Creating a “SIGNATURE” Town:
— the Urban Design of Bois Franc —

Louis Sauer

SUMMARY


On 589 acres in the City of Saint Laurent, near Montreal, lie Canadair’s manufacturing (air- and spacecraft) facilities, including the Cartierville Airport. Bombardier Real Estate Inc. wanted to redevelop this site for a new residential community, called Bois Franc. It was intended that this “signature” town would house up to 10,000 housing units (for 20,000 to 25,000 people) and retail, space, offices and recreation facilities. Bombardier was willing to co-ordinate and pay for the construction of municipal street and utility infrastructure, oversee and pay for the design of public parks, sell land to accommodate private facilities to developers builders and co-ordinate an overall advertising plan, including the management of a marketing office.

From the client’s perspective, the Bois Franc Master Plan that needed to be developed would have to achieve a number of objectives: accommodate a wide range of market segments and building types; accommodate a flexible construction program; create a distinct visual image; and develop a clear communal identity. Townhouses rather than detached single-family units were to be the dominant building type, and at least 60 percent of the total property area had to be earmarked for private development.

From the city’s standpoin, the Master Plan (created by Daniel Arbour and Associates in Montreal) had to achieve the following objectives: the plan had to relate strongly to the city’s proposed Nouveau Saint Laurent neighbourhood plan, designed by Montreal’s Cardinal and Hardy Architects and Planners; public community buildings could not be considered because existing public institutions located elsewhere in the city would be sufficient to service the needs of the residents; and 12 contiguous acres were needed to accommodate an outdoor swimming pool, tennis courts,

RéSUMÉ

LA NOUVELLE COLLECTIVITÉ URBAINE DE BOIS FRANC EST SITUÉE DANS LA MUNICIPALITÉ DE SAINT-LAURENT, À 15 MINUTES DU CENTRE-VILLE DE MONTRÉAL, SUR UN TERRAIN APPARTENANT À L’ENTREPRISE BOMBARDIER ET DÉJÀ OCCUPÉ PAR UN AÉROPORT ET DES USINES. L’OBJECTIF DE TOUS LES INTÉRÉSSES (BOMBARDIER, LA VILLE DE SAINT-LAURENT ET LE DESIGNER URBAIN) ÉTAIT DE DONNER À CE COMPLEXE UNE IDENTITÉ PARTICULIÈRE ET UNE UNITÉ. L’AUTEUR DÉCRIT LES CONCEPTS, LES MODÈLES MORPHOLOGIQUES ET LA MÉTHODE UTILISÉE DANS L’ÉLABORATION DU PLAN D’AMÉNAGEMENT. EN CONCLUSION, IL SOULIGNE LES RÉSULTATS DÉCOULANT DE LA DÉMARCHE DU CONCEPTEUR, DONT L’INTENTION ÉTAIT DE CRÉER UN QUARTIER OÙ LE DOMAINE PUBLIC ET LES ÉLÉMENTS NATURELS SERAIENT PRÉDOMINANTS, UNE TÂCHE PARTICULIÈREMENT DIFFICILE PUISQUE LE PROJET ÉMANAIT DU SECTEUR PRIVÉ.

View of the site looking northwest with the main Canadair manufacturing building in the foreground.

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and soccer and baseball fields. The city agreed to pay for the construction of all public parks.

In addition to these constraints placed on the development of the new community, the urban designer had to heed specific regulations that would not permit corner stores, buildings over 12 storeys high, habitable areas below ground level, garage doors to be seen from public streets and surface water drainage to off-site properties.

The urban designer was also made aware that a cluster of Bombardier’s existing main buildings on 93 acres would remain in use (the existing manufacturing facilities are blackened) and that direct parking lot access for the anticipated 3,000 cars an hour, which would be arriving from the northwest, would be required. All other manufacturing buildings and the airport on the remaining 96 acres would be demolished for the redevelopment.

There were other constraints as well. Extremely heavy traffic arteries are on the site’s north and east sides. As well, industry, strip commercial and poorly maintained residential development adjacent to the site on its east and north sides are not conducive to a middle-class residential development. And the flat site (there is only a one percent slope northwest to southeast) does not provide for appealing design qualities.

The urban designer was faced with having to invent a new context for the site’s interior layout. The one saving grace was that a portion of the site adjacent to Nouveau Saint Laurent would lend itself to a strong formal public open space relationship to the Nouveau Saint Laurent central park axis.

"CREATING AN IDENTITY"

To create a unique ‘signature’ town, the designer opted to employ natural elements, with water as the principal thread. The idea was that water would not only capture people’s imagination but would also enhance the contrast found in a Nordic climate between summer and winter city landscapes.

The designer’s vision stemmed principally from a desire to inject new life into the existing city. Therefore, rather than diffuse the design qualities of old and Nouveau Saint Laurent and the new community of Bois Franc, the designer enhanced the existing qualities by creating a large urban neighbourhood with its own strong identity. The new community, it was decided, would not look foreign or be easily confused with a typical suburb found in Montreal or the U.S.

Such a plan was to provide at once a singular image as well as to allow flexible land sales and construction phasing and the integration through time of various economic groups, building types and architectural styles.

The approach adopted by the designer involves the creation of small scaled neighbourhoods focused on squares and short streets — the idea being that people are more conducive to neighbourliness when their homes are arranged in spatially defined public territories. Public open spaces and a central park with major water features were incorporated into the plan’s design to heighten community identity and place legibility.

In order that the designer could concentrate on the plan’s composition, proven planning design precedents were used for the most part to develop the design concept. In particular, the designer used the Savannah Historic District’s pattern as the model for the Bois Franc plan. (In 1734,
James Oglethorpe used Italian and English precedents for his design of Savannah. He created a street and block grid to meet defensive and political functions for this new British colonial settlement in the wilderness. His grid results in a very high percentage of street land usage — 46 percent — in contrast to the contemporary standard of 20 percent.

However, a new pattern was developed for Bois Franc's central park — the Lake District — as no precedent existed for this type of function.

**DESIGNING BOIS FRANC'S OPEN SPACES**

The design approach involved three phases:

- analyzing the client's, city's and designer's objectives to determine the key physical elements — green spaces, streets, houses, shops and community facilities, and water areas — and where they should be situated;

- combining the physical elements into a spatial vocabulary obtained from precedent to create a new form pattern (six urban design typologies were used, as shown in the following distribution chart); and

- testing concepts to determine the strategic and sequential steps needed to achieve the desired overall design qualities.

### THE SPATIAL VOCABULARY | THE PHYSICAL ELEMENTS
---|---
1: Local Streets | Green | Streets | Houses | Shops | Water
2: Boulevards | | | |
3: Esplanades | | |
4: Squares | | |
5: Plazas | |
6: Lakes District & Main St. | | |

**FUNCTIONS AND FORM PRECEDENTS FOR THE SPATIAL VOCABULARY PATTERNS**

The designer and the client made a number of visits to various sites to help them arrive at relevant precedents. The following examples are a few of the many precedents used in the design process:

Marlowe Avenue, Montreal, Quebec: an example of local street design.

Commonwealth Avenue, Boston, Massachusetts: an example of an esplanade design.

- **Local Streets:** to define short and narrow linear neighbourhoods and to provide vehicular access to other neighbourhoods via green corridors.
- **Boulevards:** to make linear neighbourhoods longer and wider, and to provide interconnections between interior and exterior neighbourhoods and the internal (central) Lake District.
- **Esplanades:** to make larger-scaled linear neighbourhoods, to provide dominant linear green connections between large parks bordering the site and the central Lake District; to define larger-scaled neighbourhoods with a linear park focus; and to provide recreational activities for both adjacent and more distant residents.
- **Squares:** to make centric neighbourhoods; to provide strong local green landmarks containing recreational activities; and to promote socialization opportunities between neighbourhoods.
- **Placettes (small squares):** to make narrow, small-scaled centric neighbourhoods; to provide passive recreational amenities; to create incremental green landmarks along boulevards; and to extend the boundaries of the central Lake District.
- **The Lake District:** to develop a central neighbourhood with a strong water focus; to accommodate a mix of public- and private-sector uses, a main street centrally located with a mixed-use neighbourhood, special

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places for socialization opportunities and discrete residential territories interwoven among surrounding neighbourhoods, and to create unique landmarks.

THE FIVE-PRONG STRATEGY

□ **STEP 1**
Cavendish Boulevard is extended through the site, effectively splitting the site into a narrow section adjacent to Nouveau Saint Laurent and a broader section to the east. To the south, Cavendish Boulevard directly connects to an expressway.

□ **STEP 2**
The western section has an extension of the semicircular Nouveau Saint Laurent park and a water basin centred on its node. The eastern section has a wide and long park at the centre of the site. At the south edge, a smaller lake/park will be located to extend the regional park system into the site, thereby creating not only a transition between the larger and the smaller public open space, but also a contrast between the natural world and the urban ambience.

As an existing edge street, Laurentien Boulevard is the only one with no green median. Its new Bois Franc zoning provides for commercial office service uses in three- to nine-storey buildings.

Bois Franc’s main street (the black dots) extends only three blocks and is designed to accommodate commercial retail, offices and residential uses. A canal with linear pedestrian plazas will run along its north side. At its west end will be a park, boat house island and a semi-circular Village Plaza, which faces south. In contrast, at its east end will be a view of 12-storey buildings clustered along the lake shore. Zoning for parking lots for the interior of several of the main street’s adjacent blocks has been provided.

□ **STEP 4**
Squares form neighbourhoods (referred to in Bois Franc as urban blocks), each with a distinct identity. To maintain their use as quality destination places and to provide a framework for social interchanges, the neighbourhoods are connected by a network of local streets converging on the squares. In contrast, the smaller squares are conceived as supplementary places — discrete small neighbourhoods — and either provide green landmarks to local collector streets or function as “ports” along longer streets. This approach effectively extends the range of the Lake District area and provides a pedestrian-oriented spatial modularity.

Twenty-five larger urban block squares (typically 120 by 240 ft) and 10 smaller squares or plazettes (50 ft wide by 100 to 150 ft long) are located within two blocks of each other — a three- to five-minute walk. All squares and plazettes allow for one-way (one-lane) traffic, and parking is restricted to the side adjacent to the two- to four-storey residential buildings with a mandatory frontage setback of five ft.

Neighbourhoods on local streets are distinguished by their short lengths. While some neighbourhoods will have

Streets connecting the inside and outside.

□ **STEP 3**
Six of the nine streets connecting the site with the surrounding areas will be boulevards and esplanades. These six streets will allow one-way traffic (one lane with parking on one side) on both sides of the planted medians (24 to 35 ft for boulevards and 100 to 150 ft for esplanades). A one-way street to the south provides direct access for vehicles travelling from Henri Bourassa Boulevard to Canadair’s parking lot.

Six of Bois Franc’s connecting streets — four boulevards and two esplanades — were designed with continuous green medians to create linear residential neighbourhoods where passive recreational areas are located. Buildings range from three to six storeys, and have a mandatory continuous frontage setback of 10 ft. Zoning provides opportunities on boulevards and esplanades for the location of cultural facilities, such as churches and schools.
CASE STUDY  ÉTUDE DE CAS

two- to three-storey buildings with 17 to 24 ft setbacks; others will have two- to four-storey buildings with 5 to 10 ft setbacks, and still others will have two- to six-storey buildings with 10 ft setbacks. These neighbourhoods form linear "rooms" spatially terminated with buildings or Lake District views.

The north-to-south local streets connect neighbourhoods to the Lake District or to the Nouveau Saint Laurent Park via squares or esplanades.

In the eastern section — where squares predominate — east-to-west local streets connect neighbourhoods via the squares.

□ STEP 5

The intent behind the design of the Lake District area was to create an image that conforms to society's cultural mixing of public and private initiatives, services and institutions — both to blur the distinctions and to create dynamic interchanges between public and private domains. To achieve this objective, a new asymmetric, geometric pattern was conceived that involved intertwining the public areas — lakes, canals and parks — with the islands and edges of private development. As well, the close proximity between public and private development will provide increased defence against undesirable activities that might take place in the public open spaces.

The neighbourhood islands within, and the peninsulas at, the lakes will have two- to 12-storey buildings, and the zoning will provide opportunities for buildings and boat docks to be built directly on the shorelines of the lake and canal.

The Central Lake District.

The structure of public and private property.
THE SIGNIFICANT URBAN DESIGN
ACHIEVEMENTS

☐ HEIGHTENED COMMUNITY IDENTITY AND
PLACE LEGIBILITY

A formal public open space network consisting of wide
esplanades, boulevards, parks and lakes will provide
strong place images, visual continuity and legibility at the
overall community scale. Short streets effectively create a
variety of small-scaled neighbourhoods. In contrast, small
parks are organized into squares for individual neighbour-
hood social landmarks. The parks are surrounded by nar-
row streets to provide pedestrians an intimate walking
environment and to allow easy surveillance from adjoining
residences.

☐ QUALITY DESIGN IN THE MARKETPLACE

The land’s market value is increased by a very strong
open space structure with clear and imaginable hierarchies
of large- and small-scaled places. This organization
provides the developer with a range of densities and building
types — important in light of unpredictable future social
expectancies and market conditions.

☐ THE MARKET RESPONSE

In one year, during a recession, close to 300 of the 1,000
dwellings being developed during the initial construction
phase were sold. Bombardier has initiated developer/
builder designs for the second phase.

LOUIS SAUER, FAIA EMERITUS, IS AN AMERICAN ARCHITECT PRACTISING
AS THE DIRECTOR OF URBAN DESIGN FOR DANIEL ARBOUR AND ASSOCIATES IN MONTREAL, 1610 SAINT CATHERINE ST. WEST, MONTREAL, QUEBEC
H3H 2L1. MR. SAUER WAS RESPONSIBLE FOR THE DESIGN OF BOIS FRANC,
WHILE DANIEL ARBOUR AND ASSOCIATES DEVISED THE MASTER PLAN. ALL
PHOTOGRAPHS AND DRAWINGS ARE THE AUTHORS, EXCEPT AS NOTED.

OVERVIEW OF THE DEVELOPMENT

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<tr>
<th>Time</th>
<th>Development</th>
<th>Zoning Approval and Public Infrastructure Design</th>
<th>Target Completion</th>
<th>Master Plan, All Photographs and Drawings Are the Authors, Except as Noted</th>
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<td>1991-92</td>
<td>307 acres</td>
<td>62%</td>
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<tr>
<th>Net Land Use Distribution</th>
<th>Gross Site</th>
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<th>8000-10000 d.u.</th>
<th>Net Private</th>
<th>307 acres</th>
<th>26-33 d.u./acre</th>
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| Cost                      | $1.5 billion total construction | $115 million total infrastructure |

Plan Canada