



BOURGET—FORGET PLANNING AREA
FINAL REPORT

SUBMITTED BY: BAKTerium, Montréal, Québec

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DATE: January 30, 2007

RE: Bourget—Forget Detailed Planning Area, Montréal, Québec

EXECUTIVE SUMMARY

BAKTerium was given the mandate by the City of Montreal to propose a planning scheme for the detailed planning area of Bourget—Forget. The mandate indicated that issues of accessibility, residential and economic development and cohabitation should be addressed. The BAKTerium team identified a number of concomitant issues and decided to use a four-pronged approach based on the four themes of residential development, economic development, transportation and environment.

In the first stage of planning, BAKTerium's team conducted a diagnostic study of the site in order to identify strengths, weaknesses, opportunities and threats. The main strengths of the site were its proximity to Autoroute 40, the large number of vacant lots within it as well as its many natural features. Its main weaknesses were the fact that most vacant lots are scattered, the operational Lafarge quarry and the proximity of certain undesirable features. Both the quarry and the golf course were found to be potential sites for employment creation, but a conflict between Master Plan objectives for the Rodolphe-Forget extension was seen as an important obstacle.

Based on the diagnostic study of the site, eight general planning objectives were identified to guide the detailed planning of the site. These objectives call for the consolidation and creation of employment in the area, the creation of a multi-modal north-south axis to feed development, the review of the SHDM plan for the Contrecoeur site and the preservation of natural features. It is also specified that proposed interventions should conform with Master Plan objectives.

The two initial concepts proposed respond directly to these objectives, albeit in different ways. The first concept (or “East Side Regional Arterial” concept) proposes the creation of a regional north-south vehicular axis on the East side of the quarry to serve regional transportation needs and of an employment “campus” on the northern portion of the site, replacing the golf course. In this proposal, the re-naturalized lots south of the 40 in Anjou are preserved. In the second concept (or “West Side Urban Boulevard” concept), a new multi-modal road link is proposed on the west side of the quarry, through the Contrecoeur site, as well as an employment campus that only replaces part of the golf course. In this case, the areas along the new boulevard are developed concomitantly. In both concepts, the Anjou Nature Park is enhanced and made accessible.

The final proposal, which is an elaboration of the “West Side Urban Boulevard” concept, is articulated in terms of five main interventions. The first intervention concerns the enhancing and programming of the Anjou Nature Park. The second intervention relates to the creation of the employment campus around a central transit node. The third intervention proposes the creation of a multi-modal urban boulevard between Henri-Bourassa and Sherbrooke to feed development along it. The fourth intervention extends the mandate of the SHDM to the vacant lots north of the Contrecoeur site and proposes a mixed-use development along the new road. Finally, the fifth intervention calls for the conversion of the quarry to employment-generating uses. Other interventions include the extension of existing bike paths, pre-feasibility studies for the conversion of the 9-hole golf course and the creation of a CLD-East Island.

The strategies proposed for the implementation of this scheme include changes to the official plan of the boroughs concerned, zoning changes as well as the use of regulatory tools to frame development. The Technopôle Angus is cited as an interesting model for the employment campus. The two main regulatory tools proposed are the PPU and the PIIA for the campus and the mixed-use development, respectively. An action plan is also proposed, wherein each action is defined in terms of time horizon and stakeholders involved. Short-term actions include putting in place PPU and PIIA regulations, changes to the official plan, zoning changes and bike path extensions. Medium-term actions include pre-feasibility studies for the conversion of the quarry and the 9-hole golf course, road-building, opening of the Anjou Nature Park and negotiations with private developers and the STM. Finally, long-term actions include the conversion of the quarry as well as the acquisition of the 9-hole golf course for transformation into a public regional recreational facility.

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1 INTRODUCTION

The Montreal Master Plan, approved in November 2004, has identified a number of areas on the Island of Montreal for further development; one such Detailed Planning Area is the Bourget—Forget site. This document proposes an initial plan for the Bourget—Forget site taking into consideration the objectives of the City for the further development of such sites, as well as a number of other issues identified in a diagnostic study of the planning site. The report presented herein is the culmination of a three-month planning assessment.

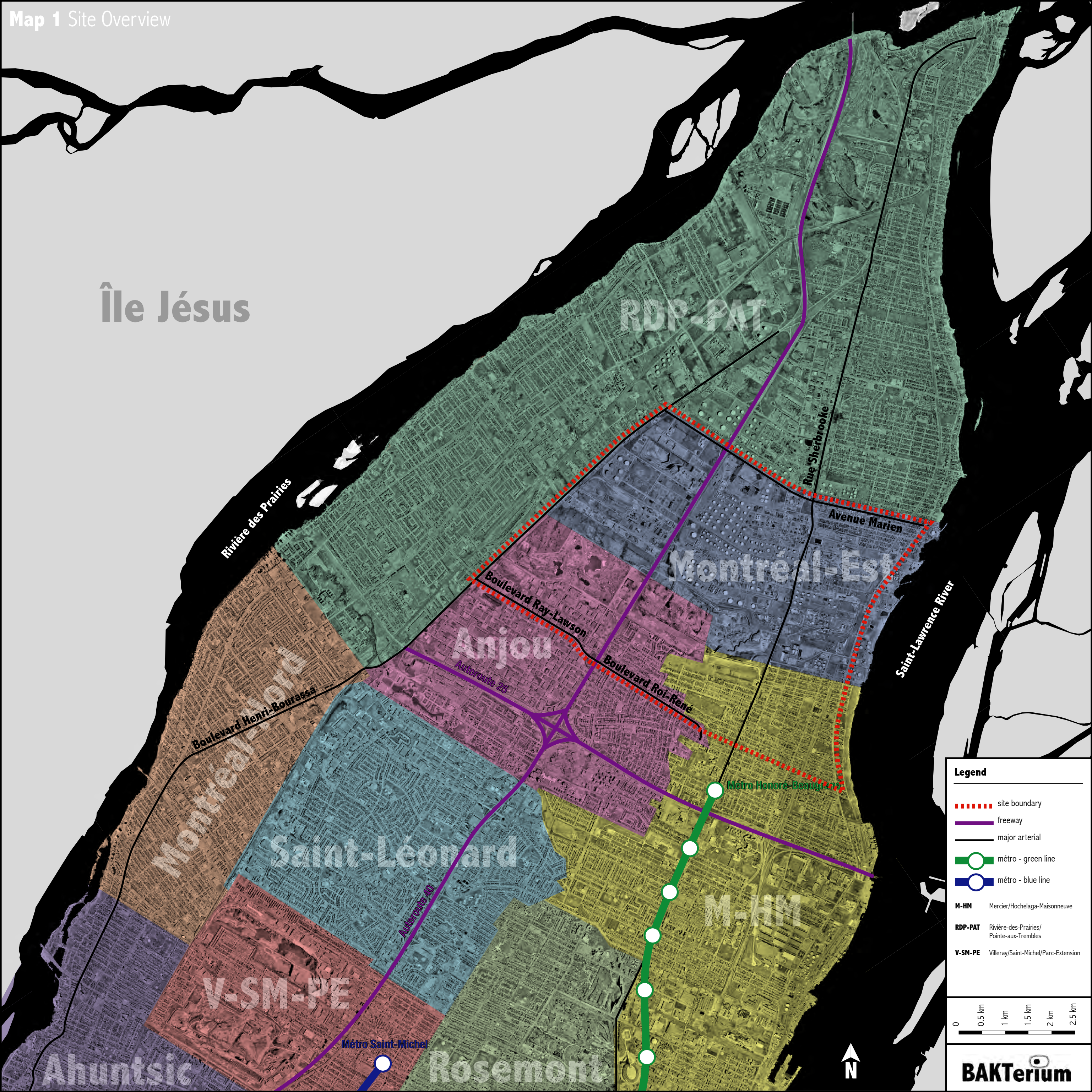
The Bourget—Forget sector of the East Island of Montreal is located on the eastern part of the island of Montreal. It is framed by Avenue Marien to the east, Boulevard Ray-Lawson and Boulevard Roi-René to the west, Boulevard Henri-Bourassa to the north, and Rue Notre-Dame Est to the south (see Map 1).

The area offers both opportunities and challenges. As stated in the City of Montreal's Master Plan, the Bourget—Forget area is unique due to the combination of industrial and residential uses and large green spaces. Furthermore, the area is characterised by large lots, some of which are vacant or underused, and which have the potential to increase residential and employment opportunities in the sector.

As outlined in Sections 2.4 and 4.7 of the Montreal Master Plan, the planning issues in the Bourget—Forget area include the underutilization of approximately 180 hectares of land. Most of these parcels are contaminated and are difficult to access by car or public transit due to relatively low population density and a discontinuous road network. In short, the Montreal Master Plan proposes that the Bourget—Forget area become a diversified sector where residential, economic and recreational activities will co-exist. In addition, the Master Plan proposes the creation of a north-south axis through the site to improve accessibility to and from the area while also responding to the general transportation needs in the East Island.

The Bourget—Forget site is located on the boundaries of three boroughs and one independent municipality: the boroughs of Anjou, Mercier—Hochelaga-Maisonneuve and Rivière-des-Prairies, and Point-aux-Tremble; and the City of Montréal-Est (see Map 1). As a consequence, planning of the area must be sensitive to the objectives and resources of each of the three boroughs as well as those of Montréal-Est. Finally, it must also take into consideration previous uses and projects already underway including the residential development proposed by SHDM on the southwestern portion of the site.

Map 1 Site Overview



Legend

- site boundary
- freeway
- major arterial
- métro - green line
- métro - blue line

| | |
|----------------|--|
| M-HM | Mercier/Hochelaga-Maisonneuve |
| RDP-PAT | Rivière-des-Prairies/Pointe-aux-Trembles |
| V-SM-PE | Villeray/Saint-Michel/Parc-Extension |

0

0.5 km

1 km

1.5 km

2 km

2.5 km

2 MANDATE

BAKTerium has been given the relatively broad mandate to address both specific needs of the site and ensure concordance with Montreal Master Plan objectives. The mandate for the Bourget—Forget site was defined as follows:

- Address accessibility and circulation issues
- Ensure cohabitation of different activities
- Provide new infrastructures to serve new developments in the area
- Consolidate economic activities
- Improve transportation in and around the site
- Plan for residential development on the west side of the Lafarge Quarry

BAKTerium's plan for the Bourget—Forget site responds directly to this mandate and other Master Plan objectives. It also provides tools and strategies for timely implementation of the proposed scheme.

The project was carried according to work plan submitted with the proposal. The work plan submitted in the proposal is reproduced in Table overleaf.

Table 1 Project Work Plan

| PHASE I Site Analysis and Diagnosis | Aldinger | Barrett | Komorowski | Thibert |
|---|-----------------|----------------|-------------------|----------------|
| collect housing market data | 20 hrs | - | - | - |
| collect population data | - | 10 hrs | - | - |
| collect land use and environment data | - | - | - | 10 hrs |
| collect local economic data | - | - | 10 hrs | - |
| collect transportation data | - | - | 10 hrs | - |
| study population projections | - | 10 hrs | - | - |
| research soil decontamination and land use conversion | - | - | - | 20 hrs |
| study transportation projections | - | - | 5 hrs | - |
| study residential development projections | 10 hrs | 10 hrs | - | - |
| study regional economic projections | - | - | 5 hrs | - |
| transportation analysis | - | - | 10 hrs | - |
| residential development analysis | 10 hrs | 15 hrs | - | - |
| land use and environment analysis | - | - | - | 15 hrs |
| economic analysis | 5 hrs | - | 5 hrs | - |
| diagnostic report | 10 hrs | 10 hrs | 10 hrs | 10 hrs |
| PHASE II Synthesis and Initial Design | Aldinger | Barrett | Komorowski | Thibert |
| transportation concept | - | - | 10 hrs | - |
| residential development concept | - | 10 hrs | - | - |
| environment concept | - | - | - | 10 hrs |
| economic development concept | 10 hrs | - | - | - |
| concept synthesis | 10 hrs | 10 hrs | 10 hrs | 10 hrs |
| production of graphic materials | 5 hrs | 5 hrs | 10 hrs | 5 hrs |
| production of written materials | 10 hrs | 10 hrs | 5 hrs | 10 hrs |
| preliminary plan presentation | 5 hrs | 5 hrs | 5 hrs | 5 hrs |
| PHASE III Final Design | Aldinger | Barrett | Komorowski | Thibert |
| finalize graphic materials | 5 hrs | 5 hrs | 10 hrs | 5 hrs |
| finalize written materials | 10 hrs | 10 hrs | 5 hrs | 10 hrs |
| final report | 5 hrs | 5 hrs | 5 hrs | 5 hrs |
| Total | 115 hrs | 115 hrs | 115 hrs | 115 hrs |

3 **PLANNING APPROACH**

BAKTerium approached the diagnostic phase of the project by identifying key issues for the site. From an initial site inspection and a review of the Master Plan, four major themes were used to frame an analysis of the site. They are:

- 1. residential development**
- 2. economic development**
- 3. transportation**
- 4. environment**

A brief summary of the diagnostic report is provided herein, and has been arranged to provide a progression from present conditions to future considerations. A snapshot of the present, projections for the future and directions offered by the Montréal Master Plan and boroughs plans are detailed for each of the four themes.

4 DIAGNOSTIC

The site is characterized by the underutilization of approximately 180 hectares of land. These parcels are generally scattered throughout the site, and some are contaminated. There is a large quarry, currently under operation, located on the east of the site between Autoroute 40 and Rue Sherbrooke. Petro-chemical industries are adjacent to the quarry on the east edge of the site.

To the north of the site, a large golf course is situated amongst an established employment area. The golf course abuts the Anjou Nature Park, a wooded area of ecological value, but currently inaccessible to the public.

The southern and western portions of the site are predominantly residential in use. There are, however, undeveloped lands between the quarry and the residential neighbourhood; these naturalized areas have some important features including mature tree growth (see Map 2).



Figure 1 Scenes from the site: (clockwise from top left) vacant lot east of the golf course; an oil refinery south of Sherbrooke Street; the Lafarge quarry; and a wooded vacant lot west of the quarry

4.1 PLANNING THEMES

Residential Development

There is pressure on the eastern portion of the Island of Montreal for residential development. There has been a steady population growth in the East Island between 1991 and 2001. Current population growth is noticeably high in the areas east of the site, including Rivière-des-Prairies—Pointe-aux-Trembles—Montréal-Est (RDP-PAT-ME), which grew at a rate of 8% during the same period, more than three times the Montreal average (2.1%).

A survey of recent potential homebuyers suggests that regardless of age, the majority who would buy on the island are looking for a single-family house in an existing neighbourhood. Indeed, participants in the City's Home Ownership Program who were most likely to move within the next five years were also looking for larger units with access to a backyard. Therefore, in spite of an important but gradual slow-down in the housing market, the East Island will remain competitive insofar as it offers a residential product that is diversified and caters to young families. In addition, despite decreasing population growth, between 1,000 and 3,000 net households will be added to the island annually in the next ten years. (For more detail, see section 4.1 and Maps 1 & 2 of the BAKTerium Diagnostic Report on the Bourget-Forget site.)

It is a general objective of the Master Plan to create quality, mixed-use residential communities, and to use of existing vacant land for housing development to stimulate growth. The Master Plan proposes that 60,000 – 75,000 units be added to the Island by 2014. Of this, it is estimated that the eastern portion of the island could accommodate 19,000 residential units. However, there are no explicit residential plans for the Bourget-Forget site as per the Montreal Master Plan.

There is a plan for residential development plan in the southwest corner of the Bourget-Forget site, promoted by SHDM (*Société d'habitation et de développement de Montréal*). This site (hereafter the SHDM Contrecoeur site) would contain 1,550 residential units of different types and 5,000 m² of commercial space. The residential units proposed for the site include a combination of one- and two-family attached units and triplexes, and two multi-unit buildings for aging persons. It should be noted that the site is presently not serviced.



Figure 2 Recent row houses west of the site

Economic Development

The north-west quadrant of the Bourget-Forget site is an already established and diversified light-industrial employment sector (see Map 2). The site also encompasses an operational quarry with a life expectancy of about 40 years and is bounded by petrochemical industries to the East. These employment poles, although disconnected from one another, seem to be well-positioned; indeed, economic activity in the area provides a total of 33,615 jobs (City of Montreal, 2006c).

However, the two dominant economic sectors of the area, namely manufacturing and transport--warehousing, are declining city-wide (Conference Board of Canada, 2006; City of Montreal, 2005). Although such a decline has not been observed in and around the Bourget—Forget site per se, these sectors of the economy may experience higher rates of job losses and unemployment than the city average in the near future.

There are a number of vacant or underutilized lots scattered throughout the site. In particular, there are a number of vacant lots on both sides of Autoroute 40. These lots, given their proximity to the highway and in to the future Rodolphe-Forget Boulevard extension, are a prime location for employment creation.

However, there are several barriers to the consolidation of light-industrial and other employment activities in the area. First of all, the golf course occupies a large area at the heart of what could potentially be an important employment sector. It is also important to note that the southern portion of the golf course is a non-conforming use; this parcel is zoned for industrial use. Second, several of the vacant sites considered are contaminated, which means remediation would be necessary before a large project could take place. Third, the site is not covered by the mandate of any CLD (*Conseil local de développement*) or similar institution, with the exception of the Anjou portion. Another important barrier is the lack of accessibility of the sector by public transit.

As for the quarry, it is operational and has a potential life expectancy of 40 years, if quarried to its full extent. However, there is a strong possibility that the quarry will be considered for conversion to a landfill within the next 20 years (Généreux, personal communication, 2006).

According to economic projections (Conference Board of Canada, 2006; City of Montreal, 2005), economic functions which have potential for the Bourget-Forget site include: agro-industrial activities (as, for example, a *pôle agro-alimentaire*), research activities in the area of recycling and bio-fuels, and light-industrial activities more generally.

Transportation

The site is relatively well connected to the road-network as it is traversed by a highway and three major arterials (see Map 1). However, the roads crossing the site are east-west axes; indeed, there is no direct north-south link from Rue Notre-Dame to Boulevard Henri-Bourassa, which reduces the permeability of the site. There are no identified congestion points in the area; however, a problem of truck traffic in the residential areas of Mercier has been specified in the BAPE (*Bureau d'audiences publiques sur l'environnement*) report for the CANTERM project.

The residential areas in Anjou and Mercier are relatively accessible by public transit; the Honoré-Beaugrand station is about one kilometer from the projected SHDM Contrecoeur development (see Map 1). In addition, three bus lines connect the residential areas in Anjou to the métro; the average travel time to downtown Montreal is about 35 minutes (STM, 2006).

By contrast, the employment areas north of Autoroute 40 are not easily accessible by transit. Despite being served by six bus lines, the area cannot be reached from employment pools in Verdun, Parc-Extension and Saint-Michel in less than one hour. The inaccessibility of the area is confirmed by the Montreal Origin-Destination Survey (1998), which indicates that 100% of trips to the area are car-based. This represents a barrier to the consolidation of employment in the sector. Poor transit usage in the site also suggests that transit does not meet the needs of residents.

There is limited bicycle traffic in the Bourget-Forget site. This is largely due to the fact that there are no north-south bike paths within the site, and limited connections to the existing bicycle network and to the paths along Gouin Boulevard and Notre-Dame Street. (For locations of existing bicycle paths see Map 6 at the end of Section 8)

The Master Plan and the different borough plans call for the prioritization of public transit and active modes on the new Rodolphe-Forget axis; however, the siting of a new transportation corridor along the quarry may not be conducive to bus transit. Moreover, cyclists and pedestrians are not likely to follow this route unless it connects to a meaningful destination.



Figure 3 Notre-Dame bicycle path

Environment

The environmental risks associated with development in the area are not prohibitive to further development; there is some contamination on the SHDM Contrecoeur site, as well as on the sites north of Autoroute 40, but contamination levels are deemed medium to low. As for seismic activity from the quarry, it does not present any significant risk (SHDM, 2006; Généreux, personal communication, 2006).

The partly re-naturalized area west of the Lafarge quarry provides a number of ecological services such as water retention, aquifer repletion and heat-island effect reduction. In addition, the area has several woodlots, two of which are of ecological interest (Kimball, 2006).

The Anjou Nature Park is of great ecological value to the area; however, it is not accessible to the public and there are as of yet no concrete plans for its enhancement and landscaping. Given its ecological value, the park has the potential to become a meaningful destination if it is made accessible (to both motorists and cyclists) and programmed.

Finally, the lots that are currently occupied by the golf course were formerly used for petro-chemical activities. However, this land has already been decontaminated and therefore could be developed without great difficulty. Several of the current features of the golf course, such as the main pond, could easily be incorporated into a development plan for the site.



Figure 4 Tree species on the site

Waste disposal and waste reduction issues

The Island of Montreal will have to confront its levels of waste in the very near future. A provincial plan, adopted by the Ministère du Développement durable, de l'Environnement et des Parcs in 1988, called for a rate of waste diversion of 60% by 2008; however, rates were a mere 17-20% in 2005 (Allison and Hoag). In addition, there are currently no specific programs to improve recycling or implement curbside composting as have been implemented in other Canadian cities such as Halifax, Toronto or Vancouver, thus reducing land fill waste. While Québec, in general, has not foreseen problems of land filling, Montréal, at its current rate of consumption, only has ten years before its main landfill will need to be closed. For this reason, the Lafarge quarry site may be considered for conversion to a landfill (Généreux, personal communication, 2006).

Finally, Montréal adopted in 2004 a Sustainable Development Plan in which it outlines orientations and actions for achieving, among other things, reductions in energy consumption and waste production. One of the priority orientations of the plan calls for the drastic reduction of solid waste; the City also co-produced the PMGMR (Plan métropolitain de gestion des matières résiduelles) in 2004, which called for the reuse and/or re-valorization of 60% of waste produced. The proposed include: drafting a waste management Master Plan (1.13), implementing waste reduction and recovery measures in industries, businesses and institutions (1.14) and putting in place measures to reduce and recover waste in public places (1.15) (City of Montréal, 2005)

4.2 CURRENT LAND USE DESIGNATIONS

Anjou

The part of our site that is in Anjou comprises two distinct areas: the first one, south of Autoroute 40 (the vacant lots and the Lafarge quarry east of the residential area), is designated *secteur d'emploi*, which allows commercial, office, industrial and institutional activities, but not residential uses (see Map 2). Therefore, a designation change will be necessary if residential development or renaturalization is planned in this area as these uses are excluded in the current zoning bylaws. The land use designation “secteur mixte” could accommodate both residential development and “collective equipments” (or parks).

Most of the second area, north of Autoroute 40 and east of the Anjou office park (which includes the golf course, the Anjou Nature Park as well as the vacant lots to the east) is designated *grand espace vert ou parc riverain*, which allows for metropolitan parks, nature parks, public spaces, natural reserves, public shores (*berges publiques*) and islands, large cemeteries, golf courses and complementary commercial uses. The southern part of the area, along Autoroute 40 (which corresponds to one of the two “courses” of the golf course) is designated *secteur d'emploi*, presumably to maximize access to and use of the highway.

MHM

The part of our site (north of Sherbrooke, south of Anjou and West of Montréal-Est) that is located in Mercier—Hochelaga-Maisonneuve comprises two land-use designations: a strip of vacant land immediately east of the existing residential area considered *secteur résidentiel* and the Lafarge quarry, which is considered *secteur d'emploi*. The area designated for residential uses corresponds to the SHDM Contrecoeur site.

RDP-PAT-ME

All the areas bordering the site to the North, East and South-east are designated *secteur d'emploi*, except for two to three residential blocks on the border with Mercier, a few transportation uses and the tip of the Anjou Nature Park which extends into Montréal-Est. If the Lafarge quarry is to be converted into a mixed-use area (whether residential-commercial or retail), it will probably need to be rezoned.

Map 2 Current Land Use



4.3 MASTER PLAN OBJECTIVES

The Master Plan supports the creation of consolidated employment area and areas of diversified business environments that incorporate office, research and light manufacturing uses; furthermore, the Master Plan encourages the creation of quality work environments. Objective 8 proposes to *consolidate employment areas by attracting dynamic firms and improving transportation links*; actions 8.3 and 8.4 propose to redevelop large abandoned sites and develop new sites for employment, while action 8.1 states the City's intention to "support the development of quality employment areas" and proposes to segregate those activities which produce nuisances.

In terms of the environment, the Master Plan states the importance of quality living environments and the preservation of natural heritage. (Action 1.2 of Section 2.1 proposes to *Design public and private green spaces that enrich living environments*). The plan also recommends giving a structuring role to green spaces, to conserve and enhance natural features in residential projects (under Objective 16 – action 16.1) and promote tree planting and the greening of residential areas (under Objectives 11 and 17, actions 11.3 and 17.1). Under Objective 16, the plan affirms the importance of maintaining viable ecosystems and biological diversity (p.165) and proposes the creation of ecological and recreational corridors using existing natural environments. Therefore, the preservation of the site's natural features and access to these features will be important to the planning of the Bourget-Forget site.

In addition to the creation of quality living environments, the Master Plan addresses residential development more specifically by setting a goal of 60,000 to 75,000 new housing units by 2014, to accommodate approximately 40-50% of the total increase in households in the metropolitan region (Objective 2, p.25). More specifically, the plan estimates 19,000 as the number of potential new dwellings in the East Island alone (Illustration 2.1.1, p.27).

Finally, the Master Plan prioritizes public transit; under action 3.1, the plan proposes to *facilitate travel between different areas of the City by establishing new public transportation services*. As part of the implementation of action 3.1, the City recommends taking initial preferential measures for public transportation *such as reserved lanes that permit taxis as well as buses, traffic signal priority and appropriate road markings along the length of Rodolphe-Forget Boulevard* (among other axes).

5 SWOT ANALYSIS

From the diagnostic phase, a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis was performed to assess the site's potential for development. This analysis focuses on key points from the diagnostic phase and informs concept plans for the site.

Strengths

- The site is in close proximity to Autoroute 40 and the southern portion of the site is approximately one kilometer from the Honoré-Beaugrand metro station. From this station, the commute to downtown is only approximately 35 minutes.
- The East-Island is the fastest growing part of the Island of Montreal and offers a wide range of housing options.
- There is a vast amount of developable land on this site by the standards of the island of Montreal, totaling approximately 180 hectares. This site presents itself as one of the larger undeveloped areas on the island.
- There are many interesting natural features on this site that are not present in much of urban Montreal (e.g. a mix of newer- and older-growth trees, open prairie, and a great variety of wildflowers).

Weaknesses

- Vacant lots are generally scattered throughout the site (see Map 2). In fact, the golf course is the only large tract of land with large development potential; therefore, the position of the golf course, amidst employment generating uses, presents a major obstacle to development.
- The quarry has another potential 40 years of life expectancy if allowed to quarry all available resources.
- The proximity to undesirable features and land uses, namely petro-chemical industrial uses, also hinders development of the site.

Opportunities

- The quarry can potentially be converted to more employment-generating uses to fulfill the objectives of the Master Plan.
- Given the location of the golf course, it is an attractive site for development.
- Natural features may be an asset for development.

Threats

- There will likely be pressures on the quarry to convert it to a landfill. Within ten years, current landfills for the Montreal region will begin to reach capacity and as such, new sites are currently being sought out for waste disposal.
- There is a conflict between master plan objectives for the Rodolphe-Forget axis extension. On one hand, the plan calls for the creation of a multi-modal axis that would accommodate transit, as well as cars, bicycles, and pedestrians (Action 3.1 and Action 3.3). On the other hand, the plan also stipulates that the same axis must accommodate freight traffic (Action 4.1).
- Traffic on the new axis, whether diverted from existing roads or generated by new activities, could be a potential nuisance to residents of the area.

6 **PLANNING OBJECTIVES**

Based on the mandate presented by our client and the strengths and weaknesses concluded from our site diagnostic, the planning team established eight planning principles to shape future plans for the Bourget-Forget site. The planning objectives are:

1. Consolidate uses on vacant and under-utilized lots

Although the site includes a large amount of vacant or under-utilised land with the potential for further development, these lots are scattered throughout the site. Therefore, BAKTerium proposes to consolidate and extend current uses to create activities that will harmonize with those present in and around the site, including: a) light industrial and business uses; b) residential development; and c) preservation of green space for aesthetic, ecological and recreational benefits.

2. Increase the economic and employment potential of the area

The BAKTerium plan for the Bourget-Forget plan will focus on the use of land for employment-generating uses that are complementary, while also providing new employment opportunities. Redundancy with existing clusters in the Montreal region (pharmaceutical, life sciences, high-tech, aerospace, entertainment) should be avoided. This objective speaks to the Montreal Master Plan interest in the creation of “quality employment areas” (Master Plan, Objective 8).

3. Create a multi-modal north-south axis to facilitate access to the site

The extension of Rodolphe-Forget Boulevard will be designed with a priority towards multi-modal transportation to support public transportation, cycling, pedestrian, vehicular and freight traffic. The design for this axis will aim to alleviate the potential incompatibility of several modes of transportation through dedicated transit lanes and pedestrian and cycling paths that are safe and attractive.

4. Intensify development along a new axis

Proposed development will be located along the new north-south axis so that the axis will not only provide a transportation corridor, but will be an active place of multiple uses. The existence of development along the boulevard will support use of the axis and will serve to activate the route as a place of employment, commercial and residential activities. Development will aim to provide services and amenities for workers as well as residents of the area.

5. Address the SHDM plan for mixed-use development

The current SHDM plan for residential and mixed-use development has several drawbacks. First and foremost, the plan includes a non-conforming street grid. Second, the project, as designed, is not economically viable. Third, BAKTerium believes that the addition of parcels to the north of the current SHDM site could support additional development and ensure that all development on the southern portion of the site (below Autoroute 40) is harmonious and contextual with existing residential areas.

6. Convert the quarry to functions compatible with surrounding land uses

The already excavated part quarry constitutes a large portion of the area within the site. At the current rate of excavation, the quarry could continue operation for approximately 40 years, which would consume properties to the north of the current facility as well as to the south of Sherbrooke. Furthermore, information from the Anjou borough suggests that there will be pressure to convert the quarry to a landfill. The planning team will consider other uses compatible with surrounding activities that would discourage further quarrying.

7. Preserve and enhance existing natural features

The Bourget-Forget planning site has several natural features, both planned, formal park spaces and informal, natural features including mature tree growth around the quarry and the forested area within the Anjou nature park. To the greatest extent possible, planning for the Bourget-Forget site will aim to preserve and enhance natural features for aesthetic, recreational and environmental reasons including water retention and reduction of the heat-island effect.

8. Follow Montreal Master Plan objectives where appropriate

The Montreal Master Plan offers guidelines that will be considered in planning for the Bourget-Forget site. In the terms of the four themes identified in BAKTerium's planning approach, the Master Plan provides some direction regarding residential, economic, transportation and environmental issues.

7 INITIAL PLANNING CONCEPTS

After the first stage of site planning, BAKTerium presented the client with two concept plans on November 2nd, 2007. The two concepts are detailed in the following subsections. A schematic map is provided for each of the two concepts (see Maps 3 & 4). For ease of description, the plans have been outlined as per the four themes used by BAKTerium in the diagnostic report for the site: residential development, economic development, transportation and environment.

7.1 CONCEPT 1 - "EAST SIDE REGIONAL ARTERIAL"

The East Side Regional Arterial concept (see Map 3) is defined by the creation of a regional north-south vehicular axis along the eastern edge of the planning site and an "employment campus" centrally located around a central green square in the northern portion of the site.

Residential Development

BAKTerium's first concept plan proposes to maintain the SHDM mandate on the Contrecoeur site and work from the existing plan. Thus, no additional residential and mixed-use development is proposed on the southern portion of the site (below Autoroute 40).

Economic Development

A new employment campus is proposed for the area between Henri-Bourassa Boulevard and Autoroute 40. This campus will replace the entire Anjou golf thus providing approximately 90-100 hectares of land for development for research and design and light industrial uses. This new campus will support enterprises of a complementary nature while avoiding duplication with existing clusters in the Montreal area.

In order to support a quality work environment, the employment campus will be oriented around a central open space, which will integrate certain features from the golf course; this open space will provide a central node for the campus, and will include small commercial spaces geared towards the needs of campus employees. This new employment pole will be adjacent to the current Anjou Corporate Centre and easily accessible from the two main east-west axes as well as the new north-south axis (discussed below).

On the southern portion of the site, the Lafarge quarry will be converted to employment generating uses that are sympathetic to surrounding uses. For example, we envision this as a potential site for composting and bio-fuel research facilities thus addressing several objectives of the Master Plan, while also providing facilities and uses that support long-term plans for the Island such as facilities which allow for waste reduction and the creation of complimentary economic functions (bio-fuel research and existing petro-chemical facilities already on the site).

Furthermore, the creation of a north-site axis on the site, as discussed below, encourages the development of additional vacant or under-utilised parcels including lands south of Autoroute 40 (currently properties held by the Lafarge) and vacant lots between Sherbrooke and Notre-Dame.

Transportation

A new north-south axis is proposed for the site. Its location along the eastern edge of the site makes it most appropriate for regional traffic. It also provides a rapid transit link between Rivière-des-Prairies and the metro system via the Honoré-Beaugrand terminus of the green line and the Saint-Michel terminus of the blue line (see Map 1 for location of termini relative to the site).

The new north-south arterial will act as a spine to ease movement in the area while also feeding the employment activities clustered along the new route; in other words, the north-south axis feeds and is fed by new employment and residential activities. It will also serve as a route for public transit (buses) to serve regional transit needs, improving connections to and from the metro lines and the planning site.

Employment activities will be clustered in close proximity to Autoroute 40 and other east-west axes, further facilitating transportation to and from the site. In addition to increased public transit service, site planning will support cycling and pedestrian traffic; existing bike paths will be extended to connect to the existing bicycle network and other public transit hubs.

Environment

Site planning will include improved access to the Anjou Nature Park (currently inaccessible) as a key objective within planning for the new north-south axis. Furthermore, formal green spaces will be preserved or enhanced throughout the site; the central green space within the employment campus that also acts as a water retention area. Additionally, a large proportion of renaturalized lots alongside of the Lafarge quarry will remain, serving as a land reserve. Finally, the park area along the east side of the SHDM site also remains.

Map 3 Initial Concept 1 - "East Side Regional Arterial"



7.2 CONCEPT 2 - “WEST SIDE URBAN BOULEVARD”

The West Side Urban Boulevard concept (see Map 4) is defined by the preservation of a portion of the golf and the location of the new multi-modal north-south axis along the west edge of the quarry, alongside new mixed-use development.

Residential Development

BAKTerium’s second concept plan proposes an expansion and redesign of the SHDM plan for the southwest quadrant of site. A number of units will be added to a mixed-use development along the southern portion of Rodolphe-Forget Boulevard. Expansion of the SHDM site will incorporate vacant lands to the north of the current site, thus enabling residential development that is larger in scale, while ensuring that development along the western edge of the quarry will be harmonious and contextual to the existing residential neighbourhood and within the new development itself.

Economic Development

As in the first concept, a new employment campus will be proposed for the portion of the site between Henri-Bourassa Boulevard and Rue Sherbrooke. However, the employment campus will be smaller in scale, incorporating only a portion of the golf, thus leaving a 9-hole course for continued or interim use. Commercial services will be placed on the northern portion of the campus and adjacent to new golf course thus serving both employees of the new campus as well as visitors to the golf, the Anjou Nature Park and surrounding residential and employment areas.

As in the first scenario, the quarry and lots south of Autoroute 40 are designated for composting and biofuel research activities. Also on the southern portion of the site, the newly-designed SHDM development will include some mixed-use development to include office space and a small number of retail shops.

Transportation

A new north-south axis is created that bisects the proposed employment pole, crosses Autoroute 40 at a new interchange and runs along the western edge of the quarry. In this scenario, the axis bisects the planning site to feed to employment areas on the northern and southern portions of the site. Similarly, the new axis has a different quality from the axis in scenario one. The new road is a multi-modal urban boulevard that provides for local as well as regional traffic. South of Sherbrooke, local traffic will continue south along Georges-V, while truck and freight traffic will be directed to a truck route further east to reduce impact on existing residential area between Sherbrooke and Notre-Dame.

Bus traffic on the new north-south axis will be both regional and local to serve new employment areas and provide better connections to two metro lines; the existing bike path will be extended to connect to the city's bicycle network, as in the first scenario. However, in this scenario there will be a direct bicycle link from the Notre-Dame Street path to the Gouin Boulevard path, connecting directly to the Anjou Nature Park.

Environment

The Anjou Nature Park will be made accessible and programmed for public use. In addition, a portion of Anjou golf is preserved for interim use as a 9-hole course and for eventual conversion for programmed recreational use. On the southern portion of the site, small ecological parks will be interspersed within the new mixed-use development to preserve some natural features of the site. These informal green spaces will offer open space for public use and will provide important ecological benefits (water retention and cooling effects). The park planned within the SHDM site will remain as a buffer, and a strip of land east of the new boulevard will also be preserved for the same purpose.

Map 4 Initial Concept 2 - "West Side Urban Boulevard"



7.3 CONCEPT EVALUATION

The following matrix evaluates the advantages and disadvantages of Initial Concepts One and Two:

Table 2 Evaluation of Initial Concepts

| | PROS | CONS |
|-----------|---|---|
| CONCEPT 1 | <ul style="list-style-type: none"> • A central green space will serve as a focal point for the employment campus. • The north-south axis provides a direct, region link between Henri-Bourassa to Notre-Dame. • Heavy vehicular traffic is routed away from residential zones. • Most natural features on the site are preserved. | <ul style="list-style-type: none"> • Residential development limited to the current plans for the SHDM site. • Commercial facilities within the employment campus have limited clientele (employees). • The new arterial has limited catchment due to its location on the eastern edge of the site. • The Anjou golf is completely replaced. |
| CONCEPT 2 | <ul style="list-style-type: none"> • The Anjou golf is partly preserved. • More residential and commercial development is added to the southern portion of the site. • The new north-south axis (boulevard) has greater catchment. • The new boulevard is synergistic with new development. | <ul style="list-style-type: none"> • There is potential incompatibility between residential development and heavy vehicular traffic. • The axis provides a less-direct link between point to the north and south. • There is no new link between Sherbrooke and Notre-Dame Streets. • Fewer natural features are preserved, especially on the southern portion of the site. • New bridge over highway 40 would need to built |

8 FINAL CONCEPT

Both initial concepts were presented to the client and assessed based on the analysis presented above. The second concept was chosen as the preferred scenario and subsequently elaborated. The following subsections provide a detailed description of BAKTerium's final concept. Maps illustrating the new land uses and transportation patterns are found at the end of this section (see Maps 5 & 6).

The overall vision, formulated in consultation with the client, is first presented, and each of the main five interventions is then described in detail.

Vision Statement

"We propose to extend and consolidate existing residential and employment functions of the site, while preserving ecological amenities. A new urban boulevard will be the catalyst for growth."

8.1 NATURE AND RECREATIONAL PARK

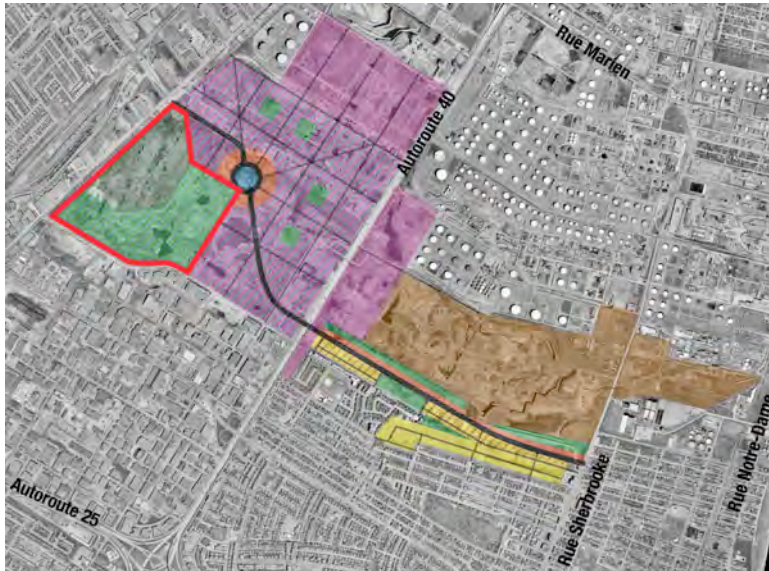


Figure 5 Boundary of the Nature and Recreational Park

Location

The new recreational park would replace the upper portion of the golf course, which is currently designated and zoned for green space, and complement the already existing but presently inaccessible nature park, which is immediately adjacent to it.

Description

The Anjou Nature Park would be enhanced and programmed so as to make it accessible to the public while preserving it as an ecological amenity. The proposed recreational park, on the other hand, would be a site for structured sporting and recreational activities. These activities would cater to a much wider clientele than the golf course does at present. Also, unlike the golf club, it would operate all year, having facilities for both summer and winter activities. For the summer, it might have facilities such as soccer and football fields, courts for tennis, basketball, volleyball, swimming pools, skateboarding half-pipes, etc. For the winter, it might have indoor versions of some of the above – indoor courts for tennis, basketball, and volleyball, an indoor swimming pool, etc.

Together, the nature park and our proposed recreational park would form a major recreational hub for the East Island. To effectively serve the entire East Island, the two adjacent parks should be highly accessible by all modes of transportation, especially transit and active modes. Effective transit access would be provided via the proposed multimodal transit node, located at the southeast corner of the recreational park. The bicycle path and green sidewalks along the new Rodolphe-Forget extension would respectively serve as conduits for bicycle and pedestrian access to the park. As for cars, there would direct access from two major arterials: Boulevard Henri-Bourassa at the park's northern edge, and the extended Rodolphe-Forget Boulevard at its eastern edge. Surface parking facilities would be available within the park.

Having a large recreational park and a nature park side-by-side does not seem to have any precedents in the Montreal region. Though we have not found an example of such a dual park elsewhere, BAKTerium strongly believes that this a novel and interesting concept which, if implemented, would be a great asset to the region as a whole.

8.2 EMPLOYMENT CAMPUS

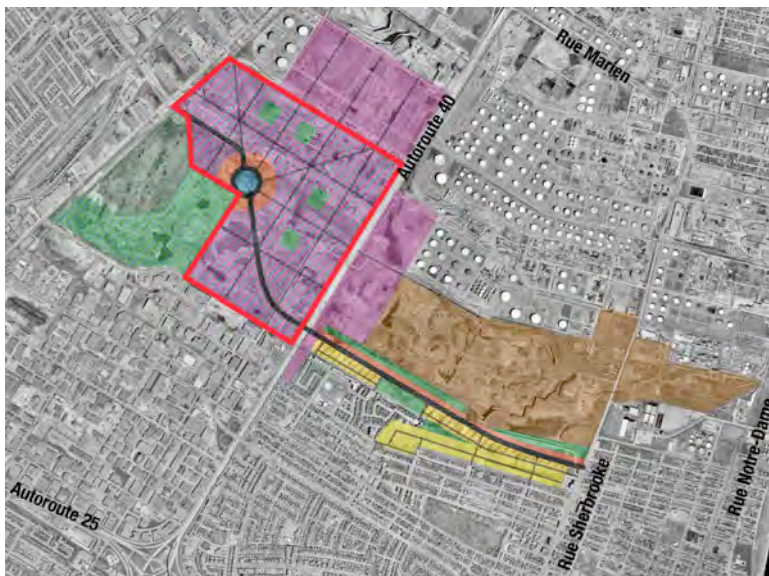


Figure 6 Boundary of the Employment Campus

Location

The employment campus would occupy the southern portion of the golf course as well as the lots abutting the golf course to the south and the east. Many of these lots are currently vacant or underused; the creation of the campus would therefore require acquiring only a few industrial lots (see map on p. 16). It should also be noted that the southern portion of the golf course is presently a non-conforming use; the employment campus would actually conform to the current land-use designation.

Description

The employment campus is envisioned as a cluster of R&D and light industrial facilities located in an attractive physical environment. Ideally, it would be occupied by several enterprises operating in related industries, together forming an industrial ecology. In other words, close physical proximity would be conducive to the formation of complex inter-relationships between enterprises.

In physical terms, the employment campus would be a very different environment than most industrial parks in the region. The campus would have a carefully designed, high quality exterior environment. The buildings in the campus would all adhere to consistent architectural language and a high standard would be maintained for landscaping around the buildings. There would be a network of landscaped footpaths and bikepaths linking all buildings. This network of paths would be integrated with a system of small parks, distributed throughout the campus, and would also connect to the path networks of the adjacent recreational and nature parks.

The whole structure of the campus would be articulated around the transit node at its centre. The transit node would act as the main interchange between Montreal's public transit system and the campus' internal transportation system. It would feature high quality bus shelters for STM buses and campus shuttle buses. It would also have bicycle garages for those who wish to get to their final destination on the campus by bicycle. The campus' system of internal roadways, footpaths and bikepaths would radiate outward from the transit node.

Larger buildings with high employee densities would be located near the centre, whereas smaller building with lower employee densities would be further from the centre. In the larger buildings directly around the transit node, there would be commercial facilities, such as restaurants and cafés. These facilities could be used by campus employees as well as people accessing the recreational park via the transit node. As the recreational park would presumably remain open outside of regular business hours, the shops around the transit node could also remain open and benefit from the traffic generated by the recreational park.

The quality of the physical environment, the presence of commercial facilities, and the proximity to major recreational amenities within the employment is campus is important for two key reasons. First, it would help attract and keep high value-added enterprises and the highly skilled and educated workforce that they require. Secondly, it should facilitate the movement of people and ideas within the campus and thus stimulate the formation of inter-relationships between enterprises.

Case Study

Stockley Park Project, U.K.

The Stockley Park Project is an employment campus comprising 160 hectares of land including buildings, landscaping, infrastructure and green space to create a quality working environment in close proximity to Heathrow Airport and downtown London. The campus is designed with transit-oriented measures including landscaped pedestrian paths and well-lit and covered bus shelters, express bus service to London, cycling paths, and train service to Heathrow airport, as well as car share matching services. Furthermore, green space includes programmed recreational facilities including a golf course and soccer field. Stockley Park was built on land that was formerly used to excavate clay used for brick-making. Significant bio-remediation measures were undertaken to decontaminate the area due to past excavation and waste-disposal measures. Stockley Park has received several design awards including the 1997 International Award for Excellence of the Urban Land Institute and the Financial Times Architecture at Work Award.



Photo sources (clockwise from top)

<http://www.kajima.co.jp/ir/annual/2000/image/c07-photo02.jpg>

http://www.geograph.org.uk/photos/14/36/143621_e921feae.jpg

<http://www.gyrdan.demon.co.uk/images/GSW0011.jpg>

Case Study

William Stanley Business Park, Pittsfield, MA

William Stanley Business Park is a business redevelopment located on a 52 acre former brownfield site with proximity to a lakefront and rail line. This site is adjacent to the city centre and residential neighbourhoods and is funded through a public-private partnership between the city and GE Plastics.

The business park will be a campus-style business park, featuring office, industrial, and research buildings. The campus will have pedestrian bike paths, bike paths, and distributed open space. The nearby lake (Silver Lake) gives aesthetic beauty and has an ecological value to the area as well as being opened for regional recreational activities.

Preservation and enhancement are key features of the area, including design measures to: maintain a majority of native species in the area, avoid construction on floodplain, ensure 25% of the land remains unbuilt and as open space, minimize modification of contours of the site, and construct a street system that minimizes runoff.

The plan is aimed to satisfy automobile demand; however, there is a promotion of non-vehicular transportation in the park to encourage pedestrian movement, and an outdoor setting that is aesthetically pleasing, safe, and comfortable with ample signage. Other design features include: system of footpaths, views of and orientation towards Silver Lake, landscaping to invite outsiders to visit site, high-quality distinctive architecture, and a flexible plan to host a range of activities including manufacturing, research and development, and office space, in terms of land use and phasing of the development.



Source: <http://www.williamstanleybusinesspark.com/>

8.3 MIXED-USE RESIDENTIAL DEVELOPMENT



Figure 7 Boundary of the Mixed-Use Residential Development

Location

The development would be sited on currently vacant lands immediately west of the Lafarge quarry. The development proposed here is intended to replace an existing plan by the SHDM, which encompasses only the southern portion of this site.

Description

The proposed development west of the quarry would combine a variety of housing types, some non-retail commercial uses, and several natural green spaces.

The street grid from the existing residential neighborhoods west of the quarry would be extended into the vacant lands west of the quarry and would be connected to the new Rodolphe-Forget Boulevard extension.

The various housing types would be disposed so as to form a density gradient from Rodolphe-Forget westward towards the existing residential neighborhood and from Sherbrooke Street northward. Larger three storey multi-unit buildings would be located along Rodolphe-Forget itself and close to Sherbrooke whereas single-family homes would be located closest to the existing residential neighbourhood.

Commercial uses would be allowed only in the multi-unit buildings along the Rodolphe-Forget extension. On the west side of the boulevard, commercial uses would be mixed with residential uses; the east side (the quarry side) would be restricted to mostly non-retail commercial uses. Indeed, rather than competing with existing retail facilities along Sherbrooke, the commercial spaces along Rodolphe-Forget would be optimized for small office space.

The vacant lands on which we propose this development comprise some natural features of considerable ecological value. In particular, there are a few lots covered with mature trees. We believe that such lots should be excluded from development and should instead be preserved as natural green spaces integrated within the development. Aside from their aesthetic and recreational value to residents, these natural green spaces will also provide ecological services such as water retention and mitigation of the urban heat island effect.

Case Study

Belmar, Lakewood, Colorado

Located on the site of a former shopping mall, the Belmar development in Lakewood, Colorado uses mixed-use development and pedestrian-friendly design to revitalize a portion of the city of Lakewood that had fallen to neglect. Anchored by a central artery and a number of public open spaces, the development includes residential, commercial and cultural uses combined with retail services on a 103-acre site. When completed in 2007, the project will include commercial services including 700,000 square feet office space comprising 19 city blocks that are knit into the existing street grid of surrounding neighbourhoods. In addition, 1,300 new homes including townhouses, apartments and live-work units have been constructed on the site. Residential units and commercial services are interspersed with public open space totaling nine acres of parks and plazas.

The Belmar project revives an area of the city that had fallen to a 90% vacancy rate. The project also offers a model of public-private partnership made possible by dedicated efforts on the part of the City and primary developer. The project has received recognition for its innovative and inclusive design strategies, and for its use of a former greyfield site; it was the winner of the Phoenix Award in 2004 for excellence in redevelopment.

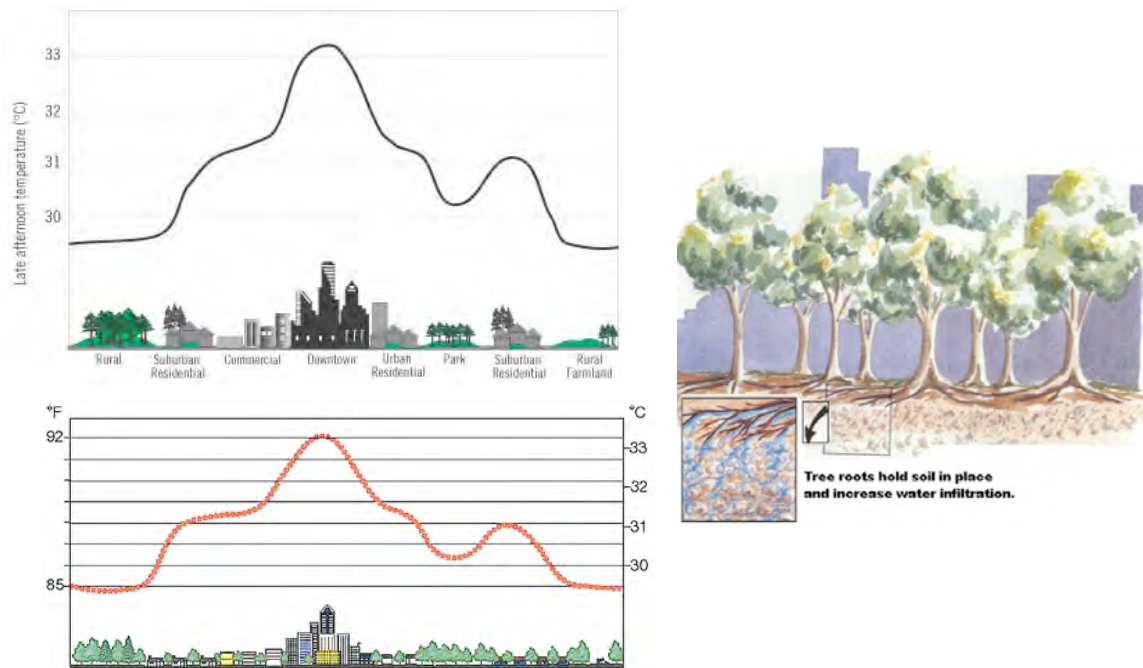


Photo source: <http://www.elkus-manfredi.com/images/beldrw.jpg>

Case Study

Urban Forests

Urban forests provide social, ecological and economic benefits. The greater the tree cover and the fewer the impermeable surfaces, the more ecosystem services are produced in terms of water retention and infiltration, increasing air and water quality, absorbing and storing atmospheric carbon and reducing energy consumption due to direct shading of residential buildings and heat-island effect reduction. It is estimated that urban trees can moderate climate and reduce urban heat-island temperatures by much as 5 °C. Urban forests can also reduce from 10 to 15 grams of air pollution per square meter of tree canopy (USDA Forest Service, 2005). Thus, they are extremely valuable to our urban areas. The preservation of urban forests is concordant with Actions 1.2, 11.3, 16.1, and 17.1 of the Montreal Master Plan.



Source:

[Trees in the City -- Measuring and Valuing the Urban Forest. 2005. Forest Science Review. USDA Forest Service, Northeastern Research Station. Issue 3. 6p.](#)

8.4 ORGANIC WASTE MANAGEMENT FACILITY



Figure 8 Boundary of Organic Waste Management Facility

Location

An organic waste management facility and a connected bio-fuels research center would be proposed for the quarry, which is an ideal location for these facilities. By virtue of their location at the quarry's bottom, the facilities would remain largely out of sight and would not blight the views from the new Rodolphe-Forget extension. The location at the quarry's bottom together with the prevalence of easterly winds mitigates the risk of any effluents from the facilities being a nuisance to nearby residents.

We suggest that these facilities should neither be accessible from the Rodolphe-Forget extension nor from Sherbrooke; access should only be possible from Autoroute 40. This would ensure that streams of organic waste bearing trucks do not run along the former two arterials.

Description

Rather than using the quarry as a landfill site, as with other former quarries on the island, we propose placing a facility that would serve to reduce the amount of landfill generated by the city. By reclaiming organic waste, the city could potentially reduce its solid waste output by as much as 65% based on the experience of Edmonton, which recently built a composting facility (see case study below).

Bio-fuels are among the many products that can be made from organic waste. Bio-fuels also happen to be an area of keen interest to petroleum companies, many of which have facilities in the site's immediate vicinity. Thus, the organic waste management facility could be paired with bio-fuel research facilities and benefit from its proximity to existing petroleum fuel installations.

Case Study

Miron Quarry, Montréal, Québec

It is estimated that the City of Montreal captures approximately 70% of biogases emitted from the 33 million tons of waste buried at the *Centre de traitement et d'élimination des déchets (CTED)* located in the old Miron quarry on the Montreal Island. The site served as a garbage dump for 20 years before it was acquired by the City. For almost a decade, the methane produced by the decomposition of the organic waste buried in the site was simply burnt, but now a thermal power plant has been built on the site which produces 25 megawatts, or the equivalent of the needs of 10,000 residences. The plan has a life expectancy of approximately 25 years, and will still operate many years even though the landfill closed in 2000 (Fugère, 1997). This project, along with the *Complexe environnemental de St-Michel*, is said to have contributed to urban renewal in the surrounding areas (Arrondissement Villeray, 2003).



Sources:

Fugère, Claude. 1997. *Cogénération à Montréal : quand les déchets se transforment en gaz et en électricité*. www.infrastructures.com/0697/cogeneration.htm. Last viewed on December 15th, 2006.

<http://www.arrondissement.com/villeraystmichelparcextension/article.asp?id=2128&sort=2.2.16>

Case Study

Edmonton Composting Facility, Edmonton, Alberta

There exist several large composting facilities in North America; one of them, the Edmonton Composting Facility, can process 200,000 tonnes of residential waste and 25,000 dry tonnes of biosolids each year. It occupies an area of about 38,690 square metres (416,500 square feet). The composting process does create heat, moisture and odourized air; however, foul air is drawn down through composting material in the aeration building and exhausted through biofilters located outside the building (a one metre thick layer of wood chips, bark and finished compost), thus removing the unpleasant odours. The final product is high-quality compost, which can be sold to farmers and gardeners.



Source: www.edmonton.ca/Environment/WasteManagement/PDF/composterorangeMarch2003.pdf

8.5 MULTIMODAL URBAN BOULEVARD

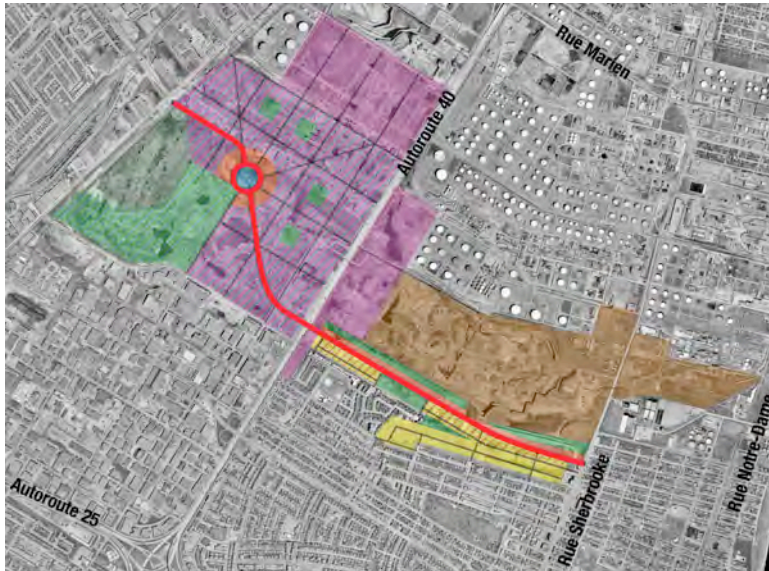


Figure 9 Routing of the Multimodal Urban Boulevard

Location

The new multimodal urban boulevard is to be an extension of the existing Rodolphe-Forget Boulevard. It would thus begin at the current terminus of Rodolphe-Forget, at Henri-Bourassa. It would sweep across the lower portion of the golf course, cross over Autoroute 40 and then run between the existing residential neighborhood and the quarry and terminate where Sherbrooke Street meets Contrecoeur Street.

Description

The new Boulevard is the cornerstone of BAKTerium's transportation plan for the Bourget-Forget site (see Map 6). It is intended to be synergistic with the other proposed interventions, especially the employment campus and the mixed-use development. The boulevard is essential to driving the growth of these developments; yet, without these new developments, there is no urgent need for this new arterial.

The boulevard is designed to act as an efficient public transit corridor and, at the same time, is intended to be a highly attractive environment in which to practice active modes of transportation. It would have two traffic lanes running in each direction, separated by a wide central median. The slightly wider outer lanes would be reserved for buses and trucks of a limited tonnage. A bicycle path would run along the central median. (See Figure 10 below).

To make it visually attractive, and to mitigate the conflict between motorized and active modes of transportation, the boulevard would be densely lined with trees. Trees and bushes between the sidewalks and the roadway would buffer pedestrians from the buses and trucks circulating on the outer lanes of the roadway. Similarly, trees and bushes on both sides of the bikepath would shield cyclists from the car traffic on the inner lanes of the roadway.

The boulevard would be lined with three storey buildings set close to the sidewalk. Off-street parking would be located behind the buildings and accessible only via the streets crossing the boulevard; there would be no driveways crossing the sidewalks. There could optionally be some on-street parking on the bus lanes during off peak hours.



Figure 10 Rendering of the proposed Rodolphe-Forget Boulevard extension

Examples



Barcelona



Barcelona



Rio de Janeiro



Vienna

8.6 OTHER INTERVENTIONS

BAKTerium proposes a number of complementary interventions which are designed to facilitate the realization and implementation of the five aforementioned major interventions.

First, we propose the creation of a CLD (*Conseil local de développement*) for the East Island. The creation of an economic development corporation covering the entire site is not only necessary to provide a counterweight to the CLD-West Island, which is very active and dynamic, but also and more importantly to help guide development in the region.

Second, we propose to consider the inclusion of the vacant and underutilized lots in Montréal-Est, east of the golf course, in the employment campus. If this new campus, or employment pole, is to be successful, it is necessary to consider the uses that surround it. Given that there are a number of vacant lots immediately east of the site, they should be included in the same redevelopment strategy.

Finally, we propose the conversion, in the long-term, of the 9-hole golf course into a public regional outdoor recreation facility. If the Anjou Nature Park is to become a destination for the public, it needs to offer a wider range of recreational activities and possibilities. Also, this area should be accessible to the public, which it currently is not. The City should therefore consider the acquisition of this lot and its conversion.

Map 1 Final Concept - Land Use



Map 6 Transportation Concept

Île Jésus

Rivière des Prairies

Rue Gouin

Boulevard Henri-Bourassa

Boulevard Ray-Lawson

Autoroute 25

Autoroute 40

Rue Beaubien

Rue Yves-Frèst

Rue Sherbrooke

Avenue Marien

Saint-Lawrence River

Métro Honoré-Beaugrand

Rue Notre-Dame

Métro Saint-Michel

Legend

- intermodal transportation node
- truck route
- transit corridor
- bikeway
- autoroute
- métro - green line
- métro - blue line
- existing bikeway
- bicycle parking

0

0.5 km

1 km

1.5 km

2 km

2.5 km

9 IMPLEMENTATION

BATKerium's implementation plan is divided in four parts: Strategies, Model, Tools and Phasing. Our proposed strategies suggest general means available to the City for achieving the aforementioned objectives. The implementation model is a short case study that offers interesting insights for the creation of an employment pole. A number of regulatory tools are then proposed which are suited to the aims and objectives of our plan and allow for flexibility from the City's perspective. Finally, our Action Plan is detailed in terms of the phasing of interventions and stakeholders involved.

9.1 STRATEGIES

For the **enhancement of the Anjou Nature Park** and its opening to the public, BAKTerium recommends the following strategy:

1. Negotiate with the developer of the employment campus for their participation in the creation of an entrance to the park facing onto the new boulevard. The Nature Park should be accessible by foot from the transit node and the design of the campus should make facilitate movement to and from it.

For the **creation of the new employment campus** east of the Anjou office park, BAKTerium recommends the following strategies:

2. Review the agreement between Anjou borough and the owner of the golf course, which states that the owner must pay taxes retroactively if the lot is developed. The borough should renegotiate the terms of its agreement with the owner so as to facilitate development on the southern portion of the golf course.
3. Use regulatory tools to frame the development of the southern portion of the Metropolitan Golf Club and of adjacent lots. The City should use regulation to ensure that the projects proposed for the employment campus follow the objectives set out for the site without stifling development.
4. Change land-use designation for the southern portion of the golf course in the Master Plan and the Anjou borough official plan to allow for mixed-use development; change zoning bylaws to bring them into accordance with the official plan.

For **mixed-use residential development** in the city-owned vacant lots west of the quarry, BAKTerium recommends the following strategies:

5. Change land-use designation for the sector east of the existing residential area in the Anjou borough official plan to allow for mixed-use development; change zoning bylaws to bring them into accordance with the official plan
6. Extend the mandate of SHDM to all city-owned vacant lots west of the quarry except for those lots immediately abutting the highway; this would ensure that the proposed development of these lots is coherent and inclusive.
7. Use regulatory tools to ensure coherent development of light-industrial functions along the autoroute, and their proper integration with adjacent residential areas. Regulatory tools should also be used to ensure the proper integration the new mixed-use residential development with the existing natural features and residential fabric.

For the **conversion of the Lafarge quarry** to more intensive, employment-generating uses, BAKTerium recommends the following strategy:

8. Use regulatory tools (such as interim control regulation) to freeze development on lots not yet quarried. The City should not allow the undeveloped lots abutting the highway to be quarried, as they are well positioned to be developed for employment uses. Although the City's goal is not to make the operation of the quarry unfeasible, freezing development on the northern portion of the Lafarge site would effectively reduce its life expectancy.

For the **construction of the new boulevard** (or Rodolphe-Forget extension) from Henri-Bourassa to Sherbrooke, BAKTerium recommends the following strategy:

9. Negotiate the financing of the new boulevard and overpass with the MTQ and using the BAPE recommendations in the CANTERM project as basis for justifying the need for a new road. As the City cannot undertake the construction of a new boulevard and overpass alone, it will need to present a convincing case for this extension. The BAPE recommendations, as well as the possibility of developing an employment pole, can serve as justifications for this new link.

9.2 CHANGE IN LAND USE DESIGNATIONS

Anjou

The part of our site that is in Anjou comprises two distinct areas: the first one, south of Autoroute 40 (the vacant lots and the Lafarge quarry east of the residential area), is designated *secteur d'emploi*, which allows commercial, office, industrial and institutional activities, but not residential uses (see Map 2). Therefore, a designation change will be necessary if residential development or renaturalization is planned in this area as these uses are excluded in the current zoning bylaws. The land use designation “secteur mixte” could accommodate both residential development and “collective equipments” (or parks).

Most of the second area, north of Autoroute 40 and east of the Anjou office park (which includes the golf course, the Anjou Nature Park as well as the vacant lots to the east) is designated *grand espace vert ou parc riverain*, which allows for metropolitan parks, nature parks, public spaces, natural reserves, public shores (*berges publiques*) and islands, large cemeteries, golf courses and complementary commercial uses. The southern part of the area, along Autoroute 40 (which corresponds to one of the two “courses” of the golf course) is designated *secteur d'emploi*, presumably to maximize access to and use of the highway.

MHM

The part of our site (north of Sherbrooke, south of Anjou and West of Montréal-Est) that is located in Mercier—Hochelaga-Maisonneuve comprises two land-use designations: a strip of vacant land immediately east of the existing residential area considered *secteur résidentiel* and the Lafarge quarry, which is considered *secteur d'emploi*. The area designated for residential uses corresponds to the SHDM Contrecoeur site.

RDP-PAT-ME

All the areas bordering the site to the North, East and South-east are designated *secteur d'emploi*, except for two to three residential blocks on the border with Mercier, a few transportation uses and the tip of the Anjou Nature Park which extends into Montréal-Est. If the Lafarge quarry is to be converted into a mixed-use area (whether residential-commercial or retail), it will probably need to be rezoned.

9.3 MODEL

Model for Employment Campus

The *Technopôle Angus* provides an interesting development model for the employment campus. A few differences between the *Technopôle* and the proposed campus are notable: the former is owned and managed by a non-profit organization, it is located more centrally, and is dedicated to social economy enterprises. By comparison, the Bourget-Forget employment campus could be owned by a for-profit or non-profit organisation, however, it is located in the island's periphery and will aim to attract research & development and light-industrial activities. In spite of some differences, the *Technopôle* provides interesting insights for the design, development and management of the employment campus:

- **One landowner** (which can be public, private, or both) who provides each tenant with the necessary infrastructure *to spec* as well as consulting and recruitment services, who also has enough leverage to negotiate, one-on-one, with the city or with the STM and that can engage with local stakeholders more effectively
- **A high-quality and complete work environment**, which includes sports facilities, food services, a day care and extensive bicycle equipment, is accessible by transit and connected to the bicycle path network
- **A cluster of like-minded enterprises and entrepreneurs** who benefit from being in proximity to one another

Model for Mixed-Use Development

The neighbouring Angus Park residential development can serve as an interesting model for the proposed mixed-use development on the Contrecoeur site, especially in terms mix of housing types. The Angus development features single-family row houses, semi-detached houses, and multi-unit dwellings that stylistically invoke traditional housing typologies of the surrounding neighbourhoods. Dwellings in Angus are both owner occupied and for rent, accommodating the economic and spatial requirements of different family configurations.



Figure 11 Housing types in Angus Park (left to right: single-family row house, semi-detached, sixplex)

9.4 TOOLS

There are a number of regulatory tools in Quebec that can be used by municipalities to guide urban development. Given the proposed aims and objectives for the Bourget-Forget sector, two specific regulatory tools are particularly relevant: the *Projet particulier d'urbanisme* (PPU) and the *Plan d'implantation et d'intégration architecturale* (PIIA). The following is an explanation of each tool and its utility for planning of the Bourget—Forget site.

The **PPU** (*Projet particulier d'urbanisme*) is a regulatory tool designed to facilitate the insertion of projects which do not conform to zoning bylaws but that are in keeping with Master Plan objectives. It allows a municipality to set out in advance general criteria and conditions according to be used in project evaluation. These criteria can pertain to the cohabitation of uses in and around the site, the integration of the project with surrounding uses, landscaping, conservation of architectural and natural features and the environmental impact of the project. The PPU essentially allows the municipality to create a special “zone” for the project so that the zoning bylaws do not need to be changed.

This approach is particularly germane to the planning of the employment campus as it allows the municipality to frame development without setting precise criteria in advance. It is a case-by-case and flexible approach to development and zoning which allows for an open dialogue between the municipality and the developer. It is ideal for large-scale projects which would otherwise require several changes being made to the City's official plan and zoning bylaws, as in the case of the new employment campus.

The **PIIA** (*Plan d'implantation et d'intégration architecturale*) is a regulatory tool which allows a municipality to set out design criteria in advance to be used in project evaluation. These criteria can pertain to architectural style, architectural integration, landscaping, sightlines, site usage, preservation of natural features and/or lighting, among other things. However, a PIIA regulation does not aim to verify whether the project as a whole is appropriate; it is a way to control the integration and performance of design.

This tool is ideal for the integration of new construction in sensitive areas, as in the case of the proposed mixed-use development in the city-owned vacant lots west of the Lafarge quarry. It allows a municipality to set out criteria and objectives a priori to make sure that a new development will integrate with its surroundings and/or be sensitive to existing features of the site. Since the mandate of the SHDM for developing this site will be specific, it is appropriate to set out detailed evaluation criteria. A PIIA regulation could also be used (along with the PPU) to set out more specific design and performance criteria for the employment campus once a project has been proposed.

9.5 PHASING

PHASE I (short-term, 1-5 years)

| <i>Action</i> | <i>Stakeholder(s) involved</i> |
|--|---|
| 1. Conduct public consultation on changes to Master Plan | Central city |
| 2. Put in place PIIA, PPU and interim control regulations | Anjou and MHM borough councils and Montréal-Est municipal council |
| 3. Make changes to Anjou borough official plan; change zoning | Anjou borough council |
| 4. Extend SHDM mandate to city-owned lots in Anjou | City of Montreal Executive Committee |
| 5. Connect Notre-Dame and Yves-Prévost bike paths via Honoré-Beaugrand station | Central city, <i>Travaux publics</i> |
| 6. Conduct impact studies, hold public consultation on construction of new boulevard | Central city, BAPE or OCPM |

PHASE II (medium-term, 5-10 years)

| <i>Action</i> | <i>Stakeholder(s) involved</i> |
|---|---|
| 7. Create a CLD-East Island | Local business owners, industrial operators, and the boroughs |
| 8. Negotiate with developer for first phase of campus development | Developer (whether public, private), borough, central city |
| 9. Build new boulevard and overpass | Central city, MTQ |
| 10. Negotiate changes to current bus routes with STM | Developer, STM |
| 11. Open Anjou Nature park to public | CMM, central city, borough |
| 12. Initiate feasibility studies for conversion of quarry and northern portion of golf course | Central city |

PHASE III (long-term, 10-25 years)

| <i>Action</i> | <i>Stakeholder(s) involved</i> |
|---|---|
| 13. Negotiate with developer for second and third phases of campus development | Developer, borough, central city |
| 14. Favour the conversion of the quarry to employment-generating uses | Central city, Quebec government, private developers, universities |
| 15. Acquire and transform the 9-hole golf course into a public regional recreational facility | CMM, central city |

10 CONCLUDING COMMENTS

In the planning concept described herein, BAKTerium proposes a way out of economic stagnation for the detailed planning area of Bourget-Forget. Our plan is essentially proactive as it lays out a vision for economic and residential development not only in Bourget-Forget but in the East Island of Montreal as a whole. Indeed, we believe that planning on this scale cannot be reactive, and must necessarily be founded upon a clear and coherent vision for the future. Such a vision is what we intend to offer with this proposal.

This report should be conceived of as a set of ideas and tools for implementing them. The interventions proposed should be understood as *different means* to a *common end*. It is the end that should be the focus of attention, not the details of the means that are proposed. This being said, the plan does work as a whole and the interventions proposed do build on and compliment one another. Therefore, if one piece of the plan is to be replaced, the new piece should “fit in” with the whole and play a similar role to that part which was removed.

We hope that this planning scheme will allow for the economic invigoration of the sector and a better quality of life for its residents. We believe that the East Island has the potential to compete with – and in certain areas even surpass – the West Island of Montreal. The revitalisation of Bourget-Forget according to our scheme could be a first step in this direction.

REFERENCES

Allison, Luna and Hannah Hoag. (2005). "Montreal's trashed: Why our fair city is one of the least green in Canada". *Hour*. August 11, 2005.

Université du Québec à Montréal (UQAM). (2006). *Atlas Région de Montréal*. Available at : <http://Montréal-metro.inrs-ucs.uQuébec.ca/>. Viewed on October 22nd, 2006.

Bureau d'audiences publiques sur l'environnement (BAPE). (2006). *Rapport 227: Projet de construction de réservoirs additionnels d'entreposage de produits liquides à Montréal-Est par Canterm terminaux canadiens inc.* Available at <http://www.bape.gouv.qc.ca/sections/rapports/publications/bape227.pdf>. Viewed on December 17th, 2006.

Bruemmer, Rene. (2005). "Slaves to the blue bins: Recycling spawned awareness about our planet and a profitable, booming industry." *The Gazette*. April 17th, 2005.

Canada Mortgage and Housing Corporation (CMHC). (2006). *Consumer Intentions to Buy Survey or Renovate a Home (CITB) – 2006 – Montréal Intention Data Tables*. Available at [https://www03.cmhc-schl.gc.ca/b2c/catalog/updateItems.do;z_ProductID=\[object\];jsessionid=ID1253371108DB0.6439470516370914End#](https://www03.cmhc-schl.gc.ca/b2c/catalog/updateItems.do;z_ProductID=[object];jsessionid=ID1253371108DB0.6439470516370914End#). Viewed on December 8th 2006.

Canada Mortgage and Housing Corporation (CMHC). (2004). *Summary of a Study on the Housing and Demographic Trends Spotlight on the Montréal Area: Québec Market Analysis Centre (SSHDT)*.

City of Montreal. (2003). "Population en 2001" in *Atlas démographique et socio-économique de Montréal*. December 2003.

City of Montreal. (2004a). *Profil socio-économique: Arrondissement d'Anjou*. Available at http://ville.Montréal.qc.ca/portal/page?_pageid=65,90035&_dad=portal&_schema=PORTAL. Viewed on October 12th, 2006. Updated September 2004

City of Montreal. (2004b). *Profil socio-économique: Arrondissement de Mercier-Hochelaga-Maisonneuve*. Available at http://ville.Montréal.qc.ca/portal/page?_pageid=65,90035&_dad=portal&_schema=PORTAL. Viewed on October 12th, 2006. Updated September 2004.

City of Montreal. (2004c). *Profil socio-économique : ville de Montréal*. Available at http://ville.Montréal.qc.ca/pls/portal/docs/PAGES/PES_PUBLICATIONS_FR/PUBLICATIONS/PROFIL_SOCIO_MONTRÉAL_2001_0.PDF. Viewed on October 25th, 2006. Updated September 2004.

City of Montreal. (2004d). Profil socio-économique: Arrondissement de Rivière-Des-Prairies—Pointe-Aux-Trembles—Montréal Est. Available at http://ville.Montreal.qc.ca/portal/page?_pageid=65,90035&_dad=portal&_schema=PORTAL. Viewed 12 October 2006. Updated September 2004.

City of Montreal. (2005). *Bilan économique de la Ville de Montréal 2005*. Available at : http://ville.montreal.qc.ca/pls/portal/docs/PAGE/PES_PUBLICATIONS_FR/PUBLICATIONS/BI_LAN_ECONOMIQUE_2005_FR.PDF Ville de Montréal, 2005. Viewed on January 30th 2007.

City of Montreal. (2006a). *Programme d'accèsion à la propriété—Suivi des acheteur par sondage*. Preliminary Data Analysis.

City of Montreal. (2006b). "Logement et mobilité." in *Atlas démographique et socio-économique de Montréal Décembre 2003*. Available at http://ville.Montreal.qc.ca/pls/portal/docs/page/PES_Publications_FR/Publications/atlas_2003_logement_mobilite.pdf. Viewed on October 22nd, 2006.

City of Montreal. (2006c). Employment Figures for Bourget-Forget sector. (Provided by Marie-Hélène Binet-Vandal).

Conference Board of Canada. (2006). *Economic Insights Into 27 Canadian Metropolitan Economies: Economic Performance and Trends – Autumn 2006*. Available at http://www.conferenceboard.ca/documents_summary.asp. Viewed on January 30th, 2006.

Généreux, Robert. (2006). Planning Director of Anjou borough. Personal communication. October 12th, 2006.

Giroux, Michèle. (2006). Planning Director of Mercier—Hochelaga-Maisonneuve borough. Personal communication. October 10th, 2006.

GVA Devencore Worldwide. (2005). *Real Estate Market Study, Eastern Montréal (REMS)*. Fall 2005.

Kajima Corporation. (1998). *Stockley Park on the Outskirts of London*. Kajima News & Notes, vol. 5 (Spring 1998). Availabe at http://www.kajima.co.jp/topics/news_notes/vol5/v5a.htm. Viewed on October 12th, 2006.

Kimball, Amy. (2006). Ph.D. candidate in the McGill Department of Geography. Personal communication. November 30th, 2006.

Kirkwood, Niall. (2001). *Manufactured Sites: Rethinking the Post-Industrial Landscape*. London: Spon Press. 2001.

Société d'habitation et de développement de Montréal (SHDM). (2006). *Plan directeur de développement d'ensemble du site Contrecoeur*.

Spitzberg, Daniel. (2006). Coordinator of Gorilla Composting. Personal communication. October 20th, 2006.

Société de transport de Montréal (STM). (2006). *Tous Azimuts*. Available at <http://www.stm.info/azimuts/index.htm>. Viewed on December 8th, 2006.

Sutherland, Lyall. (1991). *Designing the New Landscape*. New York: van Nostrand Reinhold.

Thibodeau, Jean-Nicolas. (2006). Planner, Montréal-Est borough. Personal communication. October 15th, 2006.