



Source: EllisDon

BUILT ENVIRONMENT CASE STUDY: CANADA

Pan Am Games Athletes' Village

Location

Toronto, Ontario, Canada

Owner

Infrastructure Ontario

Private Partner

Dundee Kilmer Developments LP (Dundee Realty Corp., Kilmer Van Nostrand Co. Ltd, EllisDon Corp., Ledcor Design Build (Ontario) Inc.)

PPP Model

Design-build-finance

Operating Term

N/A

Contract Value

CAD 514 million/USD 694 million¹

Asset Class

Built Environment (Housing)

Awards

- Ontario General Contractors Association (OGCA), 2017 Ontario Builder Award² Brownie Awards, 2013 Best Overall Project³
- National Association of Home Builder, 2013 Urban Gold Community of the Year
- Canadian Architect, 2012 Award of Excellence Outstanding Architectural Design⁴
- Canadian Urban Institute, 2012 Brownie Award, Public Realm: Flood Protection Landform

The project was developed to serve the athletes of the 2015 Pan American and ParaPan American Games, and to advance Waterfront Toronto's award-winning plan for the West Don Lands area by providing a beautifully designed, sustainable mixed-use riverside community.

The Project scope included the design, build and financing of seven high-rise buildings which initially provided accommodation for 7,787 Pan American Athletes, 2,200 Parapan American Athletes, and Team Officials. Following the Games, they were converted to long-term accommodation facilities as part of the region's social housing plan.

The project consisted of:

- site work (including all earthwork, excavation, grading, stockpiling and movement and removal/disposal of impacted fill/soil);
- design and construction of the residential and administrative facilities for the Games;
- design and construction of the associated Municipal Works in the area of the site; and

- design and construction of the temporary services to support the temporary facilities provided by Toronto 2015 (TO2015), the organising committee for the Games.

During the period when the facilities were turned over to TO2015 for the Games (also called the "Operational Term"), the Private Partner was responsible for operational services including the management and maintenance of buildings, and the maintenance of the site's roads and grounds.

Following the Games, the Project was to achieve legacy requirements for the residential property market and converted as follows:

- **YMCA** – Sports facility;
- **George Brown College Student Housing** – accommodation for 500 Students and 8 Dormitory Supervisors;
- **Affordable Rental⁵ units** – 253 units; and
- **Market residential condominium units** – 787 units.

Output Specifications Development Approach Used

Infrastructure Ontario is the procuring agency leading the procurement of PPP projects in the province of Ontario with standardised procedures and PPP contractual templates between the Owner and the Private Partner (also called Project Agreement). The project is a good example of how a standard, market-tested PPP model can be adapted to deliver the project objectives. The Output Specifications considered two end user groups with different needs:

1. the athletes, support staff and coaches of the 2015 Pan Am and Parapan Am Games who required temporary accommodation and facilities for the duration of the Games, and
2. the future residents of the Don Valley community who will need a mix of affordable and market housing, and sustainable mixed-use spaces.

Access to information to complete a suitable market comparison was not available.

¹ Assumed conversion rate of CAD/USD = 1.35 as at May 15, 2019.

² Further information available at: <https://ogca.ca/builder-awards/>

³ Further information available at: <https://myemail.constantcontact.com/2013-CUI-Brownie-Award-Winners-Announced-.html?soid=1112321893260&aid=aEbTCalqIV8>

⁴ Further information available at: <https://www.newswire.ca/news-releases/canary-district-garners-prestigious-canadian-architect-award-of-excellence-511980341.html>

⁵ Affordable rental housing is defined in the Project Agreement as an "affordable rental condominium unit where the total monthly shelter costs, at initial occupancy, is at or below the average market rent in the City of Toronto as reported by [the Canada Mortgage and Housing Corporation for similar condominium units.

Alignment to QI Focus Areas	Mechanisms used to achieve QI alignment	Market Comparison Analysis
<p>Sustainability and longevity of an infrastructure asset</p> <p>Ability of the asset to address the needs and meet the expectations of end users</p> <p>The project delivered a sustainable, long-term solution through integration of Infrastructure Ontario's Design Excellence requirements, combined with other design requirements set out in the output specifications, including sustainability and accessibility. The architectural and urban realm design requirements, the protection of heritage buildings and the requirement for Leadership in Energy and Environmental Design (LEED) New Construction (NC) Gold certification⁶ are examples of output specification requirements that aligned the project well with the QI agenda, as further set out below.</p> <p>Architectural and Urban Realm Design Requirements</p> <p>The design needed to effectively respond to sustainability to create a community that achieved improved architectural quality in Toronto. The output specifications provided both guidance and requirements for neighbourhood character, street character and interface, built form, courtyards and building materials. Examples of these include:</p> <ul style="list-style-type: none"> • <i>"The neighborhoods shall express a diversity of character, within a cohesive identity for the West Don Lands Precinct. Specifically, each neighborhood shall express unique characteristics within the Precinct Plan Neighborhoods framework, outlined in the Block Plan";</i> • <i>"Vehicular entrances for parking, servicing and loading access shall be minimized within the street wall of a block";</i> • <i>"A cohesive overall effect shall be provided, but no two buildings shall appear identical. Repeated buildings are not permitted unless they are part of a row whose design relies on repetition to create a cohesive streetscape";</i> • <i>"Ground floor spaces in all buildings, the local streets, shall be designed to accommodate a range of retail/commercial uses, future market flexibility and change of use";</i> • <i>"Rooftop gardens shall be used to achieve green roof performance criteria in a way that maximizes overlook opportunities from adjacent buildings".</i> <p>Protection of heritage buildings</p> <p>The existing site included two heritage properties that needed to be incorporated into the development to preserve historic places in Canada:</p> <ul style="list-style-type: none"> • 409 Front Street, a former Palace Street School/Canary Restaurant • 420 Front Street/425 Cherry Street, a former Canadian National Railway Office. <p>The Authority provided the Private Partner building condition assessments, Heritage Conservation guidelines and a heritage analysis and interpretation plan that provided guidelines and requirements for the design integration. The output specifications referenced the Standards and Guidelines for the Conservation of Historic Places in Canada, and provided specific integration and refurbishment requirements for the buildings such as:</p> <ul style="list-style-type: none"> • <i>"420 Front Street/425 Cherry Street shall be conserved and integrated in a meaningful way into the overall development of Block 1 & 14 and having function in the Legacy development as a part of the YMCA, retail or other program, and shall be fully functional for the Games and accommodate a component of the Games functional program".</i> <p>Prior to any work that could alter heritage attributes, the Private Partner was required to provide a Heritage Impact Assessment to the satisfaction of the Authority, having jurisdiction based on the format outlined in the ORC Heritage Management Process Handbook document.</p> <p>Two types of end users</p> <p>The project was developed with two different types of end users in mind:</p> <ul style="list-style-type: none"> • Pan Am and Parapan Am athletes, support staff and coaches; and • the West Don Valley community. 	<p>Reference to industry standards: There were numerous design requirements described in the output specifications including:</p> <ul style="list-style-type: none"> • LEED Gold: <i>"Project Co shall perform the Works so as to achieve the prerequisites and credits required to achieve the LEED Gold Rating [...]"</i>; • Waterfront Toronto Green Building Requirements; • Standards and Guidelines for the Conservation of Historic Places in Canada. As such, <i>"the heritage conservation guidelines are to be prepared by a qualified heritage conservation consultant"</i>; and • Ontario Realty Corporation Heritage Management Process. <p>Conditions precedent to completion: Completion is linked to payments that are used to repay the project finance partners. The Private Partner is incentivised to deliver the project on time and to the required standard to receive payment. The payments to the Private Partner are linked to the completion of the works.</p> <p>For example, the "Substantial Completion Payment" is made upon the "Project Substantial Completion", which requires the certification, by an Independent Certifier, that the following have been achieved:</p> <ul style="list-style-type: none"> • <i>"Occupancy Permit"</i>; • <i>"certificate of substantial performance"</i>; • <i>"all requirements for Project Substantial Completion described in the Project Substantial Completion Commissioning Program"</i>. <p>Review procedure: Although the Private Partner retains the risk of developing a compliant design, there are certain deliverables that are subject to the Authority's review procedure set out in the Project Agreement. This provides the Authority an opportunity to review design development and compliance prior to completing the design and starting construction. This includes the following formal submissions:</p> <ul style="list-style-type: none"> • <i>"50% design development stage", including, for example "interior finishes colour and materials, selection boards for all Third Party Facilities, which includes 3 complete options for interior finishes for each of the Facilities", and "preliminary door and hardware schedules".</i> <p>Design excellence review panel: The Private Partner was required to obtain support from the Panel comprised of leading Canadian design professionals that included experts in architecture, landscape architecture, urban planning and sustainability.</p> <p>Reference to industry standard: The design requirements described in the output specifications were based on the <i>IOC Technical Manual for the Olympic Village</i>.</p>	<p>The athlete's village for the Sydney Olympic Games was also delivered as a design, build, finance contract. The scope also included the reinstatement work to reconfigure the village following the Olympics, and market and sell the properties. Proceeds were shared between the Owner and Private Partner⁷, and long-term project objectives were translated into the output specifications. The Olympic committee advocated for environmental sustainability, and features included solar panels and water recycling facilities which reduced potable water and energy use by 50% below industry standards. All major building materials and systems were required to undergo a lifecycle analysis to determine their resource use⁸.</p> <p>Like Toronto with the Pan Am Games, London used the Olympics as an opportunity to promote urban renewal through the athlete's village development. The post-Games community in London has 3,000 units and is a combination of both affordable and market housing⁹.</p>

⁶ LEED, or Leadership in Energy and Environmental Design, is the most widely used green building rating system in the world. LEED provides a framework to create healthy, highly efficient and cost-saving green buildings. <https://www.cagbc.org/>

⁷ Further information available at: <https://www.propertyobserver.com.au/finding/residential-investment/17667-newington-olympic-story.html>

⁸ Further information available at: <https://www.terrapinbrightgreen.com/blog/2008/06/sydney-2000-olympic-athletes-village/>

⁹ Further information available at: <https://www.dailymail.co.uk/property/article-3725436/The-property-legacy-London-2012-Four-years-s-like-live-Olympic-village.html>

Alignment to QI Focus Areas	Mechanisms used to achieve QI alignment	Market Comparison Analysis
<p>During the Games</p> <p>The project envisioned that the Athletes' Village would create a 'home away from home' for the athletes, allowing them to relax in a convenient environment and optimally prepare for competition. As such, planning and operating was very athlete-focused and was translated into designs, policies and practices that respected the athletic and administrative requirements, traditions, cultures, abilities, languages and cuisines of all residents.</p> <p>The design requirements outlined in the Output Specifications were based on the 'International Olympic Committee Technical Manual on Olympic Village' and outlined the layout of the site and surrounding access ways for the Pan Am and Parapan Am Athletes Village. The output specifications provided guidance and requirements for residential supports, accommodations, service centres, polyclinic, fitness centres, various room types and a variety of other requirements for the development of each of the classified zones:</p> <ul style="list-style-type: none"> • Residential Zone –Mixed use buildings to be completed by the Private Partner • Village Plaza Zone –Retail and recreational areas • Operational Zone – Athlete/NOC Transport • Operational Zone – Facility Services • Operational Zone – Main Entry • Operational Zone – Welcome Centre <p>Long-term post Games</p> <p>The development was handed over to the Private Partner to complete development for the final end users, the residents of the Don Valley community. It was acknowledged that any damage to the permanent buildings, City Facilities and grounds arising as a result of the Pan Am and Parapan Am Games athletes beyond reasonable wear and tear would be compensated to the Private Partner. The output specifications outlined what constituted reasonable wear and tear for features of the development, such as walls, doors, flooring, finishes and external landscape, and included:</p> <ul style="list-style-type: none"> • <i>"In the case of hard flooring, scuffs, shallow impressions and superficial scratching would constitute reasonable wear and tear";</i> • <i>"In the case of plaster board walls and doors, scuff marks and shallow dents would constitute reasonable wear and tear, whereas gouge marks in and penetrations through plasterboard and surface finishes would constitute damage. Damage to paintwork from the use of and/or removal of adhesive tape is not reasonable wear and tear".</i> <p>As part of the project, a YMCA Community Centre and George Brown College Student Housing (GBSH) were developed. The output specifications provided a clear vision and objectives for the developments in order to meet the expectations of the end users. The GBHS functional program provided guidance and requirements on the mix of residential and administrative areas, and detailed space requirements that were tailored to student housing.</p> <p>The YMCA functional program also provided guidance and requirements for space allocation, detailed space requirements and general requirements, such as a minimum amount of at grade bicycle racks, emergency call buttons and CCTV cameras through the facility. Guidance based on previously built YMCA facilities was also provided for aspects of building design, including interior spaces for consistency between various facilities throughout the city and country.</p> <p>The project envisioned a mixed-use community in which residential uses were complemented by live/work and employment uses, retail, community services, such as medical clinics and childcare centres, and amenities that would help establish an environment that would support and attract a diversity of residents and family types.</p> <p>Project plans, reinforced by zoning provisions, required that ground floor building frontages be composed primarily of a range of street-related retail and service services, such as community services, retail, restaurants, cultural and other non-residential uses.</p>	<p>Conditions precedent to completion: Completion is linked to payments that are used to repay the project finance partners. The Private Partner is incentivised to deliver the project on time and to the required standard to receive payment.</p> <p>Review procedure: Although the Private Partner retains the risk of developing a compliant design, there are certain deliverables that are subject to the Authority's review procedure set out in the Project Agreement. This provides the Authority an opportunity to review design development and compliance prior to completing the design and starting construction.</p>	

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<p>The output specifications provided guidance and requirements for the design, programming and tenanting of retail and commercial spaces that were supported by a comprehensive Retail Strategy to address the following issues:</p> <ul style="list-style-type: none"> • <i>“Tenanting of retail and commercial space in line with the retail, commercial and Ground Floor Animation objectives of a vibrant, economically sustainable, mixed use community as set out in the West Don Lands Precinct Plan”;</i> • <i>“A sustainable mix of destination and neighborhood-focused retail and service uses, as well as commercial uses such as medical clinics, cultural, entertainment and community amenities, with minimal redundancy in focus and service provision”;</i> • <i>“Parking strategies that will support the proposed retail, commercial and other Ground Floor Animation uses”;</i> • <i>“Methods for adapting the preferred strategies to respond to market conditions and challenges, without precluding long-term options for achieving the desired range and distribution of retail, commercial and Ground Floor Animation uses”.</i> 			
<p>Job creation, capacity building and transfer of knowledge and expertise</p>	<p>The project addressed job creation and social inclusiveness through cooperation with the Waterfront Toronto Employment Initiative (WTEI) and inclusion of Affordable Rental Housing units and Affordable Ownership Housing units.</p> <p>Job creation was a successful part of the project as the Authority took a proactive approach and set out initiatives that the Private Partner could take advantage of. The project worked with WTEI, who was committed to connecting un/under-employed Torontonians with the employment and training opportunities that were generated through this revitalisation. WTEI partners played a leadership role in designing, managing and delivering employment and training initiatives. Their services included:</p> <ul style="list-style-type: none"> • <i>“Employment Strategy Design and Implementation;</i> • <i>Project Management and Co-ordination;</i> • <i>Engagement and Outreach;</i> • <i>Program Design;</i> • <i>Program Delivery;</i> • <i>Facilitating Access to Funding; and</i> • <i>Monitoring and Evaluation.”</i> <p>WTEI partners also assisted in engaging, pre-screening and supporting city residents from a diverse group of candidates, including youth, aboriginals and newcomers. The Private Partner and its contractors collaborated with WTEI partners to provide apprenticeship and pre-apprenticeship placements, enabling residents to access training opportunities that led to skilled careers.</p> <p>The output specifications for the project did not specify any quantifiable requirements for the employment initiatives; instead they provided an open-ended requirement for the cooperation of the Private Partner and WTEI. These requirements included:</p> <ul style="list-style-type: none"> • <i>“Project Co will collaborate with Waterfront Toronto, Infrastructure Ontario and the WTEI partners to create and deliver an employment plan that meets the objectives of the WTEI. The goals and extent of the plan will be determined by Project Co’s needs and must ensure training and employment opportunities are made available for un/under-employed groups throughout Toronto”;</i> • <i>“Project Co will be responsible for ongoing data collection and providing regular program status updates to WTEI”.</i> <p>Following the Games, part of the project was turned into Affordable Rental Housing, which means housing units rented at or below 80 percent of Canadian Mortgage Housing Corporations (CMHC) average market rent for the City of Toronto, for a minimum of 20 years. The owners of these units were selected by Infrastructure Ontario and are non-profit housing corporations.</p>	<p>Conditions precedent to completion: Defined prescriptive requirements and minimum requirements for achieving completion, which typically include a wholesale requirement to deliver the project in accordance with the specification and a list of required documents and plans to support the handover from construction to operations. Completion is linked to payments that are used to repay the project finance partners. The Private Partner is incentivised to deliver the project on time and to the required standard to receive payment.</p> <p>Review procedure: Although the Private Partner retains the risk of developing a compliant design, there are certain deliverables that are subject to the Authority’s review procedure set out in the Project Agreement. This provides the Authority an opportunity to review design development and compliance prior to completing the design and starting construction.</p>	<p>There are two main features of successful job creation requirements, one of which is demonstrated on the Pan Am Athletes’ Village project where the Owner established training and skills development programs that can be utilised by the Private Partner. The other feature is measurable performance targets - refer to the Gaurtrain Rapid Rail Link and Central 70 project case studies in the transportation section for examples.</p>

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<p>This requirement was successfully implemented in the output specifications by specifying quantifiable and prescriptive requirements for unit mix, size, location, durability and requirements for internal areas and rooms. Examples are:</p> <ul style="list-style-type: none"> • <i>“The amount of Affordable Rental Housing will be no less than 253 units and exceed the minimum requirement of 20% of the total residential units to be built”;</i> • <i>“The Affordable Rental Housing units shall not be confined to a single block, but provided in multiple buildings”;</i> • <i>“Affordable Rental Housing units shall be provided in their own distinct building and shall not be mixed into buildings with other housing types”.</i> <p>The Affordable Ownership housing program was another strategy to implement social inclusiveness of lower income earners into the community. It was intended to assist low to moderate income households to purchase their principle residences in the project by providing down payment assistance in the form of a forgivable loan. The output specifications required:</p> <ul style="list-style-type: none"> • <i>“5%, up to a maximum of 100 units of all residential units built to be Affordable Ownership units”;</i> • <i>“The maximum purchase price of an Affordable Ownership unit could not exceed the average new home price in the Greater Toronto Area as determined by CHMC”;</i> • <i>“Affordable Ownership Housing units were to be distributed within the market condominium buildings across the Site in multiple buildings rather than confined to a single building or block”;</i> • <i>“Affordable Homeownership Housing units were to be priced such that purchasers whose annual household income levels were at or below the 60th percentile level for the Greater Toronto Area or the Province of Ontario, whichever was lower, can afford the units with the down payment assistance provided by the Ministry of Municipal Affairs and Housing (MMAH)”.</i> 		
<p>Social inclusiveness</p> <p>The Authority defined the project to be built on the principles of inclusiveness and envisioned Fully Integrated Accessibility so that accessible features became part of the overall functionality and a benefit to both the Pan Am and Parapan Am athletes and post-Games users. A high level of accessibility was also required to minimise future retrofits to accommodate an increase in accessibility needs that are projected for a changing/ageing demographic.</p> <p>The design for accessibility considered the needs of athletes, officials, guests and staff who were attending the Pan Am and Parapan Am Games. It considered the needs of persons with a wide variety of abilities, including people with mobility or physical disabilities who may use scooters, manual or motorised wheeled-mobility devices, crutches, walkers or canes; people who are blind, have low vision or are color blind; people who are deaf, deafened or hard of hearing; people with environmental sensitivities; people with cognitive or intellectual disabilities; people who use the assistance of service animals or personal attendants.</p> <p>Guidance was provided by the Authority through the use of principles of Universal Design. The seven principles of Universal Design include: equitable use, flexibility in use, simple and intuitive use, perceptible information, tolerance for error, low physical effort, and size and space for approach and use. This ensured that if accessibility is considered early and often in the design process, with checkpoints along the way, the result will be a well-designed Facility with minimal need to add specialised design or features to accommodate specific people’s needs.</p> <p>The output specifications provided specific requirements with regards to exterior accessible routes, wayfinding and signage, ramps, entrances and exits, doors, and elevators and lifts, accessible bathrooms, accessible seating and public washrooms, but also provided general requirements for the Private Partner to adhere to such as:</p> <ul style="list-style-type: none"> • <i>“Provide an inclusive approach that does not exclude anyone from using the Facility. The Site and buildings must be usable and by all people to the greatest extent possible, without the need for adaptation or specialized design”;</i> 	<p>Reference to industry standard: All accessibility requirements listed in the International Paralympic Committee, Accessibility Guide July 2009 and the Ontario Building Code 2006 were required to be met. In the case of conflicting requirements, the most stringent applied.</p> <p>Conditions precedent to completion: Defined prescriptive requirements and minimum requirements for achieving completion. Completion is linked to payments that are used to repay the project finance partners. The Private Partner is incentivised to deliver the project on time and to the required standard to receive payment.</p> <p>Review procedure: Although the Private Partner retains the risk of developing a compliant design, there are certain deliverables that are subject to the Authority’s review procedure set out in the Project Agreement. This provides the Authority an opportunity to review design development and compliance prior to completing the design and starting construction.</p>	<p>Typically output specifications adopt codes and standards to specify minimum accessibility requirements. In the case of the Pan Am Athletes Village Project, the Provincial standard formed the minimum requirements, which were supplemented by organisation-specific and project-specific requirements to raise the level of accessibility above minimum requirements.</p> <p>The London Olympic Delivery Authority developed the Inclusive Design Standards. Refer to the GI Hub’s <i>Inclusive Infrastructure and Social Equity</i> guidance document and the standard¹⁰ for more information.</p>

¹⁰ Further information available at: https://gihub-webtools.s3.amazonaws.com/umbraco/media/2437/gih_inclusiveinfrastructure_full-document_web_art_hr.pdf.

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<ul style="list-style-type: none"> • <i>"The needs of all users shall be considered equitably. The design of access routes, entrances, exits, space layouts, functional spaces and amenities must consider all needs without discrimination";</i> • <i>"Where only portions of some amenities are fully accessible (such as accessible seating or washrooms) they must be integrated into the overall design, dispersed throughout the building and not simply grouped together. Where only a portion of amenities are accessible (such as wheelchair seating areas), there must be a choice of locations";</i> • <i>"All amenities shall be usable by everyone as independently as possible. Facilities that require outside assistance (such as attendant controlled lifts) are not acceptable".</i> <p>In addition to the broader facilities, Fully Integrated Accessibility measures were required to be incorporated into 10% (+/-1%) of the Affordable Rental Housing. The output specifications detailed requirements for doorways, unit hallways and entries, lighting, living spaces and kitchens, bathrooms and balconies. The output specifications also outlined adaptability requirements for the 90% Affordable Rental Housing units that were not Fully Accessible which would allow units to be easily modified in the future to meet peoples' changing needs over time allowing them to age in place or to accommodate different needs.</p>		
<p>Environmental impacts</p> <p>Requirement for LEED Gold certification Additional green and efficiency standards were required to achieve sustainability accreditation. Each newly constructed building was designed and constructed to meet LEED Gold certification and Waterfront Toronto's green building requirements. Waterfront Toronto's green requirements involved components of long-term flexibility, green roofs, and bicycle parking and storage. Output specification examples include:</p> <ul style="list-style-type: none"> • <i>"Project Co Facilities and Third Party Facilities are required to be designed for long-term flexibility. Specific height and structural loading capacity for various areas are required";</i> • <i>"Green Roofs must be installed for all buildings (except townhouses) over 3 storeys in height and all above grade parking garage structures in the Village";</i> • <i>"For all buildings, provide bicycle parking or storage space for 15% of the off-street parking capacity provided for cars for those buildings".</i> 	<p>Liquidated damages: In the event that a LEED Gold Rating was not obtained for any or all of the LEED Facilities within 24 months after the Project Final Completion Date, liquidated damages would have been assessed against the Private Partner up to an aggregate amount.</p>	<p>On Canadian social infrastructure projects, the typical requirement is for LEED Gold for 'New Construction' with liquidated damages if certification is not achieved. The Authority may specify credits that must be achieved (this is considered the best practice approach). There are examples in Quebec where the Private Partner was required to obtain LEED certification in the 'Existing Buildings: Operations and Maintenance' category. This has presented challenges as it requires input from the Authority, which has resulted in delays.</p>
<p>Ability of the asset to respond flexibly to the introduction of disruptive technology</p> <p>The project was required to meet Waterfront Toronto's initiative for an Intelligent Community that aimed to obtain a reliable and flexible Intelligent Community that was economical to build and maintain.</p> <p>Ultra-high-speed internet access was to be available to all residences and businesses through fibre optic cabling infrastructure and wireless networking. This open access network provided residents and businesses a variety of services from which to choose from and a variety of service providers for such things as high-definition TV programming, internet protocol television (IPTV), voice over internet protocol (VOIP), video and security systems and other internet-connected services in the future.</p> <p>A cash allowance for Intelligent Communities was identified in the Project Agreement to account for costs to the Private Partner in coordinating Beanfield, the exclusive Designated Provider, to perform various services pertaining to the Intelligent Community system, including:</p> <ul style="list-style-type: none"> • <i>"Beanfield acting as the technical consultants and providing feedback on the technical design";</i> • <i>"Beanfield providing and installing all outside plant fibre and riser fibre";</i> • <i>"Beanfield inspecting all telecommunications pathways and spaces";</i> • <i>"Beanfield testing and commissioning the Intelligent Community system".</i> <p>The Private Partner was then to ensure each residential condominium corporation entered into a services agreement with Beanfield for a term of 10 years at a designated cost per unit per month.</p> <p>The specifications prescribed the Intelligent Community system, rather than focus on the system performance. The specifications clearly defined requirements for the system components: manufacturer, structured cabling, telecommunications pathways, telecommunication spaces, main telecommunications rooms, telecommunications entrance rooms, and outside plant pathways.</p>	<p>Conditions precedent to completion: Defined prescriptive requirements and minimum requirements for achieving completion. Completion is linked to payments that are used to repay the project finance partners. The Private Partner is incentivised to deliver the project on time and to the required standard to receive payment.</p> <p>Review procedure: As a technical consultant, Beanfield was responsible for the review of the Private Partner design development, in accordance with the Project Agreement, Schedule 10-Review Procedures and tested and commissioned the Intelligent Community system prior to Project Substantial Completion.</p>	<p>Refer to the ICT case study on a French Broadband project for further information on output specifications to deliver ICT projects.</p>