Communications Systems

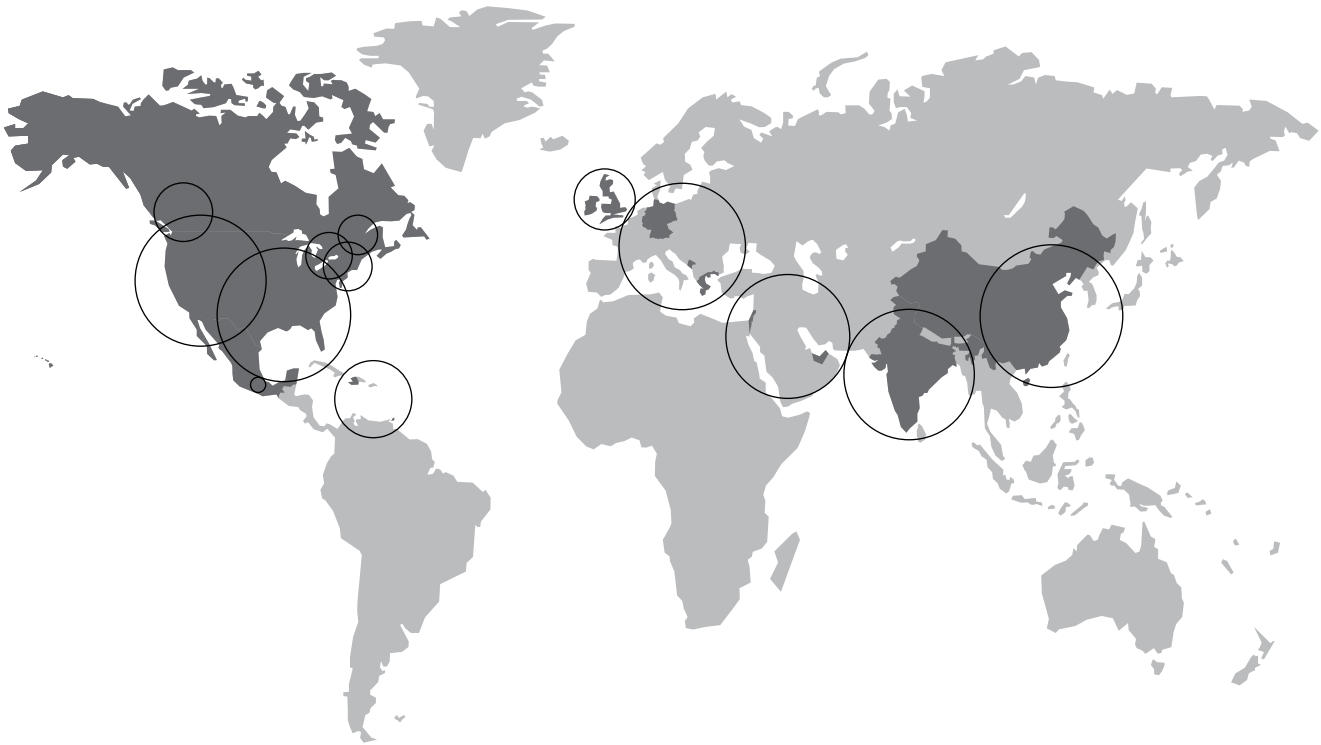
IBI

Communications Systems

IBI

Defining the cities of tomorrow

www.ibigroup.com



Our Firm

Defining the cities of tomorrow.

We are a global team of dedicated and experienced architects, engineers, planners, designers, and technology professionals who share a common desire – to help our clients create livable, sustainable, and advanced urban environments.

From high-rises to industrial buildings, schools to state-of-the-art hospitals, transit stations to highways, airports to toll systems, bike lanes to parks, we design every aspect of a truly integrated city for people to live, work, and play.

Our collaborative and combined approach focuses not only on creating the best solutions today, but also determining the right solutions for tomorrow.

We believe cities in the future must be designed with intelligent systems, sustainable buildings, efficient infrastructure, and a human touch.

IBI – Defining the cities of tomorrow.

IBI

INTEGRATE

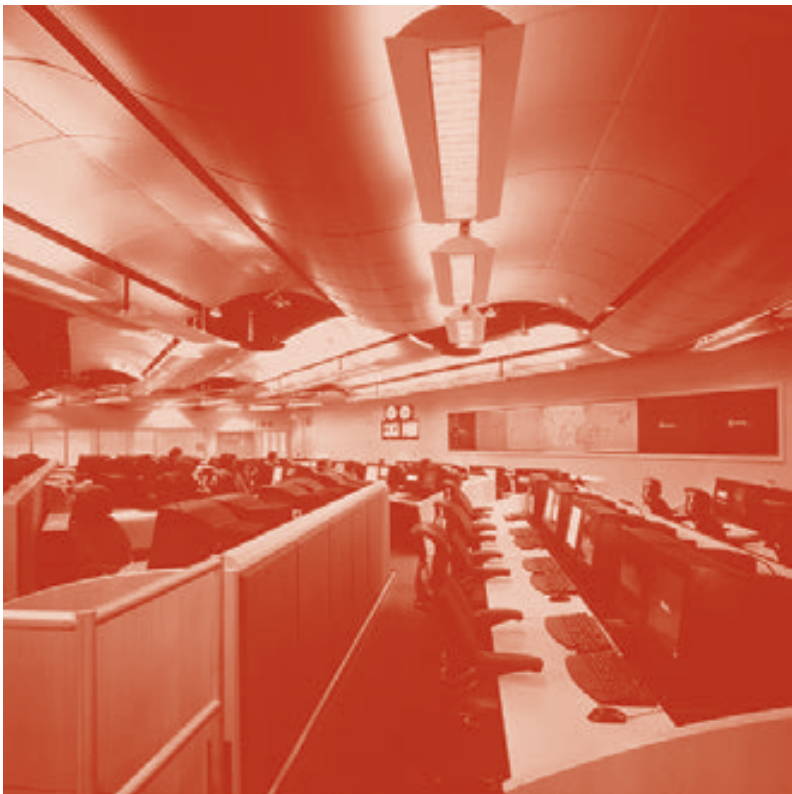
Our goal is to maximize the degree to which the systems, infrastructure, and facilities are meshed together to work as one, with ease and efficiency, while allowing for growth and change.

COMMUNICATE

Where change is rapid on all fronts we act as a centre of communication between vendors, manufacturers, designers, and our clients. Our goal is to ensure decisions are made based on the most current information available and best industry practices.

INNOVATE

Our commitment is to provide the best solution to satisfy each unique requirement not by yesterday's designs. We strive to push technology and our thinking in new directions to most effectively deliver what our clients are requesting.



COLLABORATE

The success of any solution is dependent on collaborative contributions of all involved professionals throughout the entire design process. Our goal is to create an engaging, collaborative working environment that promotes success by design.

Communications Systems Expertise

At IBI Group, we focus on listening to our clients. We work iteratively with each one to develop solutions that leverage communications technology to support and improve business operations, customer and employee experiences, while integrating seamlessly with existing and planned infrastructure.

We know that an organization's communications systems have a direct impact on their ability to operate their business and derive the best value from their capital infrastructure. Decisions made today must take into account current requirements while providing a path to the future. IBI Group develops communication systems and infrastructure design from the ground up. Working always from first principles, industry standards, and best practices, we seek to engage all stakeholders as early as possible in collaborative and iterative discussions to establish their needs and the project's objectives. Solutions are sought and developed which take into account not just what is newest but what will provide the highest value for the investment. We design to meet the stakeholders' needs as well as work diligently to support the project's budget, scope, and schedule realities. Where compromise is unavoidable, we assist by navigating the options with our clients to allow for informed management decisions. Our knowledge of and experience with current standards, codes, and practices, when combined with our team members' accreditations and experience, form the foundation on which we build our solid and lasting solutions.

IBI


16:06

COMMUNICATION SYSTEMS

Representative Experience

Our client-focused design approach combined with our deep knowledge and expertise in communications systems technology and infrastructure design enables us to adapt and optimize horizontal systems, such as:

- Voice and data systems
- Audio Video Systems
- Visual Communications Systems

For several specific industry verticals including:

- Telecommunications
- Broadband/CATV
- ITS/Transportation
- Intelligent Buildings

Our way to the future is best expressed through highlights from our recent past.

IBI


360networks

A

TELECOMMUNICATIONS

At IBI Group, we envision communications networks and facilities which are global in reach and awareness. Our approach is to provide designs of the highest technical quality for networks and facilities that are friendly to the environment. We utilize every means possible to increase efficiencies in power consumption, quality, and management, while deploying green technologies to reduce the operating costs and environmental impacts of the power and cooling necessary to support the telecommunications industry. We see such opportunities in the use of application redundancy versus hardware redundancy, as well as the increased use of DC-powered equipment and innovative cooling technologies to help reach these goals.

360NETWORKS DUBLIN WEB FARM
DUBLIN, IE

Phase I of the Dublin Web Farm, 15,000 sq ft, is located in the transatlantic terminal building. Phase II, 180,000 sq ft, is located adjacent to the terminal site. The project includes a 10MVA co-generation plant. This building is leased to technology-based tenants that require high-capacity communications connections and the supporting infrastructure (secure power, cooling, common meeting space, raised floors, and security).

CLIENT 360NETWORKS
ROLE PLANNING AND ENVIRONMENTAL ASSESSMENT, DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS, APPROVALS
SCOPE/SIZE 15,000 SQ FT, 180,000 SQ FT
STATUS COMPLETED DECEMBER 2001
FIRM(S) IBI GROUP ARCHITECTS

360NETWORKS DUBLIN TERMINAL STATIONS

DUBLIN, IE

IBI Group is the architect for the four terminus stations for the Hibernia Trans-Atlantic fiber cable project with sites in Lynn, Massachusetts; Halifax, Nova Scotia; Dublin, Ireland; and Sefton, England. The buildings are approximately 16,000, 26,000, 17,000 and 25,000 sq ft respectively. The building program includes terminal equipment rooms, battery and receiver rooms, storage, meeting rooms, office space, and reception. The Dublin project is located in an existing industrial building with a new addition for the office space and houses the Atlantic network operations center. Multiple Video Teleconferencing Center (VTC) sites are placed across North America and the Pacific Rim. This work involves architectural interiors, engineering coordination, electronics engineering, and project management.

CLIENT 360NETWORKS
ROLE PLANNING AND ENVIRONMENTAL ASSESSMENT, DESIGN AND CONTRACT DOCUMENTS, APPROVALS
SCOPE/SIZE 16,000 SQ FT (LYNN), 26,000 SQ FT (HALIFAX), 17,000 SQ FT (DUBLIN) AND 25,000 SQ FT (SEFTON)
STATUS COMPLETED AUGUST 2001
FIRM(S) IBI GROUP

NATIONAL NETWORK OPERATIONS CENTER FACILITY DESIGN

BROOMFIELD, COLORADO, US

360networks required the rapid implementation of a national NOC in a typical office building at its Broomfield, Colorado, location. IBI Group's design and administration efforts were co-ordinated with the general office fit-up program, which occurred simultaneously. Tightly coordinated design was required to establish functional spaces within the existing base building. Fixed ceiling heights and column locations were accommodated in the design without compromising the functionality of the spaces. The main Network Operations Center (NOC) room, adjacent presentation area, and a meeting/teleconference room comprised the majority of the space. An integrated, touch-screen-based control system was implemented to allow users to adjust lighting levels, control electrically-opaqued viewing windows, and access display systems. IBI Group also developed a methods and procedures document for use by NOC personnel in monitoring and responding to alarms from base building power and HVAC systems.

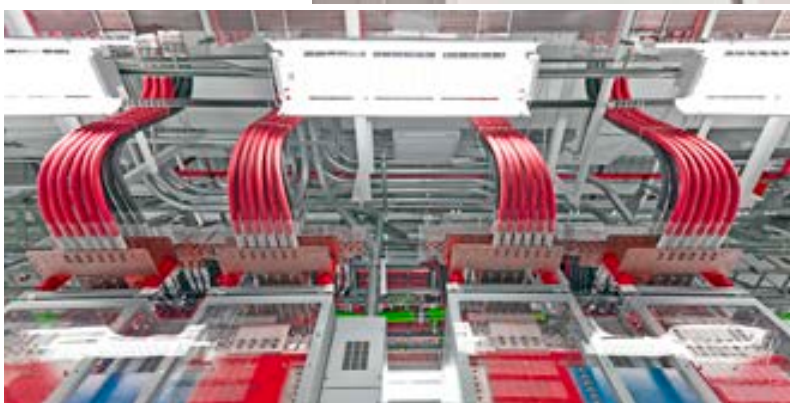
CLIENT 360NETWORKS
ROLE DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS, APPROVALS, IMPLEMENTATION/CONSTRUCTION PHASE SERVICES
SCOPE/SIZE $1,000,000 (FACILITIES)
STATUS COMPLETED SEPTEMBER 2001
FIRM(S) IBI GROUP

FIBRE OPTIC NETWORK ENGINEERING: ALBERTA SUPERNET

ALBERTA, CA

Alberta SuperNet is an initiative to make affordable high-speed connectivity available to all schools, hospitals, libraries, government buildings, and municipalities throughout the province: approximately 4,700 facilities in 422 communities across Alberta. SuperNet is a high-speed broadband network that includes more than 12,000 km of fibre optic and wireless components, and provides Albertans with opportunities to access services (e.g., voice, data, and video) at rates below those available in urban centres. IBI Group's role included the field survey, detailed design of the fibre optic network, and application for all permits and right-of-way approvals for Bell West to proceed with the construction.

CLIENT BELL WEST LTD.
ROLE PLANNING AND ENVIRONMENTAL ASSESSMENT, DESIGN AND CONTRACT DOCUMENTS, APPROVALS
SCOPE/SIZE $80 MILLION
STATUS COMPLETED FEBRUARY 2006
FIRM(S) IBI GROUP



B

BROADBAND/CATV

Our work in this area continues to include a close coordination of all elements of the facilities, technologies, and infrastructure required to provide reliable, expandable, and dependable services. We work from the beginning to ensure that the service provider's needs are understood and translated into outside plant, inside plant, and facilities designs which are robust and industry standards-based, and that can be constructed within the project budget and on schedule.

ROGERS EAST HUB

SCARBOROUGH, ONTARIO, CA

Carrier-grade telecommunications facilities look simple from the outside but are like a big watch on the inside, requiring a thoroughly coordinated design approach to all building elements.

IBI Group was engaged by Rogers Cable to provide design, tendering, and contract administration services for a new state-of-the-art technical facility. The facility features robust AC, DC, and emergency power systems, dry agent fire suppression, and utilizes cutting-edge heat recovery technology. IBI Group provided full design services from functional planning to contract documents. The design development stage involved many stakeholder groups and provided for a phased utilization of the facility.

CLIENT ROGERS CABLE INC.
ROLE PLANNING AND ENVIRONMENTAL ASSESSMENT, DESIGN AND CONTRACT DOCUMENTS, APPROVALS, IMPLEMENTATION/CONSTRUCTION PHASE SERVICES
SCOPE/SIZE 88,000 SQ FT
STATUS COMPLETED 2011
FIRM(S) IBI GROUP

IBI GROUP

SALT LAKE CITY MASTER HEADEND FACILITY

SALT LAKE CITY, UTAH, US

IBI Group served as architect and project manager for the design and construction of a new multi-storey, 12,000 sq ft facility to house Comcast's master headend systems, serving all of its customers in the Salt Lake area.

The facility was designed to seismic zone 4 criteria and is fully GR-1275 compliant. Redundant backup power generators, redundant 48V plant systems, and diverse fibre cable entrance facilities, along with extensive cable management systems, were designed and implemented. The project involved multiple phases; extensive liaison with the city and with local heritage preservation groups was required to resolve issues of property ownership and to obtain civic approval of the design of the new facility.

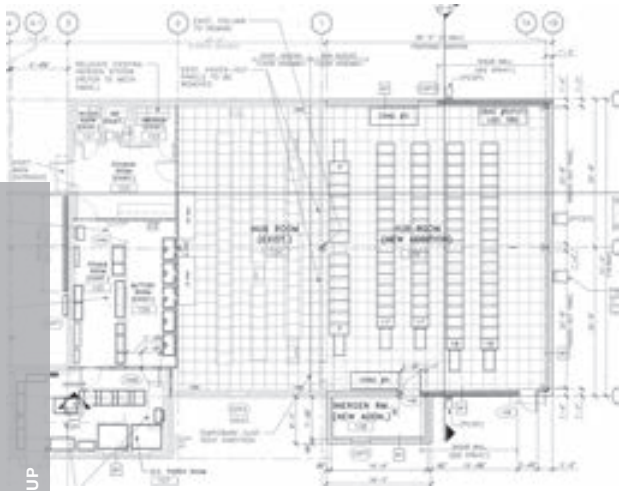
CLIENT AT&T BROADBAND (NOW COMCAST)
ROLE DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS, APPROVALS, IMPLEMENTATION/CONSTRUCTION PHASE SERVICES
SCOPE/SIZE 12,000 SQ FT
STATUS COMPLETED OCTOBER 2001
FIRM(S) IBI GROUP

OGDEN PRIMARY HUB FACILITY

OGDEN, UTAH, US

IBI Group served as architect and project manager for the design and construction of this 4,500 sq ft facility which accommodates the broadband systems providing television, telephony and high-speed internet service to approximately 150,000 homes in the Ogden area. This facility has been designed to seismic zone 4 criteria and is GR-1275 compliant. Designed and built to provide an extremely high degree of reliability, the facility features redundant backup power generators, redundant and diversely configured 48V power systems, N+1 redundant air-conditioning systems, and diverse fiber cable entrance facilities. A multi-level overhead cable management system was also designed and implemented. Careful coordination of the construction work was required to avoid interference with the operation of the pre-existing signal acquisition and distribution systems on the property. Relocation of portions of these systems was required to allow construction of the new facility.

CLIENT AT&T BROADBAND (NOW COMCAST)
ROLE DESIGN AND CONTRACT DOCUMENTS, APPROVALS, IMPLEMENTATION/ CONSTRUCTION PHASE SERVICES
SCOPE/SIZE 45,000 SQ FT
STATUS COMPLETED OCTOBER 2001
FIRM(S) IBI GROUP



ROGERS NEWMARKET HUB EXPANSION

NEWMARKET, ONTARIO, CA

To re-work and expand the major systems of a facility of this type while maintaining operations is like performing open-heart surgery while the patient is running a marathon.

IBI Group was engaged to design an architectural expansion and internal reworking of the major electrical and mechanical systems of an existing headend facility. Work on the main electrical AC, DC, and emergency power systems was designed and phased to allow for continued operations and use of maintenance windows. The architectural design expands the main hub room to more than twice the existing size and reconfigures interior spaces for use by the electrical systems and resulted in a post-disaster rated facility. Mechanical systems were accommodated outside on elevated platforms to preserve rooftop and exterior areas. The design was developed with input from several stakeholder groups. IBI Group provided feasibility studies, tender and contract documents, and construction support services.

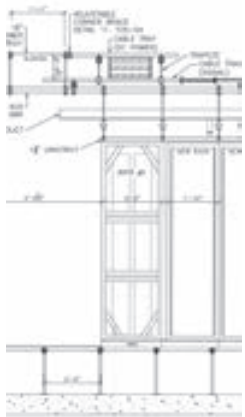
CLIENT ROGERS CABLE SYSTEMS
ROLE PLANNING AND ENVIRONMENTAL ASSESSMENT, DESIGN AND CONTRACT DOCUMENTS, APPROVALS, IMPLEMENTATION/CONSTRUCTION PHASE SERVICES
SCOPE/SIZE 2,000 SQ FT
STATUS ONGOING
FIRM(S) IBI GROUP

ROGERS CABLE GREENSBORO HUB EXPANSION

TORONTO, ONTARIO, CA

CLIENT ROGERS CABLE SYSTEMS
ROLE PLANNING AND ENVIRONMENTAL ASSESSMENT, DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS, APPROVALS
SCOPE/SIZE 700 SQ FT
STATUS COMPLETED 2012
FIRM(S) IBI GROUP

IBI Group was engaged to undertake feasibility designs, design development, tendering, and construction support services for an external expansion and minor expansions and upgrades of the electrical and mechanical systems for a hub on a very confined property. The design was developed with input from several stakeholder groups and resulted in the maximum use of the property and existing recently upgraded AC and DC electrical systems. The hub room was expanded significantly and a new CRAC unit added to condition the new volume of space. Major electrical system elements will be upgraded within the facility to prepare for a future upgrade to the site utility services as plant loads rise in the future.



IBI GROUP

BURIEN (PUGET SOUND) MASTER HEADEND FACILITY

SEATTLE, WASHINGTON, US

This facility serves 1.4 million homes passed in the Puget Sound area. The structure is 8,000 sq ft in size, meets seismic zone 4 standards, and is built to accept a future second-floor addition. The facility's technical infrastructure comprises a microwave tower, TVRO dish farm, and diverse optical fiber cable entrances. The electrical systems include a single emergency generator with provisions for a second, and a dual, redundant 48 Vdc plant. The technical infrastructure and grounding systems are GR-1275 compliant and provide multi-layer cable tray and diverse, redundant fiber tray systems. Presentations to local resident groups were required in order to gain city approval for the design and construction of the facility.

CLIENT AT&T BROADBAND (NOW COMCAST)
ROLE PLANNING AND ENVIRONMENTAL ASSESSMENT, DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS, APPROVALS, IMPLEMENTATION/CONSTRUCTION PHASE SERVICES
SCOPE/SIZE 8,000 SQ FT
STATUS COMPLETED JANUARY 2000
FIRM(S) IBI GROUP

BURIEN (PUGET SOUND) MASTER HEADEND INSIDE PLANT SYSTEMS

SEATTLE, WASHINGTON, US

CLIENT AT&T BROADBAND (NOW COMCAST)
ROLE PLANNING AND ENVIRONMENTAL ASSESSMENT, DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS, IMPLEMENTATION/ CONSTRUCTION PHASE SERVICES
SCOPE/SIZE $4 MILLION PROJECT WORTH
STATUS COMPLETED JANUARY 2000
FIRM(S) IBI GROUP

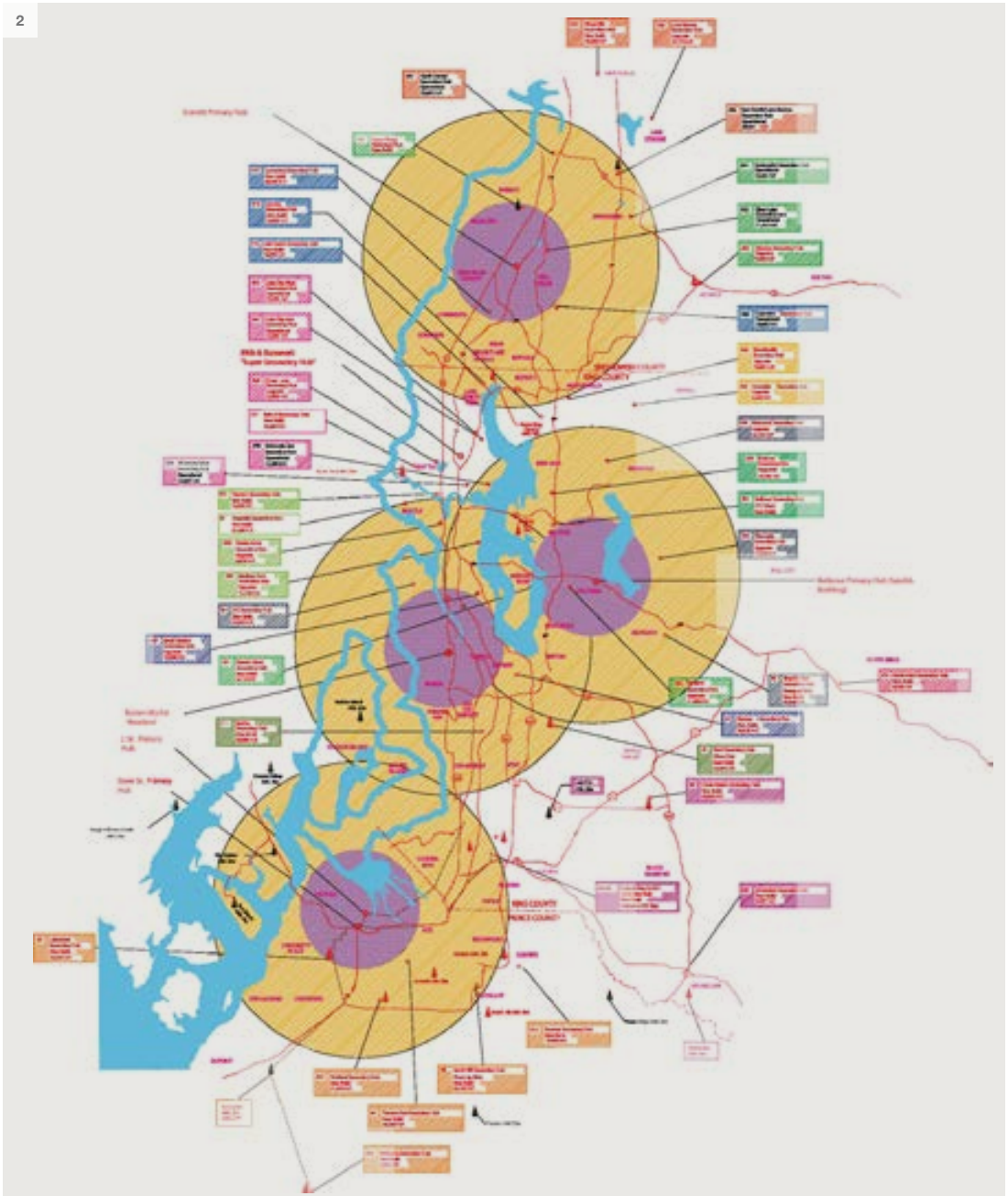
The master headend systems support all of AT&T Broadband's (now Comcast) 1.4 million homes passed in the Puget Sound area. The design documentation for this system comprised approximately 5,000 individual equipment items and 20,000 cables. Pre-wiring of cable harnesses off-site was employed to minimize the time to activation of services.

1

1

1 NEW BRUNSWICK HEADEND FACILITIES ASSESSMENT, NEW BRUNSWICK, CA
2 AT&T COMMUNICATIONS NETWORK SEATTLE, WASHINGTON, US
3 SAINT JOHN PRIMARY HUB FACILITY EXPANSION, ST. JOHN, NEW BRUNSWICK, CA
4 FREDERICTON PRIMARY HUB FACILITY DESIGN AND ADMINISTRATION: ROGERS CABLE SYSTEMS, FREDERICTON, NEW BRUNSWICK, CA

2



3

4

3 3

4

ROGERS EAST HUB
SCARBOROUGH, ONTARIO, CA


STOP


1


MONON
e-PASS
ONLY
2.7
10%
20

C

ITS/TRANSPORTATION

IBI Group's Intelligent Transportation Systems (ITS) practitioners seek to use state-of-the-art information technology to improve, automate, and optimize travellers' safety while improving ease of use of the various modes of transportation, enabling private and public entities to better manage and operate current and future transportation systems.

ATTIKI ODOS INTEGRATED TOLL AND TRAFFIC MANAGEMENT: THE ELEFSINA-STAVROS MOTORWAY

ATHENS, GR

The Elefensina-Stavros Motorway, located in Athens, Greece, is a Design, Build, Finance and Operate (DBFO) highway project undertaken by the Attiki Odos Construction Joint Venture. The Motorway is 65 km long with 15 km of tunnels, 38 interchanges, and 173 tolling lanes. IBI Group was engaged to provide several comprehensive and coordinated services related to the planning, design, and construction administration of the Motorway's Integrated Toll and Traffic Management Systems (ITTMS) and the necessary Back-bone Network Elements. IBI Group provided assistance in developing strategies for commercializing communication bandwidth for third-party use and revenue generation. IBI Group provided project budget and schedule services as well as undertaking the design, construction administration, and integration activities from preliminary design phase through to commissioning and certification of the entire network. The backbone network interfaces with and supports many control, communication, monitoring, and database systems across several formats and technologies.

CLIENT ATTIKI ODOS CONSTRUCTION
ROLE DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS, APPROVALS, IMPLEMENTATION/CONSTRUCTION PHASE SERVICES
SCOPE/SIZE 65 KM, 38 INTERCHANGES
STATUS COMPLETED MAY 2000
FIRM(S) IBI GROUP

IBI GROUP

YORK REGION TRANSIT – VIVA PHASE 2

YORK REGION, ONTARIO, CA

The purpose of the YRTP project is to complete planning and project development, and to implement and operate a rapid transit system within York Region. York Region, immediately north of Toronto, has a population of over 800,000, employment of over 400,000 and is one of the fastest growing major jurisdictions in North America, adding over 100,000 jobs in the last five years alone. This project is unique in that it is a design-build-operate-maintain (DBOM) project that was begun during the planning phase (rather than after preliminary engineering is completed) to accelerate implementation and take advantage of early involvement by engineers, architects, bankers, and constructors. As part of the York Region Consortium, IBI Group is an integral part of the design, planning, engineering, and implementation of all facilities related to the project.

IBI Group was responsible for the implementation of all ITS elements, including the following subsystems:

- Transit Management—interim transit management centre and system software
- Traffic Management—enhancements to the traffic signal control system
- Revenue Management Systems—Terminal Ticket Validation Machines (TTVM), Ticket Vending Machines (TVM), and Ticket Validators (TV) at all stops and terminals managed via dedicated data lines and via the Internet
- Roadway—advanced transit priority logic on transit routes.

CLIENT YORK RAPID TRANSIT
ROLE DESIGN AND CONTRACT DOCUMENTS, IMPLEMENTATION/ CONSTRUCTION PHASE SERVICES, OPERATIONS AND MAINTENANCE
SCOPE/SIZE $1.4 BILLION
STATUS ONGOING
FIRM(S) IBI GROUP

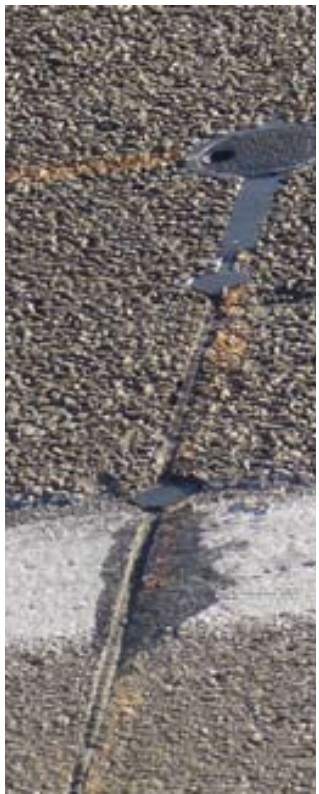
ROAD WEATHER INFORMATION SYSTEMS (RWIS)

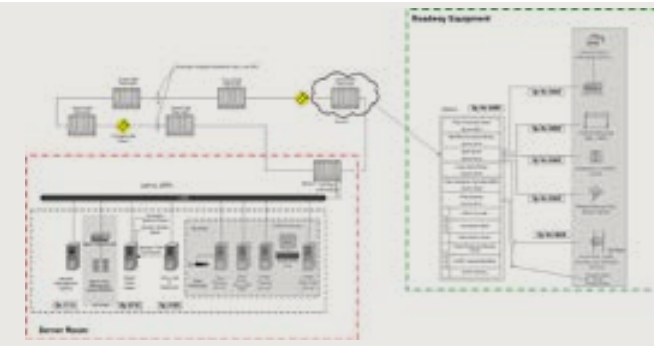
ALBERTA, CA

2006 Minister's Award of Excellence for Process Innovation

CLIENT ALBERTA TRANSPORTATION
ROLE PROGRAM MANAGEMENT
SCOPE/SIZE 75 RWIS STATIONS
STATUS COMPLETED JULY 2008
FIRM(S) IBI GROUP

IBI Group assisted AIT in the development of terms for a Request for Proposal (RFP) for RWIS Services including proponent proposal evaluation and RWIS Service Provider performance auditing. The RFP was for a design, build, finance, and operation of the province-wide RWIS network. It included requirements and detailed specifications for design, procurement, installation, integration, commissioning, operation, and maintenance of 75 RWIS stations on the national highway system throughout Alberta with the option of additional stations in the future. IBI Group assisted AIT in developing the appropriate business model. The RFP also included detailed requirements for road and meteorological forecasting services. IBI Group is also providing ongoing audit services of the performance of the contract on behalf of AIT.





GIGABIT ETHERNET COMMUNICATIONS SYSTEMS FOR ITS: GMR PROJECT PRIVATE LTD.

INDIA

GMR Group was awarded four concessions for the construction and operations of highway projects in India on a build-operate-transfer basis (BOT).

GMR retained IBI Group as the engineering consultant and systems manager responsible for the overall system design, testing, and deployment of Intelligent Transportation Systems (ITS). These systems included: Highway Traffic Management Systems (HTMS), Toll Management Systems (TMS) and the Communications Systems, required to link all of the network elements. IBI Group assisted GMR in the procurement and provided integration of the TMS, HTMS, and Communications Systems.

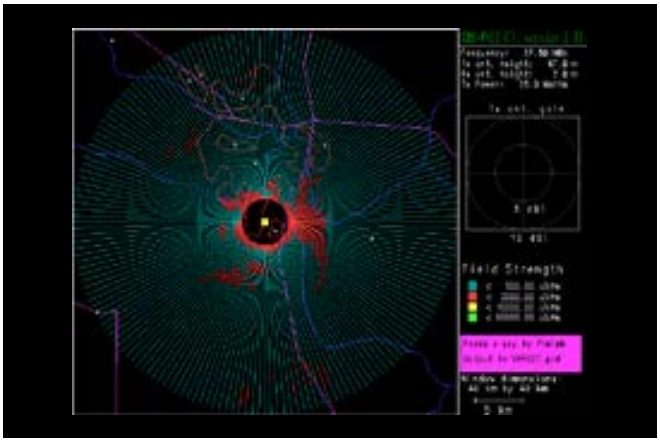
These projects involved a number of first-time deployments in the ITS market in India:

- A non-proprietary, standards based, environmentally rugged, Gigabit Ethernet fibre optic backbone to support voice, video, and data applications
- A VoIP, Session Initiation Protocol (SIP) based communications platform for Emergency Call Boxes (ECB's)
- An MPEG-4, field encoded, video transmission system for CCTV Cameras

The projects included deployment of two-way mobile radio systems for the entire route in support of operations and maintenance activities. They also involved digital recording for voice activities of the ECB system, mobile radio system, and the intercom system.

CLIENT GMR GROUP
ROLE RESEARCH, DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS, APPROVALS
SCOPE/SIZE 251 KM
STATUS COMPLETED MAY 2012
FIRM(S) IBI GROUP

30



HIGHWAY ADVISORY RADIO

CALGARY, ALBERTA, CA

IBI Group, on behalf of the City of Calgary, carried out the following activities in support of a new low-power FM broadcast station:

- Developed functional requirements
- Conducted site survey and selection
- Modelled coverage of signal
- Prepared the engineering brief to Industry Canada based on detailed engineering
- Managed the official application process with Industry Canada
- Commissioned the site and systems
- Conducted on-air testing
- Formally put the station on-the-air

CLIENT CITY OF CALGARY
ROLE DESIGN AND CONTRACT DOCUMENTS
SCOPE/SIZE $20,000
STATUS COMPLETED AUGUST 2006
FIRM(S) IBI GROUP

IBI GROUP

D

VISUAL COMMUNICATION SYSTEMS

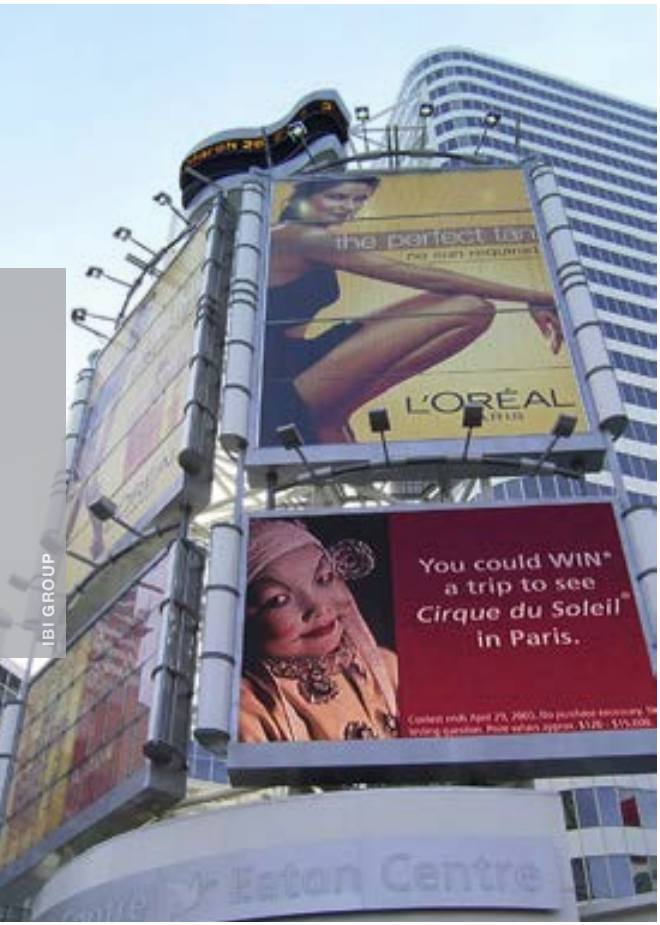
IBI Group provides the vision, knowledge, and experience in the design and deployment of visual communications and control systems, enabling organizations to effectively and efficiently manage and deliver compelling content, while providing rich visual experiences to their customers.

NATIONAL NETWORK OPERATIONS DISPLAY SYSTEM DESIGN

BROOMFIELD, COLORADO, US

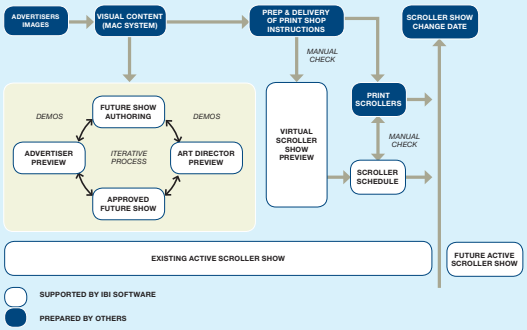
360networks engaged IBI Group to design and oversee the implementation of a display system spanning the main NOC room, and an adjacent presentation room, as well as a meeting/teleconference room. Full-signal routing capabilities were incorporated in the system, along with integrated, touch-screen control facilities. Multiple program sources, various display parameters, as well as room lighting and window coverings are all controlled via touch-screen panels. The main display incorporates full digital image processing to allow the bank of display projectors to be treated as a single display area. Key aspects of the lighting and acoustic design were defined in order to properly support the display system. Critical base-building infrastructure (conduits, power, and air-conditioning) was specified well in advance in order to cost-effectively incorporate these requirements into the base-building construction program.

CLIENT 360NETWORKS
ROLE DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS, IMPLEMENTATION/CONSTRUCTION PHASE SERVICES
SCOPE/SIZE $500,000
STATUS COMPLETED SEPTEMBER 2001
FIRM(S) IBI GROUP



IBI GROUP

Scroller Show Creative & Introduction Process



SOFTWARE DEVELOPMENT: EATON CENTRE MEDIA TOWER CONTROL SYSTEM

TORONTO, ONTARIO, CA

IBI Group provided Cadillac-Fairview with software development and integration services to deliver an integrated control to Cadillac-Fairview for the Eaton Centre Media Tower, which faces Dundas Square in downtown Toronto, Canada. The most critical requirement was the synchronization of the multiple display elements, particularly during the periods of time when all of the visual programming of the Tower is dominated by a single advertiser.

Underlying that primary requirement were a number of more detailed requirements including:

- Creative programming functionality over all of the active elements (i.e. scrollers, trivision signs, LED light bars and the LED ticker board) to be provided to the operator in a single, integrated interface
- Synchronization of the movement/change of all active elements with respect to one another, and with respect to the video programming on the video display
- Programming/choreography of the 40 scrollers, each having multiple panels of visual content
- Preview of the scrollers and tri-vision signs via the integrated operator interface

CLIENT CADILLAC-FAIRVIEW CORPORATION LTD.
ROLE DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS, OPERATIONS AND MAINTENANCE
SCOPE/SIZE $50,000-$100,000
STATUS COMPLETED MAY 2009
FIRM(S) IBI GROUP

TRI-VISION AUTOMATED SHUT-DOWN: EATON CENTRE MEDIA TOWER

TORONTO, ONTARIO, CA

IBI Group was retained to design and implement a system around three anemometers which were placed and aligned to provide relevant raw data to calculate instantaneous and averaged wind velocity in real time. The system prevents the rotation of the Tri-Vision signs when certain wind-speed conditions are exceeded, and allows rotation to automatically re-start in accordance to the schedule when wind speeds fall below the set threshold.

Key features of the system design include:

- Monitor wind data from each of the three anemometers and monitor current states of the signs
- Automatically prevent the rotation of the Tri-Vision columns when wind velocity exceeds user-specified threshold
- Automatically restart rotation of the Tri-Vision columns and advance them to the scheduled advertising display
- Provide manual shutdown and restart controls
- Provide a log of the stop and start data
- Send status notification to a list of recipients via email
- Provide an archive data file of wind speeds for future analysis

CLIENT OUTDOOR BROADCAST NETWORK INC.
ROLE SOFTWARE DEVELOPMENT, DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS, OPERATIONS AND MAINTENANCE
SCOPE/SIZE $50,000
STATUS COMPLETED MARCH 2008
FIRM(S) IBI GROUP

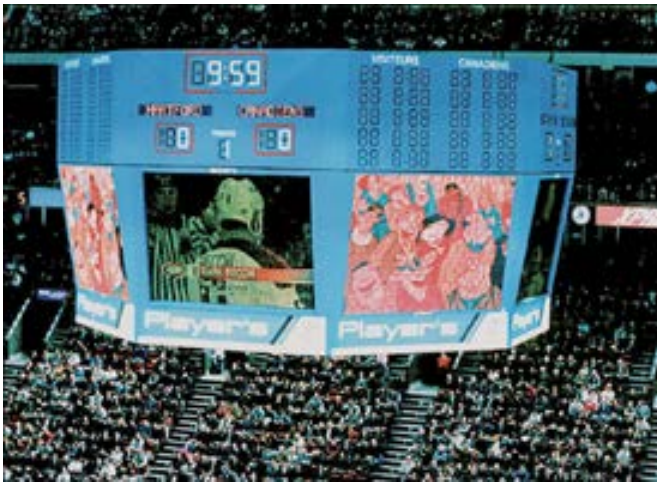
IBI GROUP

JUMBOTRON REPLACEMENT PROJECT SPORTSCO INTERNATIONAL LP (ROGERS CENTRE)

TORONTO, ONTARIO, CA

Sportsco retained IBI Group to assist it in confirming the requirement to replace the existing Jumbotron display at Skydome, and to produce a tender document to which major largescreen display manufacturers responded. IBI Group's assessment generally confirmed the requirement to replace the existing display as soon as feasible. IBI Group conducted a survey and assessment of the available display technologies which included phosphor, plasma discharge, and LED-based technologies. Functional specifications were developed to reflect the performance requirements of the Skydome environment, and the capabilities of selected available technologies. A tender package was issued to major manufacturers, with Sony, Panasonic, Daktronics, and Saco Smartvision each tendering a proposal. Each of the proponents' factories was visited to evaluate their respective technologies, manufacturing capabilities, and testing procedures. A final analysis of each of the bids was conducted in order to identify the proposal most compliant with the requirements of the RFP.

CLIENT SPORTSCO INTERNATIONAL LP (SKYDOME)
ROLE PLANNING AND ENVIRONMENTAL ASSESSMENT, DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS, PROGRAM MANAGEMENT
SCOPE/SIZE $12 MILLION
STATUS COMPLETED APRIL 2001
FIRM(S) IBI GROUP

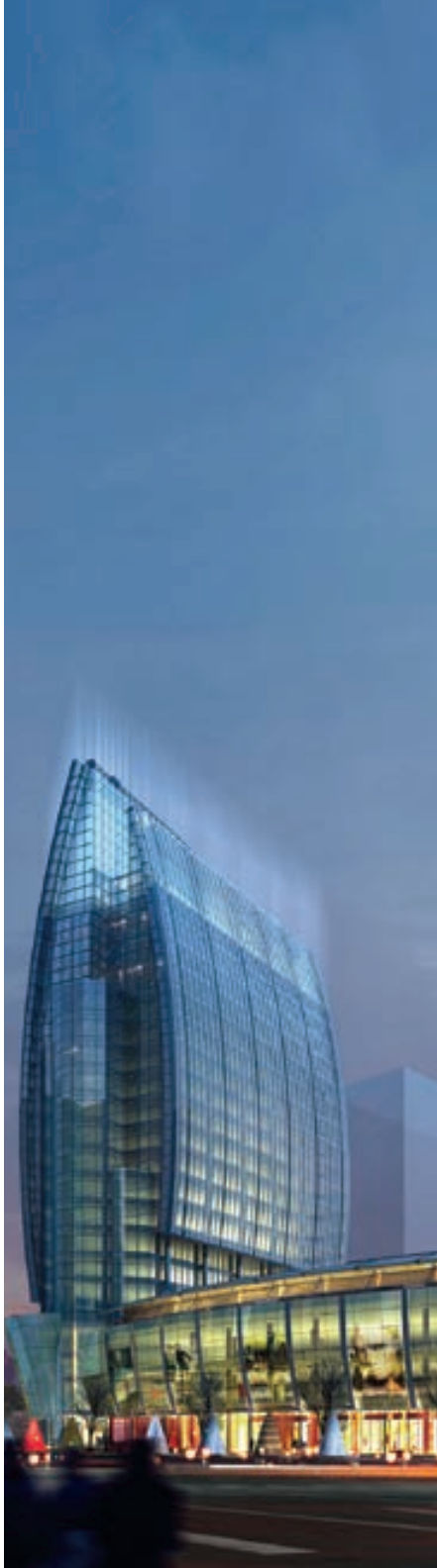


CENTRE ICE SCOREBOARD SYSTEM: BELL CENTRE

MONTREAL, QUEBEC, CA

IBI Group, through IBI/DAA, acted as the consultant for the video scoreboard systems at the new 23,000-seat Bell Centre hockey arena. This system features an octagonal scoreboard containing four full-motion video screens and four bulb-matrix displays, along with the related game statistics displays. The system also features a fully equipped television production/control room to drive the video screens. Additionally, a secondary control room located in the press-box area provides facilities for operators of the bulb-matrix displays and the game statistics displays. The scoreboard system is integrated with the data and broadcast television infrastructure throughout the arena to support distributed control of the scoreboard and full connection with the television studios and production trucks during events. The system is also capable of operating with its own video cameras during non-broadcast events.

CLIENT BELL CENTRE
ROLE DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS, IMPLEMENTATION/CONSTRUCTION PHASE SERVICES
SCOPE/SIZE 390,000 SQ FT
STATUS COMPLETED MARCH 1996
FIRM(S) IBI GROUP



E

INTELLIGENT BUILDING SYSTEMS

IBI Group Systems practice has been supplying solutions and services to enhance the public's experience of their communities, whether at home, school, work, or play. Our systems practice has contributed to the creation of smart communities in which technology provides environments that are sustainable, informative, efficient, and safe.

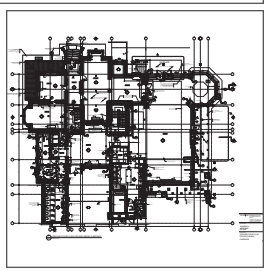
DINGXIANG 778 PUDONG SHANGHAI INTELLIGENT BUILDINGS

PUDONG, SHANGHAI, CN

IBI Group is leading the design of an intelligent office building with two multi-storey high-rise office towers. The facility will also house retail stores and several floors of parking. The retail stores are to include restaurants, clubs, and fashion stores. This project envisages implementing systems to assist the developer to lay claim to the "most intelligent building" in Shanghai. Involvement with electrical engineering design, lighting design, security, access control, emergency power, advertising, and automated building functionalities have all been aspects of this activity.

IBI Group's responsibilities include the provision of a concept for the IBS (Intelligent Building Systems) and presentation of these concepts to the contractors. The enhanced functions are intended to exploit technologies to promote efficiencies for the occupants, the visitors, and the management, while also making the building safe and energy efficient.

CLIENT SHANGHAI SHANCHUAN REAL ESTATE CO., LTD
ROLE DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS, APPROVALS, IMPLEMENTATION/CONSTRUCTION PHASE SERVICES
SCOPE/SIZE TWO 20-STOREY TOWERS ON 4-STOREY PODIUMS
STATUS COMPLETED MARCH 2011
FIRM(S) IBI GROUP



IBI GROUP

ALDERLEA COMMUNITY CENTRE AV SYSTEMS

BRAMPTON, ONTARIO, CA

Alderlea Community Centre is a heritage building located in the City of Brampton, Ontario.

As part of its repurposing as a community centre, the municipality engaged IBI Group to consult on audio visual systems within the proposed new spaces.

In association with Taylor-Hazell Architects, IBI Group provided preliminary and detailed design as well as engineering cost estimates, tender support, and construction administration services to the project for all AV systems.

One of the challenges encountered by systems specialists working within heritage sites is the restriction on interventions. Heritage facilities impose restrictions on equipment placement, physical interventions, and cable pathways. Creating spaces from scratch with perfect sightlines and acoustic-rated partitions and ceilings is not always feasible in such spaces.

Meeting these heritage challenges, IBI Group systems designers were able to provide custom-developed solutions for sound-reinforcement, video display, and control interface which were both functionally intuitive and acceptable to the municipality and architect teams.

CLIENT TAYLOR HAZELL ARCHITECTS LTD.
ROLE DESIGN AND CONTRACT DOCUMENTS
SCOPE/SIZE $7.5 MILLION OVERALL, $70,000 AV SYSTEMS, $8,000 FEES
STATUS ONGOING
FIRM(S) IBI GROUP

BLACK WALNUT

YORK REGION, ONTARIO, CA

IBI Group has a long-standing (since 2006) Video Surveillance consulting engagement with York Region District School Board.

As surveillance technologies advance it is now common to see all-IP systems in place, even in public schools. Black Walnut Public School is a new-construction school opened to students in September 2012. Black Walnut is the first York Region District school to deploy all “megapixel” resolution cameras and a network video recorder that requires no analog-to-digital conversion stage at all for surveillance or storage. The results, particularly as regards picture quality, were so positive that the system at this school will form the template for all future new-construction public school surveillance systems for the Board.

CLIENT YORK REGION DISTRICT SCHOOL BOARD
ROLE DESIGN AND CONTRACT DOCUMENTS
SCOPE/SIZE $8 MILLION OVERALL, $42,000 CCTV SYSTEMS, $10,000 FEES
STATUS COMPLETED NOVEMBER 2012
FIRM(S) IBI GROUP

THOMAS A. ROBINSON NATIONAL STADIUM, QUEEN ELIZABETH SPORTS CENTRE
COMMUNICATION SYSTEMS PEER REVIEW
NASSAU, BAHAMAS, US

CLIENT THE BAHAMAS MINISTRY OF YOUTH, SPORTS AND CULTURE
ROLE DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS
SCOPE/SIZE 374 ACRES, $25 MILLION
STATUS COMPLETED 2011
FIRM(S) IBI GROUP

As part of this 374-acre, multi-phase redevelopment of a former military airfield into the Bahamas' premier sports complex, the 15,000-seat football stadium, constructed jointly by the governments of the Bahamas and the People's Republic of China, will be the largest attraction of the new complex. IBI Group undertook a full peer review of all of the stadium's communications systems, power systems, and related infrastructure designs to assess suitability and the state of design in relationship to current applicable standards, codes, and best practices. Systems reviewed included broadcast, voice, data, CCTV, access control, public address, video displays, and sports timing systems.

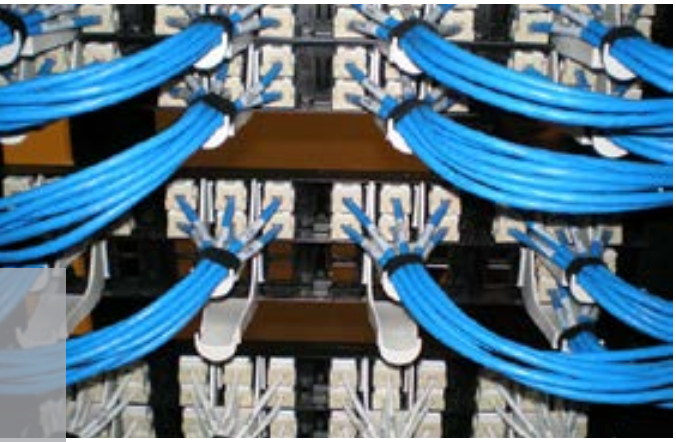
THUNDER BAY AND ST. THOMAS CONSOLIDATED COURTHOUSES

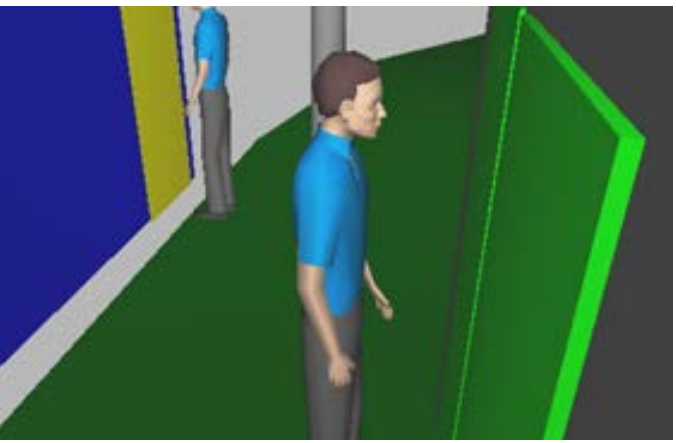
ONTARIO, CA

IBI Group's role is to prepare design documentation, performance specifications, facility management specifications, and other necessary documentation that fully details the planning, design, and operation requirements for these projects. The projects are issued to proponents as Design-Build-Finance and Maintain form of procurement. (DBFM). Work on the Thunder Bay Consolidated Courthouse proceeded in late January 2009 to confirm the existing Facilities Programming and Planning Study with user groups, prepare design documentation, performance specifications, facility management specifications, and other documents that fully detail the planning design and operation of requirements of the project into one document: the Output Specifications.

IBI Group assisted Infrastructure Ontario with the evaluation of RFQ's submitted by interested DBFM consortia. Upon completion of these documents, Infrastructure Ontario issues the Output specs to proponent DBFM consortia in an RFP. IBI Group will assist in reviewing and evaluating the submissions, leading to a final selection of a DBFM consortium by Infrastructure Ontario. IBI Group will also be monitoring the work of the successful DBFM consortium and advise Infrastructure Ontario of their compliance with the Output Specs in all phases of the work.

CLIENT INFRASTRUCTURE ONTARIO
ROLE APPROVALS, IMPLEMENTATION/CONSTRUCTION PHASE SERVICES
SCOPE/SIZE APPROX. $250 MILLION EACH (IO WEB VALUES)
STATUS ONGOING
FIRM(S) IBI GROUP





IBI GROUP

CAMH CCTV DESIGN AND CONTRACT ADMINISTRATION

TORONTO, ONTARIO, CA

IBI Group was retained by CAMH (Centre for Addiction and Mental Health) through Talisker Corporation. IBI Group's role was to provide interior, telecom, and CCTV systems design and construction administration consulting services for the CAMH Executive Staff swing space located at 901 King Street W. in Toronto. IBI Group provided detailed design drawings, specifications, contract administration, construction administration, verification, and acceptance for the CCTV systems for CAMH.

IBI Group helped CAMH select CCTV surveillance devices and determine optimum camera placement. The deployed system is the latest in DVR/NVR-based technology and our design supported CAMH's CCTV surveillance policies. Construction administration took place to ensure that the system installed meets the specifications and performs in a useful manner, and that the contractor provides the necessary operational training to end-users.

CLIENT CENTRE FOR ADDICTION AND MENTAL HEALTH (CAMH)
ROLE RESEARCH, DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS, IMPLEMENTATION/CONSTRUCTION PHASE SERVICES
SCOPE/SIZE $100,000 FOR SYSTEMS
STATUS COMPLETED JANUARY 2010
FIRM(S) IBI GROUP

BUILDING AUTOMATION SERVICES: INTELLIGENT BUILDINGS TECHNOLOGY ROADMAP

TORONTO, ONTARIO, CA

The Intelligent Buildings Technology Roadmap provides a comprehensive view of Intelligent Buildings Technologies (IBT), including an evaluation of current technologies and their imminent evolution. The concept of IBT has developed over the last few years as available technologies, operational tools, and emerging technologies have influenced traditional building approaches. The Technology Roadmap (TRM) is a document which enables the entire spectrum of intelligent building stakeholders to identify and navigate through this flourishing technology. These stakeholders include building owners, operators, managers, design engineers, system manufacturers, and occupants.

IBI Group has developed the Intelligent Buildings Technology Roadmap on behalf of sponsors including Industry Canada and The Continental Automated Buildings Association (CABA). IBI Group's goal was to develop a document which could be used as a tool to promote and encourage the adoption of IBT in commercial, institutional, and high-rise residential buildings. This document also addresses the future challenges, barriers, and needs which must be met in order to harness the potential energy improvements and economic advantages offered by Intelligent Buildings.

CLIENT INDUSTRY CANADA AND THE CONTINENTAL AUTOMATED BUILDINGS ASSOCIATION
ROLE RESEARCH
SCOPE/SIZE REPORT
STATUS COMPLETED MARCH 2001
FIRM(S) IBI GROUP

INDEX

TELECOMMUNICATIONS

BROADBAND/CATV

ITS/TRANSPORTATION

VISUAL COMMUNICATION SYSTEMS

INTELLIGENT BUILDING SYSTEMS

IBI

Defining the cities of tomorrow

www.ibigroup.com

SECTORS

INTELLIGENCE

BROADCAST
COMMERCIAL VEHICLES
INFORMATION SYSTEMS
INTELLIGENT BUILDINGS
INTELLIGENT TRANSPORTATION SYSTEMS
POWER SYSTEMS
REVENUE SYSTEMS
SECURITY SYSTEMS
TELECOMMUNICATIONS

BUILDINGS

CIVIC AND MUNICIPAL
HEALTHCARE
HIGH-RISE
HIGHER EDUCATION
HOSPITALITY
JUSTICE AND PROTECTIVE SERVICES
K-12 EDUCATION
MIXED-USE
RETAIL AND COMMERCIAL
SENIORS COMMUNITIES
STADIUMS AND SPECIAL EVENTS

INFRASTRUCTURE

AMBULANCE AND MEDICAL TRANSPORTATION
FREIGHT TRANSPORTATION AND LOGISTICS
GOVERNANCE AND SERVICE DELIVERY
MULTI JURISDICTIONAL PLANNING
NEIGHBORHOOD DEVELOPMENT
PUBLIC TRANSPORTATION
SITE DEVELOPMENT
TRANSPORTATION AND LAND USE
TRANSPORTATION INFORMATION TECHNOLOGY
URBAN AND REGIONAL DEVELOPMENT


INFRASTRUCTURE INTELLIGENCE BUILDINGS

Defining the cities of tomorrow

www.ibigroup.com

IBI Group is a globally integrated architecture, planning, engineering, and technology firm.