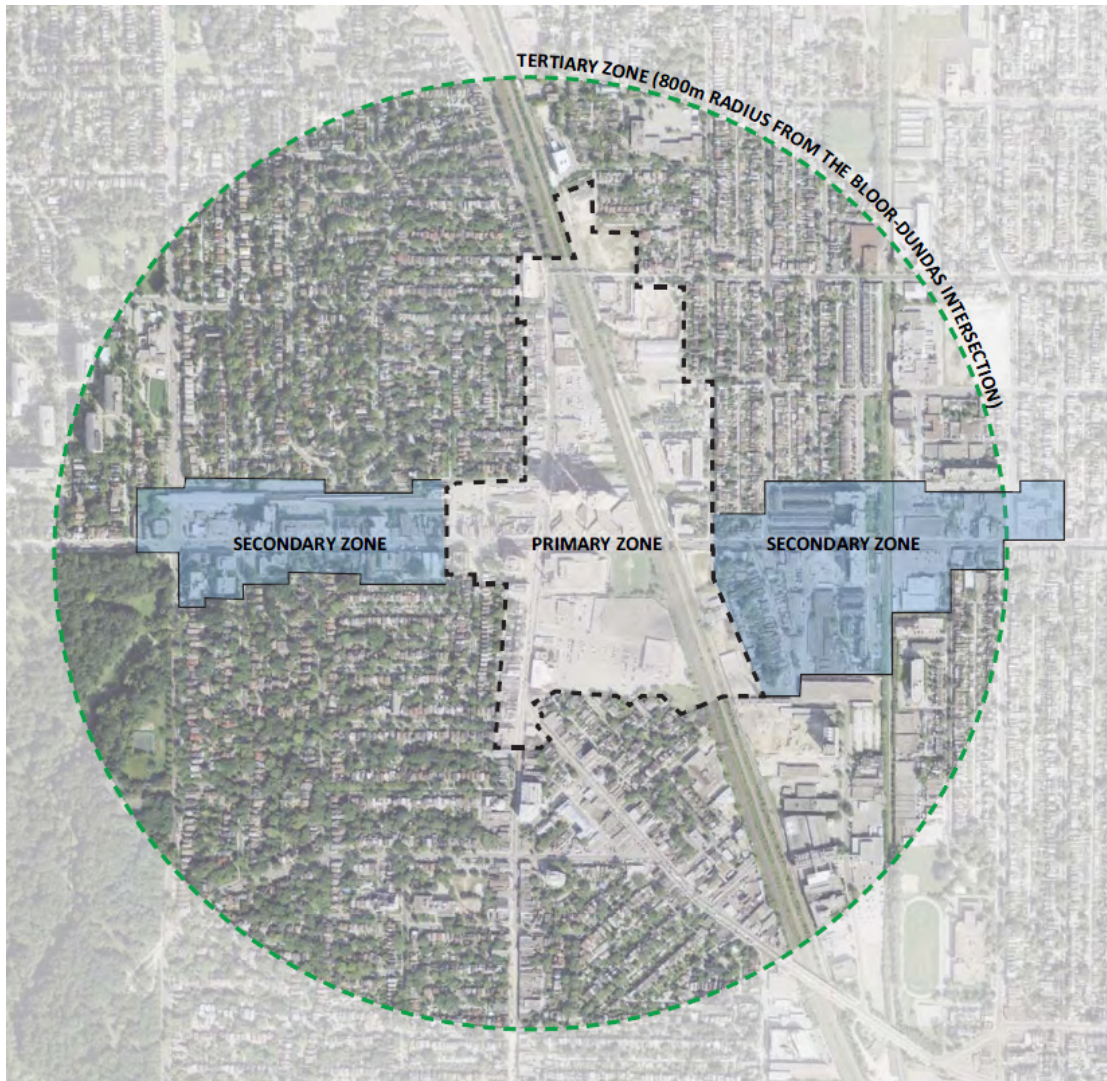


Figure 4: Dundas West-Bloor mobility hub planning area (Brook McIlroy)

2 Team Organization

As the municipal authority, the City of Markham is responsible for the stewardship of land use and development. At Markham Centre, this stewardship entails the responsible planning and orderly development of the mobility hub and how it relates and connects to neighbouring areas. To this end, the City has entrusted Arup to provide practical, cost-effective planning advice through the Markham Centre Mobility Hub Study.

To serve the City better, Arup has assembled a multi-disciplinary team of planners, architects, urban designers, public consultation leaders, real estate market advisors, and development cost assessors to develop a comprehensive and integrated plan for the Markham Centre mobility hub. Our team combines the local and global experience of Arup, Brook McIlroy, Adamson Associates, Cushman & Wakefield and Turner & Townsend cm2r. See Appendix A for more details.

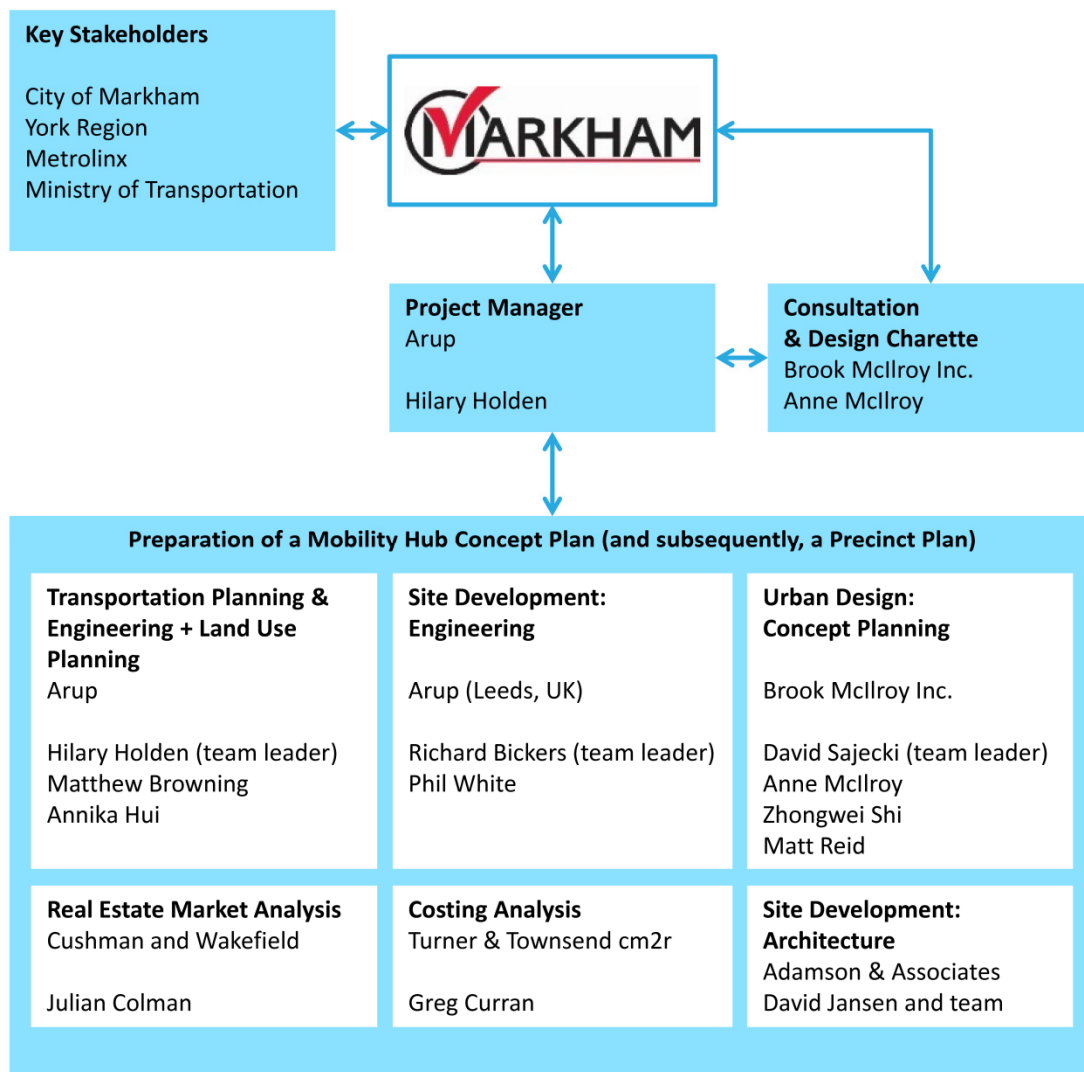


Figure 5: Team organization chart

Leading our team is Hilary Holden, our project manager and the transportation consulting team leader. Hilary will work with three workstream leaders:

- Rickard Bickers, Arup's site development engineer, who will lead the review and planning of the tertiary zone development concepts; and
- David Sajecki, of Brook McIlroy, who has recently transferred from Metrolinx where he managed the development of the Weston Mobility Hub Concept Plan.
- Anne McIlroy, of Brook McIlroy, who is very well experienced in mobility hb work and will lead the design charette and consultation program. This program will be the channel through which the consultant team will solicit public and stakeholder feedback to strengthen the preliminary urban development concepts.

Our primary contact with the City of Markham is through Richard Kendall, who serves as the project coordinator for the study.

Through Richard Kendall, Arup will work with the key stakeholder reference group to conduct a high-level evaluation of the catchment area and tertiary zone design concepts to identify a preferred concept plan. The reference group will include key stakeholders such as other City staff, York Region, Metrolinx, and the Ministry of Transportation.

3 Methodology

3.1 Integrated Urbanism

Conceptual master planning is a process of integration:

- Houses, apartments, offices, shops, and parks are integrated to form a complete neighbourhood.
- Sidewalks, cycling paths, transit lines, and roads are integrated to form a comprehensive transportation system.
- Land values, materials costs, construction costs, and development fees come together to determine pro forma financial feasibility.
- Stakeholder expertise, public knowledge, and municipal oversight come together to strengthen planning frameworks.

All of this integrates together to form a comprehensive and sustainable master plan.

From our local knowledge and global experience, Arup has developed an “Integrated Urbanism” approach to guide our master planning work. It helps us communicate with member of multi-disciplinary teams, where we are bringing together planners, engineers, urban designers, architects, real estate advisors, and development cost assessors to create and evaluate master plans.

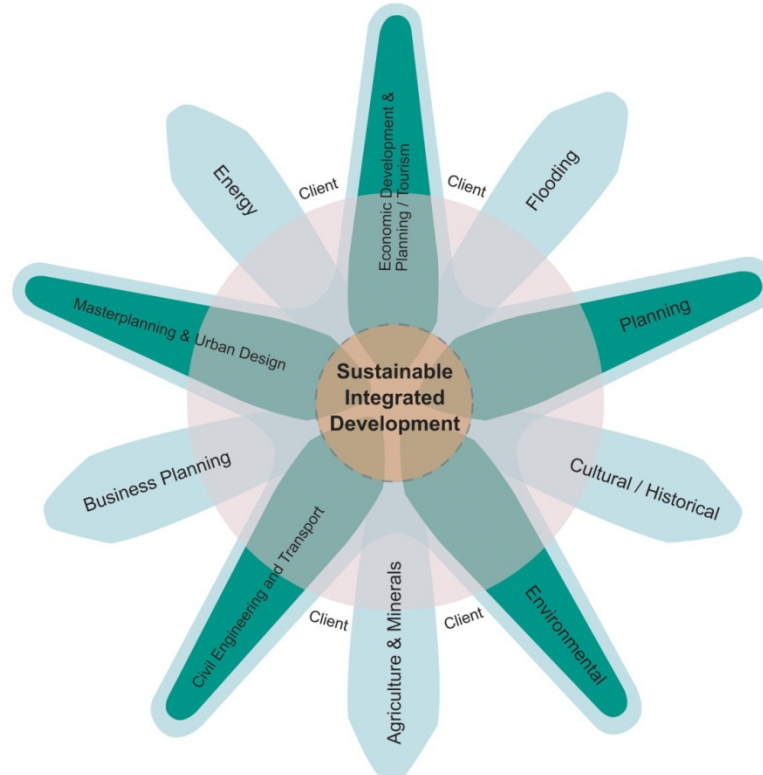


Figure 6: Integrated Urbanism (Arup)

3.2 Study Deliverables

This study will have two main deliverables:

- Markham Centre Mobility Hub Concept Plan
- Consolidated Markham Centre Precinct Plan (informed by the Concept Plan).

Arup will be responsible for preparing both of these documents under this contract. They will reference each other but will each be discrete documents.

In time, we hope our work will inform an update to the Markham Centre Secondary Plan, the area's statutory development blueprint.

The Concept Plan will draw together and build upon the established body of land use plans and policies, transportation planning studies, and environmental assessment studies already completed for the mobility hub area.

3.3 Method

Our method is guided by the triple bottom line approach to financial, environmental, and social sustainability:

- Investment in new transport and utility infrastructure must be financially sustainable, from both the capital and operational standpoints. Sound business planning and careful phasing and staging of infrastructure will be the key to managing both costs and cash flow as land is developed over time.
- We recognize the need for landowners to earn a fair return on their investments. Clear and predictable planning and infrastructure development will help mitigate the risks of real estate development by setting out a clear vision for the mobility hub, clarifying the responsibilities of public agencies and developers, and establishing the unique character and offer that sets the mobility hub apart from other development areas.
- By incorporating pedestrian, cycling, and transit networks right from the beginning, the mobility hub will foster opportunities for citizens to choose more environmentally sustainable modes of transport.

To create this plan, our team will build relationships and work together with key stakeholders and the public. We will collaborate with City staff and keep them informed of the project's progress, its opportunities, and challenges. We urge the City to make the necessary introductions so that we can learn from the City's consultants.

The method to be used for the Markham Centre Mobility Hub Study is based on Metrolinx's *Sample Mobility Hub Concept Plan Terms of Reference* document. Hence it will be completed in six phases spanning nine months. Briefly, these six study components/phases are:

1. Study Context and Site Review - An overview of the study context, including: identifying stakeholders and developing a consultation plan, reviewing existing plans, data, and design principles, and confirming the study area boundaries.

2. Mobility Hub Vision and Planning/Design Principles - Reviewing and establishing the planning vision and planning/design principles, being guided by municipal policy and the Metrolinx Mobility Hub Guidelines. To include a public **design charette**.
3. Mobility Hub Development Plan - The evolution of two urban development concepts through using public and stakeholder consultation. Given the low base level of development, site development engineering will be a larger part of this component of this mobility hub study than most other mobility studies that are being planned within established urban areas.
4. Technical Analysis - A conceptual design and layout for the Tertiary Zone including a land value and real estate market analysis. Transportation network opportunities and constraints to be analyzed for the Catchment Area (ie an area beyond the Tertiary Zone).
5. Station Area Design and Layout – A conceptual design and layout for the Primary Zone, including an order-of-magnitude costing analysis.
6. Implementation and Phasing Plan.

Consultations Process and the Design Charette

Because stakeholder and public consultation is vital for the development of a master plan of this scope, several well-organized events will be incorporated into the study method.

These consultation events and charettes are proposed:

- During Phase 1 –
 - Opening meeting with City staff, stakeholders, landowners, and developers to hear first impressions, identify local partnership opportunities, and to visit the Markham Centre mobility hub area;
- During Phase 2 -
 - A public visioning design charette and a follow-on design meeting (where the multi-disciplinary study team comes together and bounce ideas off each other);
 - Additional discussions with City staff and key stakeholders, as necessary.
- During Phase 3/4 -
 - A public meeting that will present preliminary development concepts to citizens, so that community feedback can be heard and used to improve the concepts;
 - A similar meeting with staff from the stakeholder reference group (City of Markham, York Region, Metrolinx, the Ministry of Transportation, etc.);
- Towards the end of Phase 5 -
 - A final public meeting that will present draft final development concepts and station area plans to citizens, so that community feedback can be heard and used to finalize the concepts;

- A similar meeting with staff from the stakeholder reference group (City of Markham, York Region, Metrolinx, the Ministry of Transportation, etc.);

Stakeholder communication of a technical nature will be led by Hilary Holden, with engineering support provided by Richard Bickers and mobility hub planning support from David Sajecki. Anne McIlroy, who is an award-winning consultation specialist, will plan and lead the public engagement and consultation program.

Proposed Schedule

Project schedule	June 2013	July	August	September	October	November	December	January 2014	February	March
Phase 1: Study Context and Site Review										
Phase 2: Mobility Hub Vision and Planning/Design Principles										
Phase 3: Mobility Hub Development Plan										
Phase 4: Technical Analysis										
Phase 5: Station Area Design and Layout										
Phase 6: Implementation and Phasing Plan										
Phase 7: Finalizing Study Deliverables										

Phase 1: Study Context and Site Review

Phase 1 of the study focuses on understanding the existing planning, transportation, and site context and vision of the Markham Centre mobility hub. The Arup-led consultant team will:

- Meet and build relationships with City staff, key stakeholders, and land owners;
- Review the existing studies, plans, data, and design principles, including:
 - *Land use planning*: Markham Official Plan, Downtown Markham-Remington Group Precinct Plan, Markham Centre East Precinct Plan, Markham Centre/Markham Live Site Optimization Study,
 - *Transportation*: Metrolinx Mobility Hub Guidelines, Markham Centre Transportation Study, Markham Centre Functional Servicing Study, 407 Transitway Study, Markham Transportation Strategic Plan, GTA Centre Traffic and Parking Assessment, Miller Avenue Environmental Assessment Study, I-METRO-E concept;
 - *Community facilities*: Markham Live concept, Markham International Sports Training Academy (MISTA); and
 - *Natural environment*: Tributary #5 Environmental Assessment Study, East Precinct Soils Study.
- Conduct a preliminary transportation analysis;
- Develop a community stakeholder consultation plan;
- Complete site visits and a strengths, weaknesses, opportunities, and constraints (SWOC) analysis; and
- Confirm the mobility hub (primary, secondary, and tertiary zone) boundaries.

Phase 2: Mobility Hub Vision and Planning/Design Principles

- Formulate the plan vision and planning principles
- Consultation meetings:
 - public visioning design charette and a follow-on design meeting where the multi-disciplinary study team (client and consultant) can come together and bounce ideas off each other;
 - Additional discussions with City staff and key stakeholders, as necessary.

Phase 3: Mobility Hub Development Plan

The consultant team will take the knowledge gained and feedback received in Phases 1 and 2 to build preliminary urban development concepts for the Markham Centre mobility hub. Tasks include:

- Review the existing Adamson Associates Architects concept;
- Prepare a mobility hub development plan for the whole of the Tertiary Zone. **(NB most mobility hub studies only develop plans for the Primary and Secondary Zones).** Make use of the vision and planning principles as well as the existing provincial and municipal policy frameworks. This plan shall include recommendations based on the following analysis:
 - i. Land Use, Density, and Street and Block Structure Recommendations
 - ii. Built Form Recommendations (Possible sub topics could include)
 1. Height and Massing
 2. Building Podiums and Front Step-backs
 3. Side-Yard Step-backs
 4. Step-backs at Upper Floors
 5. Ground Floor – Uses and Height
 6. Rear Transition
 7. Rooftops
 8. Front Property Setbacks
 - iii. Opportunity Sites - Identification of sites within the mobility hub that have short to medium term development potential either as stand alone properties or combined with adjacent parcels.
 - iv. R.O.W. Recommendations – preparation of both short term and long term recommendations for preferred right-of-way options for significant roadways within the mobility hub. Right-of-way recommendations will consider issues such as surface transit, on street-parking, dedicated bike lanes, widened sidewalks, etc.
 - v. Open and Green Space Recommendations - The Consultant shall make recommendations regarding improvements to both the public and private realm.

- vi. Urban Design Guidelines - The Consultant shall prepare urban design guidelines for both the public and private (orientation and layout, height and massing, façade articulation, materials and details, etc) realm that incorporate best practices for buildings and streetscape design. As this study is covering a much larger area than most other mobility hub studies, we will probably focus this work to provide more detail for the Primary Zone and less for the Tertiary Zone.
- Review of MRC 407 transit alignment study and MTO approved EA alignment, consult with MTO, Metrolinx, York Region/Viva and the City as part of a review of the alternative transit right-of-way alignments, and recommend a preferred alignment that fits with the concept/precinct plans developed for the Mobility Hub Study report.
- Consultation during Phases 3/4 -
 - A public meeting that will present preliminary development concepts to citizens, so that community feedback can be heard and used to improve the concepts;
 - A similar meeting with staff from the stakeholder reference group (City of Markham, York Region, Metrolinx, the Ministry of Transportation, etc.).

Phase 4: Technical Analysis

Our team will complete the transportation analysis including:

- Markham Centre transportation network mapping;
- Existing and forecasted transit ridership in the station vicinity including all modes/ services, routing choice and directional distribution and trip origin
- Land use and all modes travel patterns to/from surrounding neighborhoods;
- Pedestrian and cycling movements and travel patterns through the study area;
- Reviewing population, employment, and transportation forecasts and demands, transit capture rates from existing Automobile travel, interchange demands, ridership and travel forecasts routes, station entry volumes for pedestrian activity especially in light of potential mobility hub development scale, mix, and timing changes;
- Mobility Hub connectivity needs including: station area connections, travel demand, develop directions regarding facility needs and entrances
- Hub area connections including: Active transportation(bicycle/ trails), transit connectivity and service, pedestrian connections, possible locations of any new streets and improvements to the urban fabric
- Commuter parking including: location, size and type(structure or surface) and private motor vehicular circulation
- Transportation design options and related policies for the following: Design of station facilities including concourse, connections, entrances, bicycle parking-street level design including public realm(sidewalks etc.), pedestrian crossings, trails connections and streetscape- commuter parking- Hub area parking- transit use promotion/ enhancement- active transportation

General transportation design objectives include:

- Enhancing the public realm and creating area connections that support and enhance the movement of pedestrians throughout the mobility hub.
- Determining access and circulation by motor vehicles including any commuter parking and passenger pick up and drop off (PPUDO);
- Identification of transportation demand management strategies that reduce the number of trips, support multi-modal access, improve the safety and convenience of travel, and help minimize vehicular congestion in the area;
- Identification of vehicular traffic impacts and any necessary mitigating measures; and
- Identification of bike parking space requirements and location(s).

The transportation analysis shall include:

- Two pedestrian circulation plans. The first plan shall illustrate internal station pedestrian connections between transit services while the second plan shall illustrate external pedestrian connections demonstrating hub area connectivity / circulation.
- Reviewing studies completed by other consultants (such as Genivar's Transportation Assessment for the Markham Sports, Entertainment, and Cultural Centre).

Our team will undertake a land value and real estate market analysis, which will:

- Provide a brief overview of the real estate market, land values, and current and proposed development activity in the market area;
- Identify strategic development parcels for acquisition, including cost estimations of doing so;
- Identify strategic joint development opportunities and implementation strategies for Primary Zone property redevelopment;
- Determine the size and potential value of Primary Zone development parcels that could be created through strategic land acquisition;
- Identify potential connection corridors that link the mobility hub to adjacent neighbourhoods and to community facilities and services;

Phase 5: Station Area Design and Layout

Prepare a conceptual station design and layout for the Primary Zone (based on a review of the Adamson concept and information gained from analysis) to provide a basis for future detailed design work.

- Prepare at least two preliminary urban development concepts, with supporting graphics taking into account all known constraints.
- Where applicable the urban development concepts shall include:
 - i. Operating Requirements;
 1. Station building: size, location, configuration, bathrooms, retail/concessions, etc.

2. Waiting areas: number, size, type, and other amenities.
3. Tunnels and platform access: number and location of stairs, ramps, and elevators
- ii. Parking requirements;
 - Targeted mode split for station access.
 - Parking: Optimal amount, location, un-/structured, bicycle and motorcycle parking.
 - Vehicle access/egress points (existing, new, and/or relocated).
- iii. Overall Station Layout;
 - Optimal configuration of station / co-location of features to promote customer convenience and safety.
 - Location of sidewalks, bicycle paths and parking, bus loop and platforms, PPUDO area, specialized parking, taxis.
 - Access and egress points to the station for all modes to provide optimal capacity at appropriate locations to connect to community.
 - Identify what facilities will be required for current and future local transit service.
- iv. Green Initiatives; and
 1. What potential “green” initiatives could be incorporated into the station (e.g. green roof, living wall, wind or solar power generation, etc?)
- v. Community Integration, Neighbourhood Context and Development Potential
 1. Integration with the surrounding community to complement and leverage planned land use changes and mixed-use development opportunities on adjacent properties.

Each urban design concept may include the following drawings:

- Master Plan
- Overall Site Plan
- Landscape Site Plan
- Site Sections and Site Elevations
- Land Ownership
- Figure Ground of Existing and Future Conditions
- Pedestrian and Open-Space Network
- Net Density by Parcel (if applicable)
- 3-D Rendered Bird’s Eye View

Refine the preferred urban development concepts.

Prepare an order-of-magnitude estimate of the public capital infrastructure and property related costs for the mobility hub design concept, which will include a breakdown of costs by major stakeholder.

Consultation towards the end of Phase 5 -

- A final public meeting that will present draft final development concepts and station area plans to citizens, so that community feedback can be heard and used to finalize the concepts;
- A similar meeting with staff from the stakeholder reference group (City of Markham, York Region, Metrolinx, the Ministry of Transportation, etc.);

Phase 6: Implementation and Phasing Plan

NB most mobility hub studies only develop an Implementation and Phasing Plan for the Primary Zone.

Prepare a detailed implementation and phasing plan for the Primary, Secondary and Tertiary Zones that:

- Identifies key stakeholders;
- Recommends a conceptual development strategy for the 5-, 15-, and 25-year time frames;
- Introduces transit alignments;
- Level of service targets with respect to the provision of bicycle and vehicular parking;
- Identifies the order of design and construction; and
- Identifies development triggers that will initiate subsequent phases.

Study Deliverables

This study will have two main deliverables:

- Markham Centre Mobility Hub Concept Plan
- Consolidated Markham Centre Precinct Plan (informed by the Concept Plan).

4 Fee Proposal

Role	Project Manager	Site Development Engineer	Transportation Engineer	Land Use and Transportation Planner	Support	Team Leader	Engagement	Designer	Urban Design	Real Estate Market Advisory	Costing Advice	
Name	Hilary Holden	Richard Bickers	Matt Browning	Annika Hui	(various)	David Sajecki	Anne McIlroy	Zhongwei Shi	Matt Reid	Julian Colman	Greg Curran	
Firm	Arup	Arup	Arup	Arup	Arup	Brook Mc	Brook Mc	Brook Mc	Brook Mc	Cushman	TTcm2r	TOTAL
Total Hours	282	304	357	357	226	205	100	225	250	160	60	2,526
Days	37.6	40.5	47.6	47.6	30.1	27.3	13.3	30.0	33.3	21.3	8.0	337
Days per month (9 months)	4.2	4.5	5.3	5.3	3.3	3.0	1.5	3.3	3.7	2.4	0.9	
Daily Rate	\$1,800	\$1,650	\$1,050	\$1,050	\$975	\$1,200	\$1,650	\$863	\$825	\$1,763	\$1,950	
Hourly Rate	\$240	\$220	\$140	\$140	\$130	\$160	\$220	\$115	\$110	\$235	\$260	
Total Fee per Person	\$67,680	\$66,880	\$49,980	\$49,980	\$29,380	\$32,800	\$22,000	\$25,875	\$27,500	\$37,600	\$15,600	\$425,275
					\$263,900				\$108,175	\$37,600	\$15,600	

Disbursements (allowance, charged at cost)			Arup (Oct 2011 to June 2013)	
Board Printing	\$7,500	25 poster size at each of 2 consultation events x\$150	Arup	\$45,000
Report Printing	\$7,000	20 copies of final report at \$350 each	Brook McIlroy	\$263,900
Mileage/Autoshare	\$3,000	10 meetings, 3 cars, Autoshare \$100/day	Cushman & Wakefield	\$108,175
Meetings	\$11,890	(see details below)	Turner & Townsend cm2r	\$37,600
Total	\$29,390		Adamson Architects	\$15,600

	People	Visits	Nights	Travel	Hotel	Food	Total	Fees
Opening meetings				\$2,500	\$480	\$150	\$3,130	\$570,275
Richard Bickers (Arup)	1	1	3	\$2,500	\$480	\$150		Disbursements \$29,390
Design Process				\$7,500	\$960	\$300	\$8,760	Total \$599,665
Richard Bickers (Arup)	1	3	2	\$7,500	\$960	\$300		HST \$77,956
Total				\$10,000	\$1,440	\$450	\$11,890	Grand total \$677,621

Estimates:	\$2,500	Travel from Leeds UK including return flight
	\$160	Hotel per night
	\$50	Food per day

This fee proposal is based on the work described in this document, undertaken over a nine month period. It is assumed that project will commence in June 2013 and be complete by the end of March 2014.

Additional scope, once agreed, will be charged by the hour according to the rates included above.

All additional work, beyond the specified scope of work undertaken after March 2014 will be subject to an increase in hourly rates. Disbursements will be charged at cost.

Although the possibility of a staff team member becoming unavailable is rare, should the need arise, we always ensure to have an alternative individual available to step-in immediately and help with the management of the process.

5 Quality Assurance

Arup operates a combined management system (CMS), which is routinely audited and certified by Lloyds Register Quality Assurance.

We have achieved certifications in the provision of multi-disciplinary design and consulting for:

- ISO 9001:2008 Quality Management Systems;
- ISO 14001:2004 Environmental Management Systems; and
- OHSAS 18001:2007 Occupational Health and Safety Management Systems.

Arup also regularly undertakes independent internal audits of both projects and systems to ensure quality procedures are kept up-to-date.

Appendix A

Team Description

A1 Arup

Arup Canada Inc. is an integral part of Arup Group Ltd, which comprises 11,000 planners, engineers, and consultants working out of offices in 35 countries.

Arup has a global reputation for innovative leadership and solutions-based delivery. Clients appoint Arup expecting that we can bring benefit to a number of project areas. This may include savings in cost and program, reductions to operating and maintenance costs, as well as advice on procurement and partnering. While our reputation for appropriate innovation by design is well known, we welcome opportunities to add value at a strategic level. Often this is where we can bring maximum benefit.

Arup has demonstrated expertise on many of the world's most complex and demanding projects. Our ability to think and convert creative ideas into workable solutions is the benefit that Arup brings to this project. We will apply it to key areas such as consultation, stakeholder involvement and strategic planning that will be critical to the definition of the approach to the development.

We will bring a 'fresh' approach that will enhance the achievements of the City to date but challenge the boundaries to build in robustness to the project that will ensure eventual successful delivery.

Our experience in major projects has taught us that 70% of the influencing factors remain with third parties. This aspect needs careful consideration when formulating the implementation plan.

While we employ staff of a very high technical calibre and develop their skills and expertise through projects, seminars and in-house training, clients properly take this for granted. In addition to technical excellence, we encourage our staff to focus on those items that are most important to each client for their particular project - and this can often be at a strategic rather than purely technical level. We seek to engender such an approach in all our staff as early as possible.

Our experience on major projects is that in order to succeed it is essential to establish a delivery mechanism that provides certainty in the achievement of a clearly defined result. Ownership is the key to this, and on projects such as Stratford International Station in London, the Olympic hub station, Arup was part of the delivery mechanism.

Arup was founded in 1946 by Ove Arup, an engineer-by-training who envisioned design as something to be approached in an integrated manner. Ove Arup felt strongly that innovative design was grounded in an engaged and energized staff. His 'Key Speech' delivered in 1971 sets out the values that Arup holds and continues to cultivate today.

Arup is a wholly independent organization and is owned in trust for the benefit of its employees. With no shareholders or external investors, we are financially stable and able to determine our own direction as a business and set our own priorities – independently. Our ownership structure fosters a distinctive culture and an intellectual independence that encourages collaborative working.

Mobility Hub Projects

- Mobility Hub and Station Concept Plans on-call contract (Metrolinx, led by Brook McIlroy with Turner & Townsend cm2r)
- Langstaff Gateway/Richmond Hill Mobility Hub Study (City of Markham)
- Kennedy Mobility Hub and Station Concept Plan (Metrolinx, led by Brook McIlroy)

- Mobility Hubs Opportunities and Constraints (City of Burlington, led by Brook McIlroy)
- Downtown Kitchener Multi-Modal Hub Market Feasibility Study (Region of Waterloo, led by Cushman & Wakefield with Brook McIlroy)

Station Area Projects

- Union Station Revitalization pedestrian simulation, Toronto
- Transbay Transit Centre, San Francisco
- Fulton Street Transit Station, New York
- Second Avenue Subway, New York
- Kings Cross and St. Pancras stations, London
- Stratford Interchange, London
- Crossrail, London
- Victoria Transport Interchange, London
- Tsuen Wan West Station, Hong Kong
- Beijing South Railway Station

A2 Partner Firms

A2.1 Brook McIlroy Inc.

Brook McIlroy was founded on the ambition to create a truly multi-disciplinary practice to address the complex and interrelated challenges of contemporary city building and design. Their office brings together urban designers, planners, architects, and landscape architects in a uniquely collaborative setting.

The Principals of the firm, Anne McIlroy and Calvin Brook have led assignments in Toronto, throughout southern Ontario, across Canada and abroad. They are active in both urban design and planning as well as architectural and design communities, participating on design panels, serving as jurors for design awards, speaking on various design and planning issues and educating students.

Projects span from large-scale urban visions and implementation strategies to the detailed design of revitalization strategies, civic infrastructure, buildings, landscapes, and campuses. Each project is approached as a unique challenge focused on client engagement, community consultation and thorough, place specific research. Recognizing the profound impact our cities, buildings and landscapes have on the global environment, Brook McIlroy proactively integrates sustainable development practices into all projects and the workplace.

Services

- Urban Design and Planning
- Architecture
- Landscape Architecture
- Master Planning
- Campus Planning
- Site Design
- Waterfront Planning
- Community Design
- Downtown Revitalization
- Public Works and Street Design
- Urban Design Guidelines
- Architectural Controls
- Land-use and Planning Approvals
- Strategic Planning
- Official Plan Policies and Zoning
- Feasibility Studies
- Architectural Space Planning / Functional Programming
- Architectural Schematic Design and Design Development
- Contract Administration

- Public Consultation
- Web-based Community Participation

Relevant Awards

- Canada's premier award for planning excellence for three years – the Canadian Institute of Planners Honour Award
- North Oakville Secondary Plan – Ontario Professional Planners Institute, Award for Planning Excellence, 2010, Canadian Institute of Planners, Honour Award for Planning Excellence
- Toronto Waterfront – Canadian Institute of Planners, Honour Award for Planning Excellence
- Fort Erie Gateway – Canadian Institute of Planners, Honour Award for Planning Excellence, Ontario Professional Planners Institute, Provincial Professional Merit Award
- Milton New Community – Ontario Homebuilders Association, New Community of the Year
- Downsview Park – Ontario Professional Planners Institute, Honour Award

Relevant Projects

- Dundas West - Bloor Mobility Hub Study, Toronto for Metrolinx
- Mobility Hub and Station Concept Plans on-call contract with Metrolinx to 2014 (with Arup and TTCm2r)
- Kennedy Mobility Hub and Station Concept Plan for Metrolinx (with Arup)
- Mobility Hubs Opportunities and Constraints for the City of Burlington (with Arup)
- Downtown Kitchener Multi-Modal Hub Market Feasibility Study for the Region of Waterloo (led by Cushman & Wakefield, with Arup)
- Avenue and Mid-Rise Building Typology Study, Toronto
- Parc Downsview Park Master Plan, Toronto

A2.2 Cushman & Wakefield

Founded in 1917 in New York City, Cushman & Wakefield is one of the premier real estate services firms in the world, with approximately 13,000 employees operating from 234 offices in 61 countries and six continents. As a global real estate company, Cushman & Wakefield delivers integrated solutions by actively advising, implementing, and managing on behalf of tenants, landlords, and investors through every stage of the real estate process.

Cushman & Wakefield's Valuation & Advisory group is one of the largest fully integrated real estate valuation organizations in the world. They act as the foremost valuation advisor to leading institutional investors and lenders on critical equity and debt investment decisions. Along with specialized expertise in various industry sectors, they provide appraisal, dispute resolution and litigation support, property tax, and valuation for financial reporting services. With valuation professionals located in major markets around the world, they are uniquely qualified to undertake large, multi-location portfolio assignments. Thanks to their global reach and knowledge capital, they are able to analyze, evaluate, and report on multiple properties dispersed over large geographic areas, and provide ongoing, real-time updates.

Services

Cushman & Wakefield's Valuation & Advisory group provides land development advisory services to Canada's leading corporations and institutions, public and private. They have extensive experience in managing multi-disciplinary professional teams (including architects, engineers, municipal planners, traffic consultants, and cost consultants) through the value creation, disposition, and development process.

Their services include:

- Employment land demand studies, to quantify the extent of demand for employment lands and prioritize strategies for economic development.
- Market opportunity studies, to identify and quantify the development opportunity, in the context of current and forecast economic, demographic and market conditions.
- Development feasibility studies, to identify and prioritize development concepts, through urban planning, market, financial pro-forma and land value impact analysis.
- Land development strategies, which consider opportunities and options, recommended the best strategy to meet client objectives.
- Monetization strategies that financially assess the risks and benefits of the multiplicity of monetization options and structures available to the client, to prioritize options that best meet client objectives.
- Land due diligence: managing the completion and review of all required due diligence materials and reporting for land acquisition or disposition, inclusive of functional reviews, geotechnical assessments, environmental studies, internal and external servicing cost estimates and other due diligence

Relevant Projects

Cushman & Wakefield has very extensive experience in the completion of Mobility Hub Studies, primarily for Metrolinx (the Oakville, Weston and Mount Dennis Mobility Hub studies), as well as for the Region of Waterloo (Multimodal Hub) and the *Agence métropolitaine de transport* (Montreal Metro Expansion – 3 lines).

Cushman & Wakefield has further completed transit oriented land development strategies for Metrolinx (for their entire portfolio, with a focus on Oakville), for the TTC (for their entire portfolio), for Parc Downsview Park (for their Sheppard Neighbourhood Lands abutting the new Downsview Park TTC/GO Station) and many others.

All of these studies involved significant market analysis. Metrolinx, the Region of Waterloo, the TTC and AMT all realize that their Mobility Hub Design and broader Urban Planning Vision cannot happen unless the market is behind it.

A solid understanding of current and future market demand and development feasibility is the foundation upon which any realizable mobility hub (and broader Urban Plan) must be built. In their view, the presumption that “plan it and they will come” is a recipe for transportation and urban planning failure: Good transportation and urban planning must be integrated with robust market and development feasibility analysis.

Their recommended Real Estate Market Advisory Process is driven by that market reality and honed by our (and more importantly our Client's) successes.

A2.3 Turner & Townsend cm2r

Turner & Townsend cm2r (T&T cm2r) provides cost control, cost management, and project management services and is one of Canada's leading and most successful construction consultants. Based in Toronto and with offices in Calgary, Ottawa, and Vancouver, T&T cm2r has extensive project experience both nationally and locally. They provide a full range of construction consultancy advice including project management, project cost management, business case analysis, transaction/procurement advisory, funding, and loan monitoring and cost planning.

The firm has 86 staff in four Canadian offices, including over 70 staff based at their Toronto headquarters. It is part of Turner & Townsend, a leading management and construction consultancy. Globally, Turner & Townsend includes 2,250 staff, serving clients in 68 offices across 29 countries.

T&T cm2r has been providing cost advisory services to Infrastructure Ontario for the past five years. Cost management advice is provided at both pre-construction and post-construction stages and includes cost estimating, value engineering analysis, construction scheduling, cash flow analysis and projections, constructability advice, life cycle costing, bid analysis and change order analysis. The role provides support to the design and negotiation team in order for them to make informed decisions on which options/alternatives provide the best value for money.

T&T cm2r has also provided cost-consulting services to the Toronto Transit Commission, Metrolinx and various municipalities. They provide cost management services for feasibility study/conceptual design all the way through to pre-tender and construction phases of projects.

Their projects vary in size and scope, and have included new subway stations, station upgrades including accessibility provisions, station modifications, code issue upgrades and all associated civil and site work adjustment such as road access and parking modifications and cycle infrastructure.

Services

- Program management
- Project cost management
- Business case analysis
- Transaction/procurement advisory
- Funding and loan monitoring
- Cost planning
- Life cycle costing
- Facilities management
- Project risk analysis
- Value for money benchmarking studies
- Value management / engineering facilitation

Local Projects

- East Markham Community Centre for the City of Markham.
- Angus Glen Community Centre and Library for the City of Markham.

- Markham Civic Mall Master and Site Plan Study for the City of Markham.
- Cost Advisors to Infrastructure Ontario including work on the Pool and Field House at Markham Centre.
- Cost advisory and scheduling on the Air Rail Link for Infrastructure Ontario.
- Cost management services for GO Transit projects including station and parking improvements at Cooksville, Kipling, Brampton, Burlington, and Finch.
- Cost management services for renovation and upgrade projects at most TTC stations and station modifications for the Scarborough Rapid Transit Expansion.
- Cost management services for TTC for Victoria Park Bus Terminal Replacement (a new facility).
- Cost management services for over 5 projects at Union Station including:
 - Union Station Revitalization/Platform, Atrium and Maintenance Building
 - Union Station – Vertical Access
 - Union Station Train Roof Station Rehabilitation.

Global Projects

- BAA – Terminal 5 Heathrow – Extension of Heathrow Express and Piccadilly Line to the new terminal.
- London Underground – Stations Capacity Program
- Transcend – Crossrail Program Partner
- London Underground – Tottenham Court Road Station Upgrade
- Network Rail – King’s Cross Station Redevelopment Program
- Deutsche Bahn – Extension and Refurbishment Rosenheim Station, Germany
- London Underground – Value for Money Reviews on Instructed Works and Services under the PPP Contracts (15 Year Framework)
- London Olympic Park Transport Infrastructure
- ARTC – Southern Sydney Freight Line
- Network Rail – Reading Station Area Remodeling
- Revitalization of the Metro network in Tyne and Wear, UK

A3 Individual Team Members

To provide the broadest range of experience and skills possible, Arup has assembled a team of project managers, engineers, transportation and land use planners, urban designers, architects, real estate market advisors, and cost consultants.

(Curricula vitae for the consultant team members are included in Appendix B.)

Project Manager – Hilary Holden (Arup)



The Consultant team will be managed by Hilary Holden from Arup.

Hilary leads the transportation consulting team in Canada from Toronto. She transferred from Arup in the UK in 2010.

Being personable and an effective communicator, Hilary is a well-known advocate calling for the harmonization of system elements to encourage use of sustainable transportation. In recent months she has been invited to speak at the Canadian Urban Institute, University of Toronto, the Innovation City conference at MaRS, the MOVE Expo at the Evergreen Brick Works and

Velo-City in Vancouver.

Leading by example, Hilary works with great integrity to create workable solutions for clients who are responsible for regions, cities, sites, hubs and corridors. For 15 years, she has worked within multi-disciplinary teams to ensure that design excellence is perceived, planned, and progressed. With her fresh and global perspective, Hilary is hired to link transportation investment to economic, business, social and environmental goals.

Site Development Engineer – Richard Bickers (Arup)



As a qualified civil engineer, Richard has practical experience of delivering a wide range of projects from master planning and urban regeneration schemes to commercial development, major urban infrastructure and public realm. With a multi-disciplinary design background, Richard leads multidisciplinary teams, successfully delivering projects for both private and public sector clients.

Richard specializes in securing planning permission and subsequently delivering, complex, multi-disciplinary, new build developments. His particular interest is in developing practical solutions which satisfy functional, aesthetic and funding requirements. He is skilled in project management, planning, site assembly and site preparation, transportation and administering construction works. He has a growing interest in project finance and in bringing public and private sector organisations together to deliver major projects.

Richard has worked in many parts of the world. Experienced in working with local standards and cultures, he is able to bring international best practice and innovation to his projects.

Transportation Consultant – Matthew Browning (Arup)



A Transportation Consultant from a Civil Engineering background with over seven years of experience at Arup, Matthew has been involved in a large number of projects in the UK, Canada, the US, and the Middle East. His training and experience in transportation modelling packages covers; SYNCHRO, MassMotion, GIS, S & Q PARAMICS, VISSIM, SIMIO along with a number of others.

Through various projects, Matthew has developed skills in master planning for transit-oriented developments that utilize his understanding of civil engineering principles to deliver integrated planning solutions for multiple stakeholders.

Transportation and Land Use Planner – Annika Hui (Arup)



Annika Hui has successfully delivered on a range of high profile transportation and land use projects in Ontario, Quebec, and Alberta.

As a planner, Annika has helped municipalities and clients to write award-winning strategic plans and policies. Her experience with population, demographic, and employment forecasting has also provided the underlying data for long-range transportation and water infrastructure planning and modelling.

Annika has built relationships and collaborated with clients from the public, private, and non-profit sectors. Through public consultations, Annika learns from citizens and stakeholders to integrate global best practices with local community knowledge and opportunities.

Project Manager – David Sajecki (Brook McIlroy)



David Sajecki is a Senior Urban and Transportation Planner at Brook McIlroy with experience in project management, transportation planning, policy analysis and transit implementation. David holds a Master of Urban and Regional Planning and a Bachelor of Applied Science (Civil Engineering) from Queen's University.

Prior to Brook McIlroy, David was Senior Advisor for the Union Pearson Express, providing strategic and technical advice related to the planning and implementation of a new train connecting Pearson International Airport and Union Station in downtown Toronto. Responsibilities included acting on the authority of the President to oversee projects with a primary focus on initiatives and resource allocation and liaising with the Union Pearson Express team and stakeholders to discuss issues and recommend appropriate courses of action.

While at Metrolinx, David was also Project Manager for the Weston Station Master Plan, Union Station 2031: Demands and Opportunities Study, and the Kipling, Bloor-Dundas and Kennedy Mobility Hub Master Plans. David has also worked as a Development Manager for the Province of British Columbia on the delivery of large scale infrastructure projects.

Design Charette and Engagement – Anne McIlroy (Brook McIlroy)



A trusted advisor to Metrolinx, Anne McIlroy will advise on, lead, and manage the public and stakeholder consultation events. Anne is keen on enabling people to take an active role in the option development and planning process and has experience of a range of methods that are effective in getting people to understand the issues and trade-offs. Anne is a Principal of Brook McIlroy, with over twenty years of experience as an urban designer and project manager for numerous transit studies, master plans, and urban design projects in Canada and the United States. Anne has a particular expertise in public consultation, and developing consensus amongst varied stakeholders, for a variety of urban, community, waterfront, university and other institutional projects.

Urban Design – Zhongwei Shi (Brook McIlroy)



Zhongwei Shi, an Urban Designer/Planner with Brook McIlroy, has diverse experience in architecture and urban planning. He has been involved in a number of urban design projects in Canada, the United States, Russia and China. He has received a bachelor of Architecture from Tianjin University and a Master of Urban Planning from McGill University.

At Brook McIlroy, Zhongwei has been responsible for the design of multiple planning and architecture projects including community master plans, university master plans, urban design guidelines and secondary plans.

Prior to working at Brook McIlroy, Zhongwei worked with planning firms and architectural firms in Canada and China on a broad range of urban, suburban and regional projects for both private and public sector clients.

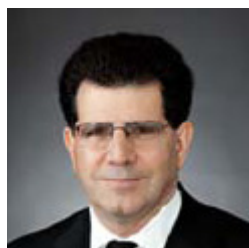
Urban Design – Matt Reid (Brook McIlroy)



Matt Reid will advise on urban design, planning and design principles, and will work with the rest of the team to deliver general arrangement drawings. He will also assist Anne McIlroy with the public and stakeholder consultation events.

Matt is an urban designer/planner at Brook McIlroy, and has been involved in the preparation of over 30 Urban Design projects, including transit studios, urban design guidelines, avenue studies, campus plans, secondary plans, and peer reviews. His involvement has included project management, document preparation, background research and analysis, 3D Modelling and graphic preparation.

Market Feasibility Advisor – Julian Colman (Cushman & Wakefield)



A trusted advisor to Metrolinx, Julian Colman will lead the Real Estate Market Advisory. Julian's Mobility Hub clients include Metrolinx (entire portfolio, Oakville GO Land Holdings, Weston, Oakville and Mount Denis Mobility Hubs), the Region of Waterloo (Multimodal Hub). His public sector land development clients include CAMH (1001 Queen, 175 Brentcliffe), Waterfront Toronto (Port Lands, East Bayfront), Parc Downsview Park (Sheppard

Neighbourhood), Infrastructure Ontario (LCBO lands), Canada Lands Corporation (CityPlace Block 22, LeBreton Flats) and the City of Kitchener (Centre Block).

Cost Consultant – Greg Curran (TTcm2r)



Greg Curran will be the Cost Consultant and will assist in leading this assignment and provide senior level cost management advice throughout the project. He will ensure that specialist infrastructure staff are available on an as required basis to meet the specific goals of the study. Greg will also provide corporate liaison for the Turner & Townsend cm2r team.

Greg has practiced as a Cost Consultant in Europe and North America for over 30 years. He has specialized in Construction Cost Management & Cost Planning. He has coordinated Cost Management Services at various stages of design on a wide variety of projects including airport and transportation including Union Station Revitalization and Air Rail Link.

Appendix B

Team Resumes

