

# Stockholm: A neighbourhood where it's easier being green

Like many of us, Swedes don't want to give up driving or live differently — even in this new environmentally sustainable development. But here, it's no extra effort to leave the car behind, save energy or sort the garbage

BY MARIA COOK

STOCKHOLM

Josefin Wangel shudders as she recalls the outrage that greeted plans to build fewer than usual parking spots at Hammarby Sjöstad, the city's stunning new showcase of environmental urban development. "It wasn't the effect we had hoped for," says Ms. Wangel, the information officer at the Glass House, the project's environmental demonstration and learning centre. "It wasn't the happy bicycle-riding inhabitants, but a furious population who wanted to know why there were no parking spots for them."

Hammarby Sjöstad is a waterfront development built on a decontaminated industrial site in the centre of Stockholm, spread over 200 hectares — about half the size of Ottawa's Central Experimental Farm. Gleaming five-storey apartment buildings are designed to maximize access to sunlight and views of the surrounding lake. The neighbourhood's parks, canals, waterfront walks and handsomely paved streets help to make it one of Stockholm's most desirable areas.

The project is half finished, with about 13,000 residents, 200 companies, a school, a library and church. When completed in 2015, Hammarby Sjöstad will have 9,500 apartments and 2.7 million square feet of commercial space. Altogether, 35,000 people are expected to live and work in the area.

Thousands of foreign visitors come to learn from Hammarby Sjöstad. One thing they learn is that people don't really want to live differently — even in an eco-town.

"People don't move here to live in a sustainable city area," says Ms. Wangel. "They move here because it's close to the city, it's close to nature and it's a newly built area with nice architecture. So far, we haven't managed to get inhabitants to change their behaviour to more environmental ways of life."

It's an important lesson for the developers of the former Rockcliffe air base, which

will also attract residents who want to be in a beautiful natural setting close to downtown.

Hammarby Sjöstad was originally intended to be the Olympic village in Stockholm's bid for the 2004 Summer Olympics. When the International Olympic Committee chose Athens instead, Stockholm planners set about to create a mixed-use neighbourhood, keeping the high goals for environmental performance — "twice as good as the norm."

Or, as Ms. Wangel puts it, "to be half as bad."

The focus was to be on renewable energy, waste reduction, ecological building materials, and alternative transportation options. At first, the planners had imagined a car-free area. Politicians nixed that. When it came time to build residential parking garages, the city wanted no more than three spots per 10 units. That's when people went ballistic.

Not everyone seemed clear on the concept. For instance, when Stockholm's condo market softened, one developer offered a free car with every apartment at Hammarby Sjöstad.

"The city tried to say this is supposed to be a sustainable city, you don't have to use your car, but somehow the ownership of a car is so deep buried inside the Swedish soul. People really want to keep their car. So the politicians have removed this goal from



Hammarby Sjöstad sits on a former industrial site in Stockholm. "People don't move here to live in a sustainable city area. They move here because it's close to the city, it's close to nature and it's a newly built area with nice architecture."

VICTORIA HENRIKSSON

the environmental program."

The current ratio is about eight spots per 10 units. About 66 per cent of households own a car, which is similar to the average for the inner city. Still, they use them less than in other areas. A 2005 survey found that two-thirds of all trips are made by public transport, bicycle or walking and a third of trips are by car.

The alternatives include a new light rail tram, two local buses, a ferry and pedestrian bridges. Two big shopping malls are reachable in 15 minutes by bike. You can walk to a supermarket in 15 minutes. One in eight families belong to the car pool. These cars, mostly hybrids or biogas, are available with the swipe of a smart card and eligible for the best parking spots in town.

As Kermit the Frog sang, "It's Not Easy

Bein' Green." That means developers must make it easier for people.

"It's very important to install public transit at the same time as building the new area because you want to install new travel habits," says Hans Lundberg, professor at the Swedish Environmental Research Institute.

For the developers of the former Rockcliffe air base it underscores the need for excellent transit from the beginning, as well as schools, parks, preschools, recreation centres and stores.

Ms. Wangel notes that two of the biggest demographic groups in the area are seniors who have downsized and young families.

The city has been praised for taking steps to attract shops and services to the area in the early phases of development by offering

two years rent-free. The city also reserved ground floors of buildings on main streets for business.

Ms. Wangel's advice to anyone hoping to create a sustainable area is to set up an information centre from Day 1. One is planned for Rockcliffe. "This info centre opened in late 2002, and by then people had been moving in at least two years," she says.

"It's very important the minute they settle that they get information about the sustainability concept of the area."

Many residents still do not make even small changes such as avoiding running water when doing the dishes, changing to low energy light bulbs or turning out lights when they leave home, she says.

"People are quite lazy. They don't want to change their behaviour if they don't have

to," However, because of the innovative waste system in the area, they must do some things differently, such as sorting waste for recycling.

"They're sorting waste better here than in similar areas in Stockholm, but not as good as they could," says Ms. Wangel.

In Hammarby Sjöstad, about 65 per cent of the apartments are purchased and 35 per cent are rental. It costs about four-per-cent more to build in an environmentally friendly way than conventionally, says Ms. Wangel, but in the longer term owners and operators save money on energy bills.

Property values here are about the same as newly built housing in similar areas of Stockholm, says Ms. Wangel.

The Commission for Architecture and

the Built Environment, the British government's adviser on architecture and public space, recently evaluated Hammarby Sjöstad and found that accessibility to public transit was a key to the district's success.

The light rail tram "has proved to be an essential public sector investment in infrastructure, which has acted to stimulate the market for residential development in the area," says the commission's report.

"The particular lesson from the Hammarby Sjöstad case study is the powerful role that strong public sector leadership can play in ensuring development of the highest quality," it added.

Residents seem to agree. A survey last year found that residents were generally "very satisfied" with the environment at Hammarby Sjöstad.

## Lessons from Hammarby Sjöstad

Nine ways the new community reduced its environmental impact

- 1. GREEN ROOFS**  
Solar panels on some of the roofs absorb rainwater that would otherwise drain into sewers.
- 2. SOLAR ENERGY**  
Solar panels on some of the roofs absorb heat from the sun and use it to heat hot water. The sun's light energy is harnessed and turned into electricity in solar cells.
- 3. BETTER CONSTRUCTION**  
Houses have been designed to use half the energy and water of a typical 1990 property. Only sustainable, tried and tested eco-friendly products are used:  
  - Highly-insulated windows reduce heat loss.
  - Non-toxic materials
  - Class A energy-saving devices.
  - Builders must meet strict standards on the use of recyclable materials and energy efficiency.
- 4. DIVERTED STORM WATER**  
Rainwater from the streets is collected, purified and then released into the lake Hammarby Sjö instead of ending up in the sewer system and purifying the wastewater treatment plant. The purification takes place in sand filters or in the artificially established wetlands in the area.
- 5. HEATING**  
Thermal power plant supplies district heating and district cooling from treated wastewater and biogas.
- 6. BIOGAS**  
Biogas is produced in the on-site sewage treatment plant from the digestion of organic waste or sludge from the wastewater. The waste water from a single household produces sufficient biogas for the household's gas cooker. Most of the biogas is currently used as fuel in eco-friendly cars and buses.

See MORE LESSONS on PAGE A8

# Rockcliffe: An eco-town starts to take shape

As planners unveil their plan for the site of the former air base this week, **MARIA COOK** looks at what it will take to make it green

Sustainability is finally sexy. *Vanity Fair*, *Vogue* and *Elle* magazines devote glossy pages to climate change.

Luxury eco-resorts beckon. Actor Leonardo DiCaprio makes a point of driving a Prius.

And sustainability may finally be a reality for ordinary folk here, too, as plans to build a model eco-community at the former Canadian Forces Base Rockcliffe are set to blossom.

At an open house on Wednesday, the public will get a glimpse of what it would be like to live in a more environmentally friendly way. Canada Lands Company, the Crown corporation in charge of the project, will unveil its community design plan for the vast area to be developed during the next 12 years.

Spread over 135 hectares (320 acres), the area will likely be the largest eco-community in Canada.

The proposal shows eight distinct neighbourhoods made up of stores, offices and 4,500 to 6,000 houses and apartments. It also identifies roads and natural areas (see map, right). Ten acres will be set aside for a national museum or a federal institution. Construction is to start in late 2008, with the first residents moving in in 2009.

But what does it actually mean to live green?

It means designing streets and buildings as though you believe global warming, climate change and oil shortages are for real.

In an urban sustainable community, buildings are close together and streets are designed so people can walk easily or cycle instead of driving everywhere.

Good public transit is essential. Buildings are designed for maximum energy efficiency. Alternative energy systems lend a hand. Recycling and composting gets serious.

"We want to do as much as we can to reduce the actual number of trips in a car," says Ed Lowans, the project's Ottawa-based sustainability consultant. "It's relatively easy to make changes in buildings. Getting people not to use their cars as much is a more difficult challenge."

"This is the nation's capital," says Mr. Lowans. "We want to demonstrate to people who visit Ottawa in an official capacity that we can show significant leadership in creating a sustainable community. It's something that Canada is trying to export."

"What the consumer is getting out of it is a lower energy bill, a lower water bill and much nicer biological surroundings," says Mr. Lowans.

"The overall vision is built on the existing ecology and topography of the site because it's exceptionally rich. It has fabulous views. It has nice flowing topography, a couple of little cliffs and a natural water course. These are the kinds of things that people look for in an ideal setting."

The plan aims to protect the escarpment, the existing landscape and create green corridors that link the Montfort Woods and the National Capital Commission lands toward the Ottawa River, adds Ottawa architect Barry Padolsky, who is in charge of public consultation.

Mr. Lowans, who suffers from environmental hypersensitivity, hopes to create a less-allergenic environment for people

with allergies, asthma and environmental sensitivity.

"If we can change the way that we do landscaping in the urban environment, we can have a major impact on the health of the population," he says.

He points out that during the past 50 years there has been a trend toward selecting male trees that didn't produce messy nuts or seeds. But they do produce pollen, a culprit in seasonal allergy miseries.

"We'd like to use trees and bushes that don't generate pollen," says Mr. Lowans, adding that they expect to grow replacement trees in an organic, pesticide-free nursery in the community.

Canada Lands and its consultants have given the Citizen an inside look at some of the eco-friendly thinking that will shape the massive Rockcliffe redevelopment.

What makes Rockcliffe special are the number of sustainability measures and its large size.

"Most demonstrations have one or two technologies at a time," says Mr. Lowans. "We're trying to demonstrate this can be done on a wide scale."

The Rockcliffe team have yet to establish targets, but, for example, they hope to make buildings at least 25-per-cent more energy efficient than required by the Ontario building code.

Houses built in this way may cost "anywhere from a few thousand dollars more to \$10,000," Mr. Lowans says.

"But you've got significantly reduced energy bills. The payback is within three or four years."

Neighbours of the airbase are expected to participate.

The National Research Council, the Canada Mortgage and Housing Corporation, Natural Resources Canada and the Canadian Centre for Housing Technology are all involved in sustainability and energy-efficiency research that could be applied — and demonstrated — in the houses and commercial buildings at Rockcliffe.

### Research City

Connected to Centretown on the east side by a main street, this area is beside the current National Research Council campus. It would be a mixed-use district of housing, office and retail with an emphasis on employment related to research.



MC GILL UNIVERSITY AND GENOME QUEBEC INNOVATION CENTRE, MONTREAL ARCHITECTS: KPMB ARCHITECTS

### Montreal Road Gateway

Currently vacant lands owned by National Research Council would be developed as a mixed-use area fronting onto Montreal Road. It would include offices, retail stores and a mix of low to mid-rise apartment buildings. Public transit would enter the site through here.

### Hill Town

Located on top of the escarpment, this is a sloped area that overlooks the Ottawa River. It would be mostly residential, likely a mix of single-family houses, rowhouses and apartments.



COMPLEX RED TREE FROG, BURMOOSS, AUSTRIA ARCHITECT: SPLITTERWERK PHOTO: PAUL OTT

### Forest Houses

The northeast corner of the site, currently occupied by the former residences of officers, could be redeveloped as a showcase for custom designed houses within a treed landscape.



TORONTO ARCHITECT: KPMB ARCHITECTS PHOTO: PETER SELLAR

### North, South and West villages

Located at the west end of site, these areas are currently occupied by military housing, which could be renovated and updated. It is potentially a mixed-use area, but not one of high density.



REFURBISHED MILITARY HOUSING SOURCE: CANADA LANDS COMPANY

## Imagining a new Rockcliffe

Planners are proposing eight different neighbourhoods to be built on the former air base. Photos from other cities show the character of buildings and streetscapes they envision

### Centretown

The town centre would include a "high street" with shops, offices, public transit and a market square. There will be apartments and offices above shops as well as residential buildings looking out over a network of linear parks.



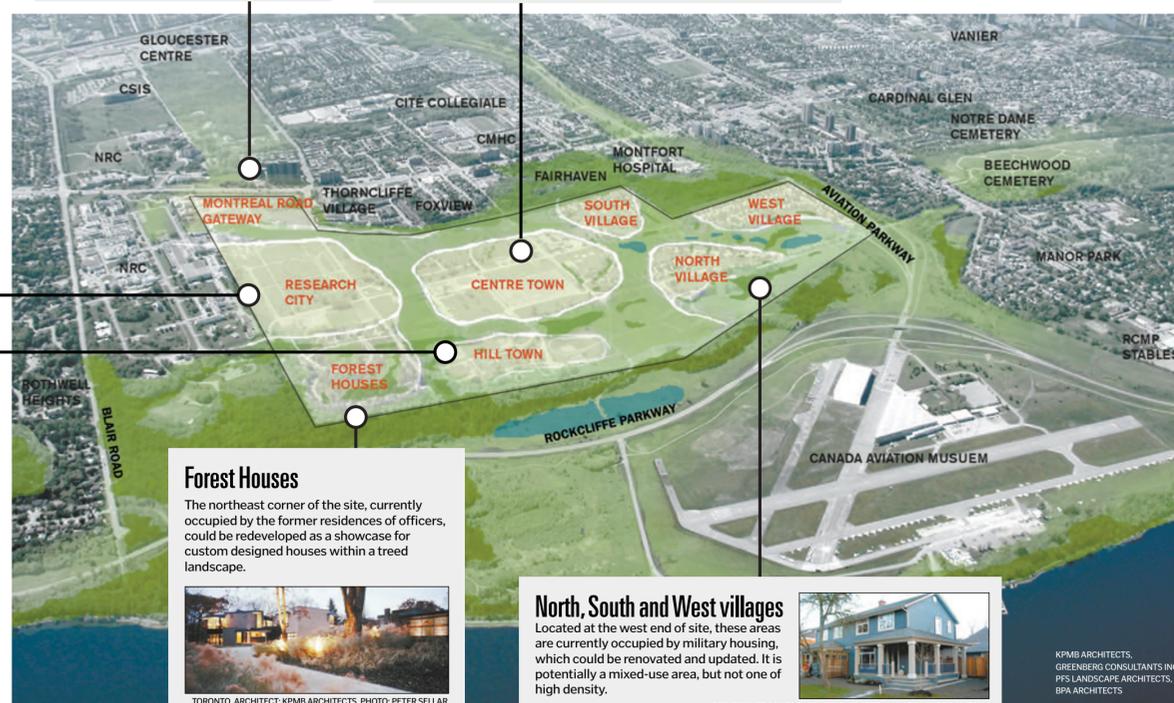
HARVARD SQUARE, CAMBRIDGE, MASSACHUSETTS SOURCE: KPMB ARCHITECTS

### Open house this week

**When:** Wednesday. The public may view displays starting at 5.30 p.m. Formal presentations and a public forum take place from 7 p.m. to 9 p.m.  
**Where:** Canada Aviation Museum

### More at ottawacitizen.com

- An interactive map with more images, views and examples of the types of communities being considered.
- More images from the innovative Stockholm neighbourhood of Hammarby Sjöstad.
- Read previous stories by Maria Cook about the Rockcliffe redevelopment.



KPMB ARCHITECTS, GREENBERG CONSULTANTS INC., PFS LANDSCAPE ARCHITECTS, BPA ARCHITECTS

See ROCKCLIFFE on PAGE A8

**COVER STORY**

# More lessons from Hammarby Sjöstad

## 7. A VACUUM SYSTEM FOR GARBAGE AND RECYCLING

There are no garbage trucks roaring up and down streets, smelly dumpsters or piles of garbage at the curb. Instead, residents put their garbage, paper, plastic, cardboard, glass and food waste in 11 different bins. Each is sucked away to underground storage chambers (far right). On collection days, waste disposal vehicles suck out the contents of the chambers. The material is returned as biofuels, electricity and heat.



PHOTOS: MARIA COOK, THE OTTAWA CITIZEN



## 8. CAR ALTERNATIVES

New light rail tram, buses, biogas-operated ferry, car pools, beautiful footpaths and cycle paths were built. The city also created an underground motorway to serve the area.



## 9. VEGETATION

The footpaths, preserved oak forest, parks and newly planted trees help to collect rain water, ensure cleaner air and provide counterbalance to the dense urban landscape.



PHOTO: VICTORIA HENRIKSSON

# Rockcliffe: Will the bottom line compromise the lofty aims?

Continued from PAGE A7

Canada Lands expects to demonstrate newer technologies that are currently too costly for mass use, and incorporate them in later phases as they become affordable. These includes light-emitting diode (LED) lights for streets and buildings and solar collectors that work in northern climates to generate both electricity and hot water.

Canada Lands's Benny Farm project in Montreal proved environmentally friendly housing could be built affordably. But Rockcliffe is a bigger and more complicated project.

The crunch will come when it's time to sell land — Canada Lands will eventually sell parcels of the site to developers who will be expected to build their vision.

"Canada Lands is governed in such a way that they have to get the highest value and that's all that counts," says Jonathan Westeinde, managing partner of

Ottawa-based Windmill Development Group. "Their own measurement tools for achievement are going to hinder them from getting what they want."

Will Canada Lands be required to accept the highest bid, but with a compromised product such as taller buildings, less public space or fewer energy features? Or will Rockcliffe truly become a model for 21st-century living?

Jim Lynes, Canada Lands acting president and CEO, has said that at Rockcliffe they hoped to pursue the best proposals, not necessarily the highest price offered by developers for the land parcels.

"I think we'll be much better placed in this particular development of going through a process that will identify key people who actually have the skill set and share the vision of what we are trying to achieve," he said.

"We want to find a mechanism other than a competitive highest bid to set a fair value."

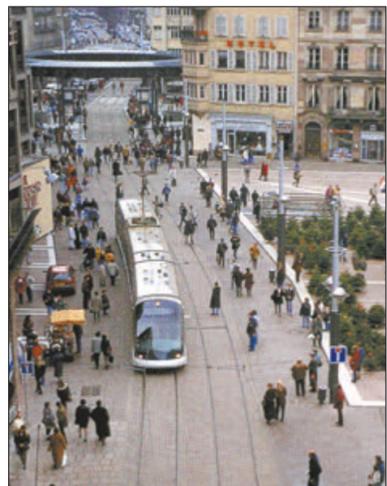


BRUNO SCHLUMBERGER, THE OTTAWA CITIZEN

Ed Lowans, the project's Ottawa-based sustainability consultant, near the site's current military housing. "Most demonstrations have one or two technologies. We will look at hundreds of innovations. We're trying to demonstrate this can be done on a wide scale."

# Green goals for Rockcliffe

Some of the ideas being considered for the Rockcliffe site that would make it more environmentally sustainable:



STRASBOURG, FRANCE. SOURCE: GEHL, JAN & LARS GEMOZE

### TRANSPORTATION

■ **Light rail** has been considered a key element, either coming into the area or passing along its edge along Montreal Road. This is in jeopardy as Ottawa's mayor-elect Larry O'Brien has said he wants to rethink the light-rail plan and will seek a six-month delay.

■ **Car alternatives** include bike paths, car pools, a shuttle to the Transitway and paying OC Transpo to provide a higher level of service. Canada Lands expects to market the area to people who are interested in less reliance on a car or people who can't afford one — 25 per cent of the housing is to be affordable.

■ **Narrower roads** use less asphalt and thus allow more green space, which has a cooling effect in summer and reduces the need for air conditioning. The obstacle will be to convince the city, which favours wider roads for the ease of fire trucks and snow plows. The city is setting up a committee of people from

various departments to work with Canada Lands on such issues. Could the city rethink the size of vehicles? Fire trucks have been getting bigger, and the city clears snow on residential streets using the same plows as on collector roads.

### WATER

■ **Reduce usage:** Use 50-per-cent less water than a conventional building using such devices as low-flow toilets and showerheads.

■ **Collect rainwater:** Use to flush toilets, irrigate gardens and wash cars.

■ **Reduce stormwater runoff:** Excess could flow into a stormwater retention system that includes ornamental wetlands and ponds. Shallow ditches between roads would allow the water to infiltrate soil. "We want to have little or no stormwater leaving the site," says sustainability consultant Ed Lowans.

### ENERGY-EFFICIENT BUILDINGS

■ **Renewable or recyclable materials:** Such as wood from crop trees rather than old growth. Use materials produced in region, which would draw on less energy to get to the site. Use any trees cut on site for lumber.

■ **Solar energy:** Orient buildings according to sunrise and sunset to take advantage of passive solar energy and shade.

■ **Solar roof panels:** Boost the effectiveness of high-efficiency furnaces and good wall insulation.

■ **Green roofs:** Use to cool buildings in summer and retain heat in winter.

### AIR QUALITY

■ **Indoors:** Choose materials that don't give off gases, such as wood floors or ceramic tile rather than carpet. Reduce emissions from such building materials as paints, plastics and plywood. Improve ventilation systems, reduce the use of pesticides and begin information campaigns to discourage use of perfume, bug spray and chemical cleaners.

■ **Outdoor:** Plant female tree and plant species, which do not generate pollen.

### GARBAGE

■ **Compost** from grass clippings, wood chips, food waste from restaurants and kitchen waste from houses could be used for on-site greenhouse, fish farm and tree nursery.

### SMART METERS

■ **Measure energy efficiency.** Technology could control the amount of energy used during peak periods, such as heat waves and cold snaps.