

# City of Brampton, Ontario, Canada

## Enabling the Enterprise— Brampton's Web-Based GIS Solution (2005—Enterprise System)

### System Summary

Brampton's Web-based Geographic Information System (GIS) solution provides seamless access to key land-based information. The award-winning enterprise GIS site, <http://www.bramptonmaps.ca>, offers citizens, businesses, and other government agencies access to current maps and detailed data for municipal property and facilities, economic development activity, political boundaries, heritage sites, transit services, recreational services, and more.

The solution is exemplary because it leverages the centralized, maintained information in the enterprise GIS system and distributes this information to all city staff and to the public. The Web-based solution is delivered to internal staff via what Brampton calls Accessible Interactive Maps (AIMs). Externally, the general public has access via <http://www.bramptonmaps.ca>, the mapping component of the city's Web site.

Both AIM and <http://www.bramptonmaps.ca> disseminate the appropriate information to the targeted users. Within city hall, each employee of the corporation has access to the entire database of information managed by the GIS program. Through AIM, all staff members and city councillors have access to the latest information available to the city. A subset of this information is then disseminated to the general public via the <http://www.bramptonmaps.ca> Web site. This ensures the applicable privacy legislation is upheld and no inappropriate information is distributed.

By distributing the information in this way, all parties can retrieve and rely on the most up-to-date spatial information available. City staff and the public understand that current information is available through the enterprise GIS solution.

The <http://www.bramptonmaps.ca> Web site was featured in an article published by Intergraph Canada. See <http://www.intergraph.ca>. The story is on the GeoMedia WebMap Feature Site and references Brampton's achievement: "The City of Brampton's is the first site in North America to publish a public facing site administered using this technology. . . . Brampton was able to

get this Web site up and running in only 30 days."

Visit our public Internet site: <http://www.bramptonmaps.ca>.

Visit our intranet (AIM) site: Please contact Bill Latchford ([bill.latchford@brampton.ca](mailto:bill.latchford@brampton.ca)) and we can provide a secure vpn tunnel into the city's intranet to access the AIM solution.

### Motivation for System Development

Brampton is the fastest-growing municipality in Canada and this rapid pace means constantly changing data. There was no standardized method of capturing, recording, and maintaining land-related data changes as the city grew.

The challenge was to provide staff with easy access to consistent, accurate, up-to-date mapping information in a cost-effective manner. In the past, mapping information available to decision makers, executives, and technical staff originated from many different sources. There was duplication among departments and across corporate functions. The information was sometimes obsolete, so decisions risked being based on incorrect information.

The need was to establish centralized, map-related applications for internal staff, covering specific programs such as the Official Plan Review, Growth Management, Fire & Emergency Services Management, Property Lookup and Notifications, Street-light Inventory Management, taxation system, tree inventory control, burns permits, and bylaw enforcement, to list a few examples. The Economic Development Office needed to field foreign inquiries regarding Brampton's land availability, available business locations, commercial/industrial buy/lease options for property, transportation options, labor pool, and surrounding businesses.

The solution had to be intuitive and uncomplicated so that any employee would be able to access and understand the information. GIS Services created the Web-based application to achieve this. Now staff no longer need continuous GIS training to create value-added, map-based information from the Web application.

Previous labor-intensive manual processes contained a greater risk for human error. GIS Services reduced or eliminated this risk by providing a solution that included an automated index used to pull geographic information from the database.

## **System Benefits Achieved**

Unexpected benefits are the many uses of the information throughout city hall, and how frequently GIS Services receives requests to sell the data.

The extent to which city staff gathers and uses the spatial information to make key decisions has exceeded original expectations. We had not identified groups such as Bylaw Enforcement, Forestry, and Recreation departments to benefit from the information until later in the solution's rollout. Instead, these groups have adopted the technology earlier than anticipated and are taking advantage of the information to make their operations more efficient.

Consultants, developers, and data resellers have called the city to request that the GIS data be made available to them at a nominal cost. (This is in addition to the information already available at <http://www.bramptonmaps.ca>.)

## **System Design Issues Encountered and Overcome**

Insufficient memory: The most significant issue to date has been undersizing the Web application servers in terms of memory. To achieve the required throughput, we had to add memory to the Web servers (both internal and external) to ensure faster response times.

## **What Differentiates This System from Other Similar Systems?**

This system feeds information to the city's Web environment directly from a central, corporate database server. The information is maintained 100 percent centrally—with no file sharing or extraneous databases. As quickly as data maintainers update the information, the data is published to the Web (either AIM or <http://www.bramptonmaps.ca>). City staff and the public have accurate information upon which to base decisions.

## **System Hardware, Software, and Data**

### **Hardware**

GIS data is maintained centrally on a HP RISC-based server. This data is then called via Web servers that are Compaq, Windows-based (Intel) servers. The information is then disseminated to the client.

### **Software**

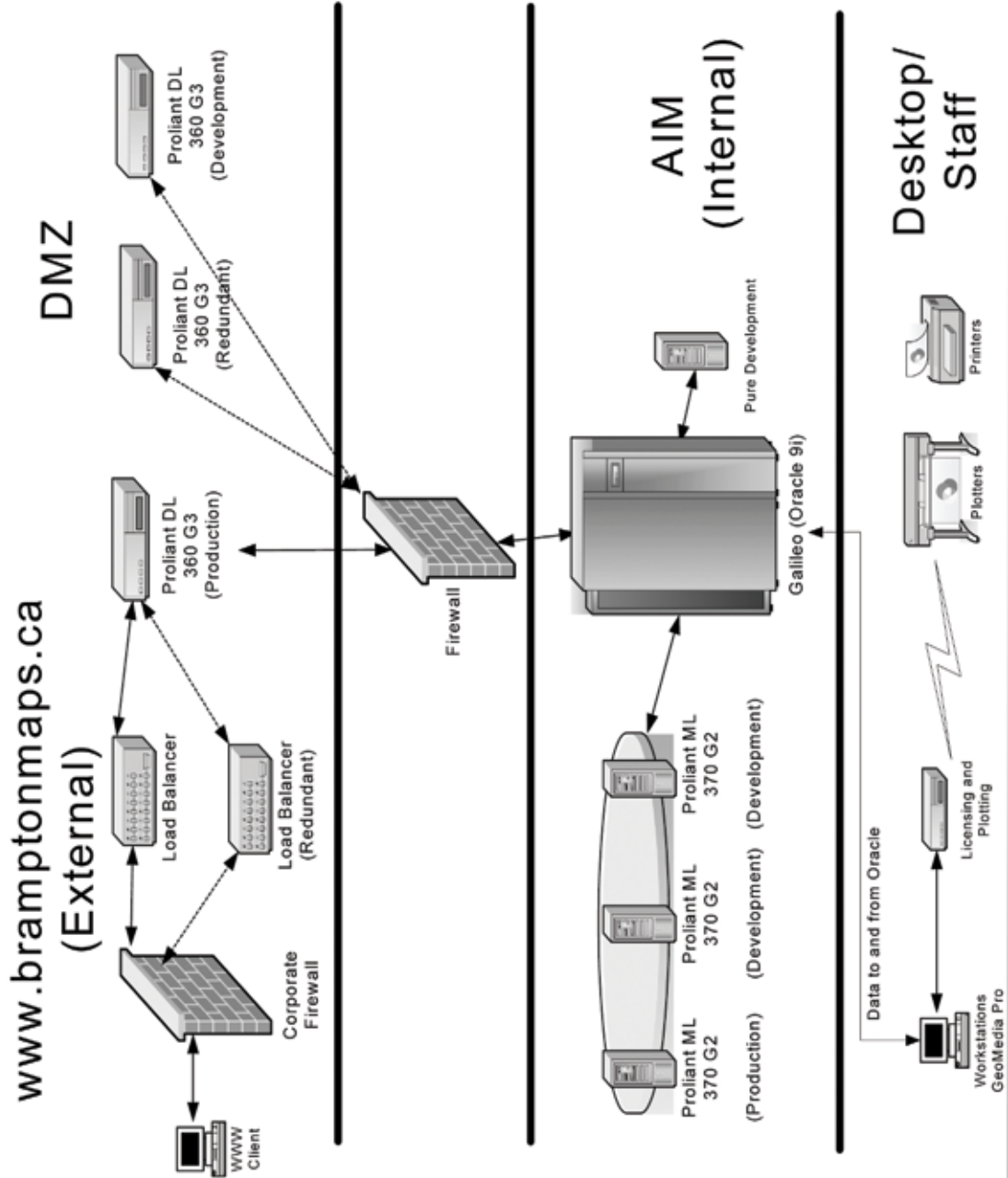
Brampton's GIS solution is Intergraph-based. Software components used to deliver the Web sites are Geomedia Webmap Professional (the Web engine) and Geomedia Webmap Publisher. The GIS section has established a standard framework using these software packages to provide Web-based GIS tools to the appropriate client. The GIS data is maintained using Geomedia Professional.

### **Data**

The GIS database is 100 percent Oracle-based, specifically Oracle 9i Spatial. (Oracle is the city of Brampton's standard database environment.) This database environment is used to store, maintain, and deliver more than 420 layers of GIS information for the city, with more than 4,400 columns of tabular information referenced to those layers. Oracle is maintained in an HP-UX 11 environment with the database residing on an IBM Storage Area Network (SAN).

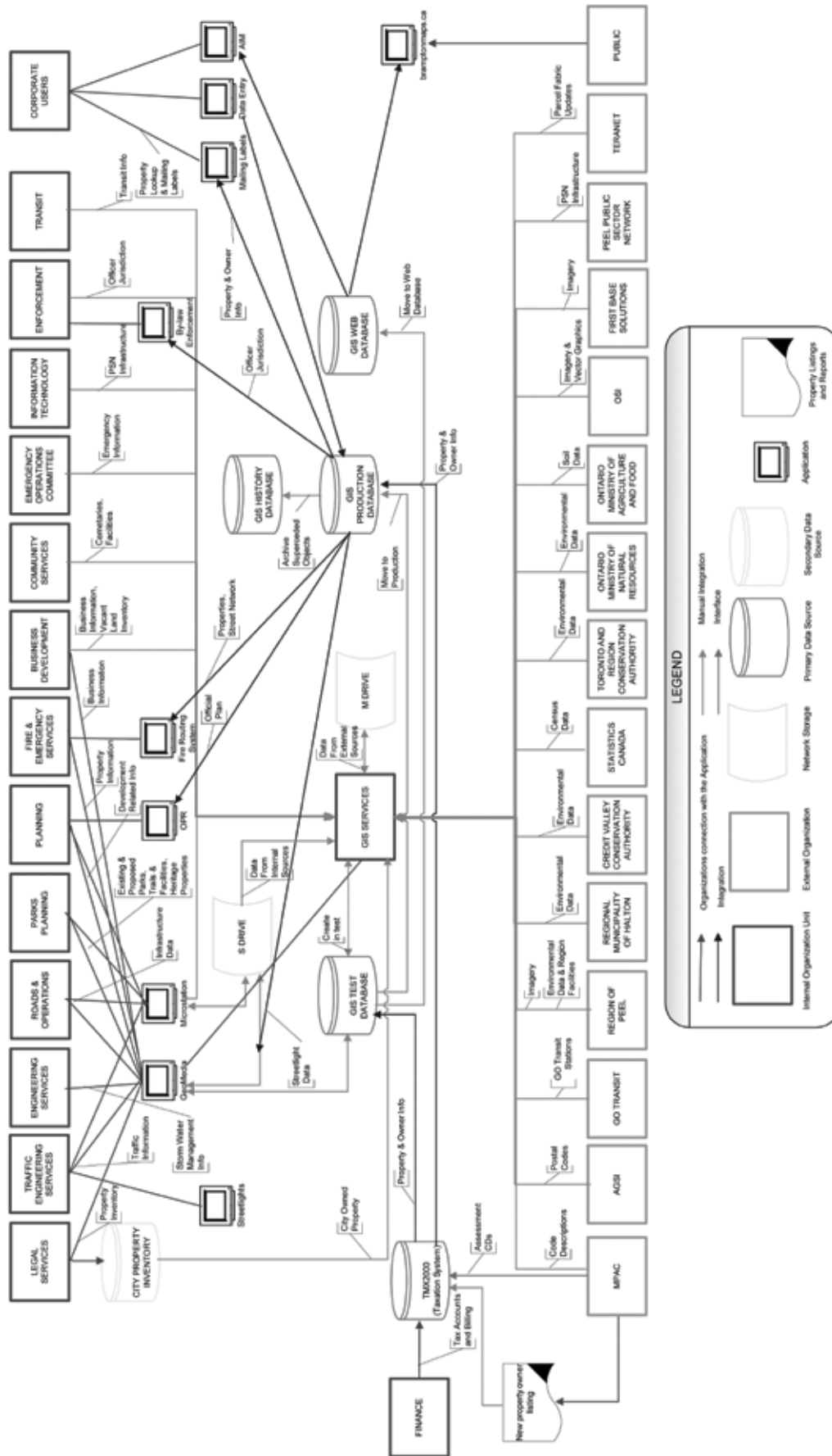
## **Examples of System Images and Screen Shots**

# GIS Infrastructure



**Brampton**

# CORPORATE GIS DATA ARCHITECTURE



# Accessible Interactive Maps

**Brampton GIS Services**

Home | Contact GIS

- To City Maps...
- Brampton GIS
- GIS Data
- GIS Documents
- Tutorials
- FAQ
- Glossary

**Interactive Maps**

The interactive maps section provides a dynamic spatial information internal browser environment.

- CITY HALL
  - PROPERTY FABRIC
  - PLANNING
  - ELECTION BOUNDARIES
- AIR PHOTOS
- BUSINESS
- CITY ASSETS
- COMMUNITY
- FIRE/EOC
- MANAGING GROWTH
- TRANSPORTATION
- CENSUS 2001
- DATA REQUEST

**GIS (Geographic Information Systems)**

" Governments around the world are increasingly required to streamline business practices while adhering to complex political and regulatory requirements. To do so, they must digest an immense amount of information to perform their duties in a fair and reliable manner. Almost all of this information is in some way tied to a geographic element such as an address, parcel, postal code, census block, or some other component.

GIS technology provides a... agencies. More important, government can work as a...

**Interactive Maps**

View | Refresh

Help | Contact GIS | Information

**Interactive Maps**

Map features: CATCH BASINS, MANHOLES, HYDROLOGY, RAILWAY, ROADS, SIDEWALKS, CURBS, DRIVEWAYS, BUILDINGS, PARKING LOTS, STREETS, MAJOR, MAJOR PROPOSED, MINOR, MINOR PROPOSED, PROPERTY FABRIC, COLOUR AIR PHOTO, 2004 SPRING AIR PHOTO

Map view: WOLVERTON CRES, 11069

Scale: 10 m

Copyright City of Brampton



# Fire Routing / Station Locations

**City of Brampton - Community Services Department  
Fire & Emergency Services**

**FIRE STATIONS**

- Existing
- Proposed
- FIRE\_NODES
- STREETS
- MAJOR\_STREETS
- PARKS
- FIRE\_AREAS
- PROPERTY FABRIC

**Find An Address:**

Street No: 59  
Street Name: LARKSPUR RD  
Find

Street Address: 59 LARKSPUR RD  
PIN: 142230836

**Find Fire Stations:**

- Nearest Fire Station
- Three Nearest Fire Stations
- Any Fire Station

Reset Routing

1 km

Done

# Brampton

# EDO Site Selection

**Active Maps**

TRAFFIC VOLUMES (2003 AVG. WEEK)  
 MUNICIPAL FACILITIES  
 SHOPPING CENTRES

**City of Brampton - Microsoft Internet Explorer provided by Information Technology**

CLS for Land:  CLS for Land:  Roll:   
 Property Type:  Address:   
 Minimum Lot Size:    
 Maximum Lot Size:  Zoom: Min:

**VACANT BUILDING**

Property type	Offering	Transaction type	Pin	Roll number	Legal desc	Street num	Street name	Unit	Gis address	Nearest inter	Spa name
INDUSTRIAL			140310158	10-02-0-021-14670-0000	CON 2 EHS PT LOT 2 RP 43R12612 PARTS 1-6	256	RUTHERFORD RD S		256 RUTHERFORD RD S	RUTHERFORD RD S SOUTH OF CLARENCE ST (E SIDE)	Brampton East Industrial

**Site Selection Report**

Property: 140310158  
 PIN: 10-02-0-021-14670-0000  
 Assessment Address: 256 RUTHERFORD RD S  
 Legal Description: CON 2 EHS PT LOT 2 RP 43R12612 PARTS 16  
 Size (AQ): 7.55

Offering: INDUSTRIAL LAND  
 Price: Available Size(AQ): 7.55  
 Available Area(SF): 0  
 Zoning/Land Use Designation: I2  
 Remarks/Additional Info: OUTSIDE STORAGE: Yes

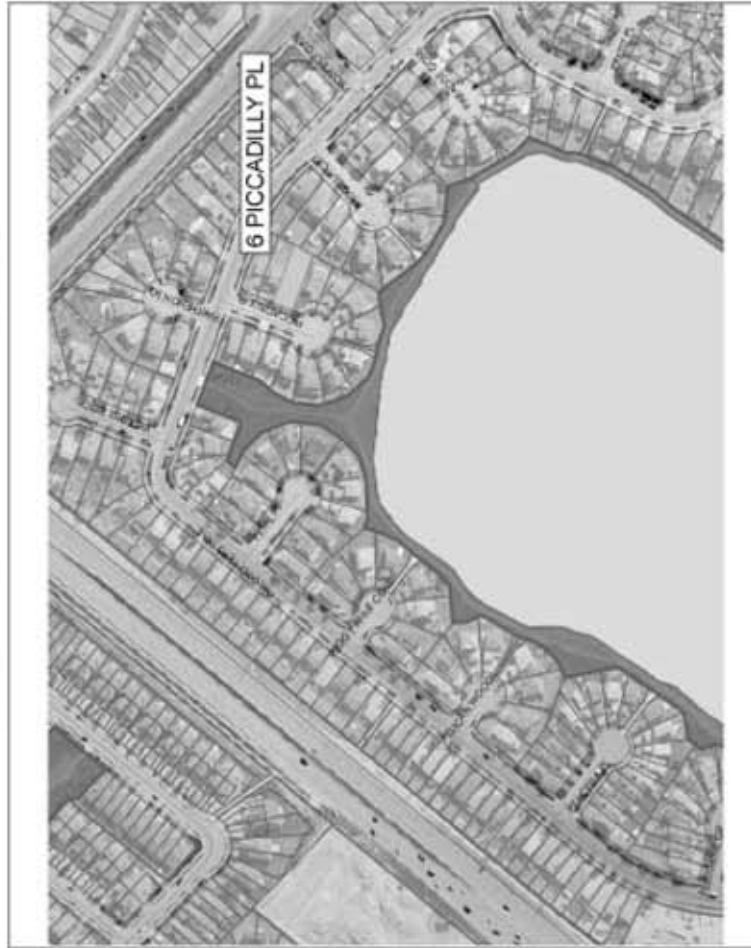
# New Bramptonmaps.ca

**Brampton Maps plus**

- Help
- Contact GIS
- Disclaimer

## Map Themes

- CITY HALL**
  - Municipal
  - Brampton Grows
  - Historic Brampton
- RESIDENTS**
- VISITORS**
- BUSINESS**
- TOPOGRAPHY**



© Copyright 2005 - City of Brampton  
0.23 km

Scale 1 : 3198



# Brampton

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## About the Author

Bill Latchford  
Manager, GIS Services  
2 Wellington Street West  
Brampton, Ontario, Canada L6Y 4R2  
(905) 874-3710  
Fax: (905) 874-3953  
E-mail: [bill.latchford@brampton.ca](mailto:bill.latchford@brampton.ca)