Blatchford Business Case

Introduction

Opportunity

Edmonton is in an enviable position. Our city has the opportunity to redevelop 217 hectares of land that is located just minutes away from downtown, and next door to a rich array of infrastructure, schools, retail and services.

The Blatchford Redevelopment will transform this site into a walkable, transit-oriented, and sustainable community. Homes for all stages of life, a great city park, and opportunities to shop, dine, and work, Blatchford will create a new sustainable urban experience for up to 30,000 residents.

Blatchford will be a world-leading, sustainable development that balances social, economic and ecological outcomes.

History

The Blatchford redevelopment started in 2008, when Edmonton City Council asked Administration to prepare a report on the possibilities and challenges with the City Centre Airport. A phased closure and redevelopment of the City Centre Airport was approved by Council in a multi-faceted motion in July 2009 after extensive discussions, public consultations, and expert analysis.

That motion also positioned the City of Edmonton as the developer of the lands, and that the redevelopment must create an ecologically advanced, transit-oriented and medium to-high density mixed use community.

Work started on fulfilling this vision with an international competition to select a design firm to develop the redevelopment master plan. Perkins + Will was selected, and they created a visionary framework for the redevelopment. City Council approved the Area Redevelopment Plan for the Blatchford site in May 2012 (Bylaw 16033).

The City has acquired title to and possession of all of the land at the former City Centre Airport save for the Department of National Defence Jefferson Armoury and the three tenants whose use of the land is consistent with the approved Area Redevelopment Plan.

The City Centre Airport officially closed on November 30, 2013 and the City is now in full control of these lands.

Blatchford vision and outcomes

Council's Vision for Blatchford

Blatchford will be home to up to 30,000 Edmontonians living, working and learning in a sustainable community that uses 100 percent renewable energy, is carbon neutral, significantly reduces its ecological footprint, and empowers residents to pursue a range of sustainable lifestyle choices. (Approved as part of the Master Planning Principles, March 2010)

What defines sustainable development?

Council approved seven Master Planning Principles for the Blatchford Redevelopment in March 2010, which outlined that "three dimensions of societal development must cooperate for sustainable development: the social, economic and ecological dimensions."

Social sustainability includes health and well-being, livability and community spirit. Ecological sustainability includes how we plan land use, energy, transportation, water, waste and urban ecology. And, economic sustainability is housing affordability, employment, economic vitality, infrastructure and net revenues for the City.

Anticipated outcomes

Blatchford will be a world-leading sustainable development that is a microcosm of the type of growth Edmonton should strive for, as set out in Council's strategic plan *The Way Ahead*.

This makes Blatchford a model that others can look to, not just as an aspiration that can be achieved "some day" but as an example of what can be done today with creative and visionary thinking and planning. As such, Blatchford holds potential to influence the way the world thinks about and can deliver sustainable development.

The key to Blatchford's ability to change how we plan and build future communities is demonstrating that it is possible to achieve a balance between social, ecological and economic sustainability.

To be socially sustainable, Blatchford looks to optimize how we live, work and play. This will be achieved by providing an abundance of park and open spaces, natural habitats, walkways and bikeways for use in all seasons. Transit will be readily accessible. Work and education, and amenities such as shopping and healthcare will be close and convenient. Public spaces such as agriculture plots will bring people together and create a strong sense of community. All of these elements will support Blatchford residents in adopting healthier lifestyles. The plan targets 20 percent of the dwelling units being affordable.

Ecological sustainability will be achieved by minimizing heat, power, and water consumption and minimizing waste produced during the construction phases. Blatchford will also use renewable energy, energy-efficiency standards for buildings, capture and reuse of stormwater, clear metrics to prove the success of each program, and tailored sustainable education programs for builders, building operators, and residents.

Economic sustainability will be achieved by development of employment opportunities, greater sustainability through infrastructure design and leveraging existing infrastructure for new growth.

An outcome from achieving the key principles of the plan will also be an ever evolving community, that continues to reach new levels of sustainability. Through the establishment of a home owners' association, the building blocks for community education, sustainability monitoring, and changes to the community will be set.

Achieving world-leading sustainability

Design overview

As the Blatchford Redevelopment was being planned, every single component was examined to see how we can do better. What can we do to provide greener heat and power? How can we reduce the amount of resources used? How will the community's design influence the transportation choices that residents will make? What can we do to promote and better support sustainable lifestyle choices?

There were other considerations as well. How do we connect Blatchford to the surrounding communities, businesses and institutions? What do we need to consider in our design to ensure financial viability?

Achieving the Blatchford vision could be done in many ways, and a choice made in one area will affect another. Blatchford's design seeks to find a balance so all aspects of sustainability – social, ecological and financial – are optimized.

Evaluating technologies

The project team retained HDR Corporation, a consultant in risk analysis and decision economics, to evaluate different heat and electricity technology options for Blatchford.

That analysis looked at the financial return on investment, and then put a dollar value on the ecological benefits, such as how much a technology reduced greenhouse gas emissions.

By looking at both the financial merits and the ecological merits of an option (see Attachment 3), the project team can recommend options that offer the greatest benefit for the Blatchford redevelopment.

Creating the Blatchford Redevelopment plan

The project team worked with a number of experts on the plan, including:

Perkins+Will team: Master Plan vision, conceptual civil engineering, conceptual transportation analysis, conceptual landscape design, and conceptual urban design

EPCOR: Sustainable water and wastewater systems with respect to recycling and reuse opportunities

HDR Corporation: Risk analysis and decision economics regarding district energy options

Stantec: Preliminary engineering, preliminary transportation, custom land use zoning, conceptual district energy design, low impact design and business plans

Enmax: Community-wide sustainable energy solutions

FVB Energy Inc.: Combined heat-power district energy system evaluation

rEvolve Engineering Inc.: Ambient shallow geothermal district energy system evaluation

EcoAmmo Sustainable Consulting Inc.: High performance building envelope and energy consumption analysis

Colliers International: Residential market assessment and revenue analysis

Golder Associates: Environmental Site Assessment reports – Phase I and II

Chessington Holdings: Land development engineering consultation

Intelligence House: Housing market research and evaluation

Blatchford's sustainable design

Reducing how much we use

Blatchford will use significantly less power, heat and water, which will have a major positive impact on sustainability. A program to monitor and measure these reductions will be developed as part of the implementation program.

Green construction

Recycling materials and reducing waste during Blatchford's construction is a priority. For example, hard surfaces such as the runways will be ground up to create material for road construction. A hill in the park will use the earth dug out to create the stormwater ponds.

Construction and demolition waste from the site will be recycled at the City's waste management facility.

Public infrastructure in Blatchford will also be designed to use less power by installing LED lighting along roads and in public spaces and by designing for dark skies where appropriate.

Green building standards

Builders will be given standards for power, heat and water use and the buildings will be designed and operated to achieve these targets. This can include better insulation, energy efficient lighting and appliances, windows oriented for solar gain, green roofs, and rainwater capture systems.

Builders will also be given criteria to reduce their waste and recycle as much as possible. The Project Office is working with the City's green building program and industry to determine the specific program elements.

Drainage and water

A combination of low impact design, furrows, special infiltration zones, and stormwater ponds will slow down and capture water runoff on Blatchford, and improve the water quality before it is discharged to the river.

Many of these areas will also provide micro-habitats where plants and trees can thrive, adding more green space and biodiversity.

Water conservation and reuse

Edmontonians already conserve water very well. Blatchford will take that achievement further.

Parks and open spaces will be landscaped primarily with native and drought-resistant species, mitigating the need for irrigation. Agricultural and ornamental plantings will be watered through onsite rainwater capture and reuse, as well as stormwater reuse.

Blatchford buildings will use low-flow fixtures and appliances to minimize water use. And, while the provincial building code does not allow for grey water reuse, the Blatchford Project Office will seek amendments to building regulations for grey water reuse systems in buildings.

Energy

There are two goals in the Blatchford vision related to energy: carbon neutrality (when the amount of carbon released into the atmosphere is equivalent to the amount of carbon that is sequestered or offset) and using 100 percent renewable energy.

The Blatchford energy plan consists of three key strategies: reducing consumption, educating users, and incorporating efficient energy sources.

The first and most fundamental strategy of the Blatchford energy plan is to minimize consumption. By developing high performance building envelopes, using energy efficient fixtures and appliances and efficient community design, Blatchford will significantly reduce energy requirements.

The second strategy of the Blatchford energy plan is to ensure that energy is used wisely. Through an education program and smart metering, the Blatchford community will be able to use energy efficiently, effectively and conveniently, and help people consume less. Further, it is intended that community programs will continue to improve sustainable practices over time.

The third strategy is to find the most efficient and least carbon intensive means of providing for Blatchford's energy needs, while allowing the greatest flexibility to incorporate renewable technologies in the future.

Currently, two-thirds of the carbon footprint of the average Edmontonian comes from coal-fired electrical generation. On top of that are the greenhouse gases produced to heat our buildings.

Many sustainable communities address emissions related to either electricity or heat, not both. Blatchford aims to design systems that produce both heat and power, while meeting the goals of carbon neutrality and using renewable energy.

Analysis by HDR (Attachment 3) indicates Blatchford could immediately be "beyond carbon neutral" on day one of the redevelopment by using a gas-fired combined heat and power (CHP) district energy system. However, using non-renewable natural gas does not meet the goal for relying on 100 percent renewable energy.

Another option being evaluated is an "ambient" district energy system using a shallow geo-exchange field. A geo-exchange field is a fully renewable heat source/sink which could provide heating and cooling for the entire community. The ambient system can further reduce energy consumption onsite as it can share energy between buildings. For example, buildings that give off heat, such as offices and institutional buildings, can provide energy to buildings that need heat, such as residential buildings. Additionally, an ambient system provides greater flexibility for tying in other renewable energy sources.

This option, if combined with renewable electricity generation, such as solar photovoltaics, provides the opportunity for Blatchford's heating, cooling and district energy system electrical demand to come from 100 percent renewable sources and also achieve carbon neutrality.

Further evaluation of the ambient system will be completed later this year and may prove it to be an environmentally superior and financially viable alternative to the proposed gas fueled combined heat and power system (CHP) that is currently reflected in the recommended redevelopment scenario 5a.

Transportation, transit and people

Blatchford will be a highly walkable community. A mix of land uses and high-quality urban design will make walking, cycling and transit the easy and natural transportation choices for those living and working in the neighbourhood.

Pedestrian comfort and safety will be prioritized through custom-designed streets, sidewalks and boulevards. Key destinations and activity centres, such as schools, parks, restaurants and stores, will be within walking distance of residential areas and linked with pedestrian and cycling facilities.

Transit will be fully integrated into the community, with stops and stations located at activity centres. LRT will connect the community within minutes of downtown and link the city's post secondary schools making transit an attractive option for commuting to and from Blatchford.

Reducing greenhouse gas emissions

The average Edmontonian is responsible for approximately 24 tonnes of greenhouse gas emissions a year.

Coal Fired Electricity 16 tonnes

Transportation 4 tonnes

Heating 3 tonnes

Other 1 tonne

In combination with high-efficiency buildings, Blatchford's best environmental case would be achieved through the alternative geo-exchange system, as noted above, providing that it is proven to be economically viable. Combined with renewable electricity sources, this system could move Blatchford from 24 to 5 tonnes/person/year. By comparison, Stockholm is at 3.5 tonnes/person/year.

Blatchford's walkable and transit-oriented design should also reduce emissions as many families may choose to own one car, instead of two, and drive less often. Quantifying the exact impact of transportation improvements is not possible at this time.

Livability – pursuing sustainable lifestyle choices

Research demonstrates more than 50 percent of a neighbourhood's ecological impact is due to the net lifestyle impact of its residents. Sustainable living must be easy, practical, attractive and affordable.

Blatchford keeps daily life close to home. Trails and walkways connect residents to nearby amenities and businesses. Spaces are designed to create a safe, “eyes on the street” community where people feel comfortable and secure walking in their own neighbourhood.

A sustainable community also enhances well being and social interaction. The vast majority of people in Blatchford will be within a two-minute walk of green space.

- Park and open space is significantly larger than standard suburban development, (about 19 percent of the total land space), and serves as a major attraction.
- The 7.1 hectares of stormwater management facilities are placed in the park to provide an attractive open space/water feature.
- Community garden spaces (furrows) will create community gathering spaces, will encourage neighbours to interact and support Council’s urban agriculture policy.

Blatchford will be diverse, attracting people from all stages of life. It is also the first development to use the emerging winter cities design principles, and will be a community for all seasons.

An education program will encourage Blatchford residents to become living examples and ambassadors for sustainable lifestyles, promote these ideals to other Edmontonians, and build pride in our city. There are also many opportunities to link with post-secondary institutions, most notably NAIT, to create learning opportunities.

The historic recognition program will be developed in consultation with the Edmonton Heritage Council and the Alberta Aviation Museum Association.

Forecasted financial results

Administration developed and analyzed several scenarios as part of the implementation strategy formulation. The following development scenario reflects a balanced outcome in terms of environmental, social and financial outcomes.

Recommended scenario for Blatchford

The preferred development approach for Blatchford is reflected in Attachment 2 and

includes:

- park and open space for 19 percent of the total land area, bringing the vast majority of people in Blatchford within a two minute walk of a park or open space.
- install a storm water irrigation system to minimize Blatchford’s demand for potable water by using storm water to irrigate the park and other public spaces.

- currently this recommended scenario includes a combined heat and power (CHP) district energy system that saves a considerable amount of greenhouse gas emissions and which is financially feasible. However, this would not be a net carbon neutral system as it uses non renewable natural gas as its fuel source. Therefore, an alternate system which has the potential to use a 100 percent renewable energy source is being evaluated. That evaluation will be available later this year and is anticipated to provide an environmentally superior and financially viable option to the proposed gas fired combined heat and power system (CHP) that is currently reflected in the business case.
- a contribution towards building affordable housing, and the education program.
- green building standards, which will be a significant component in achieving Council's energy goals.
- leverage existing infrastructure adjacent to the development area.

Future City-funded opportunities

The proposed recreation lake in the north section of the park is a possible option. If deemed a priority for the City, the project office estimates a budget of approximately $12 million, subject to confirming the scope and related costs. Skating will still be available at Blatchford.

Additional enhancements identified in the Perkins+Will concept, such as new pavilions and additional park landscaping, could be considered and is estimated to cost $36.7 million. The majority of these elements are in latter stages of the redevelopment program and could be considered at that time.

Budget/Financial Implications

Based on Council's direction on the preferred concept, a capital profile would be prepared.

Council has previously approved funding in the amount of $73.3 million for leasehold acquisitions and $14.8 million for preliminary design and implementation. To advance the implementation strategy, Administration will bring forward a capital profile to City Council with a funding strategy for approval with interim funding from the City's working capital and ultimate funding from the land development net revenues for Blatchford.

Development Activity Assumptions:

- West side land sales: 250 residential units annually commencing 2015 and 500 annually commencing 2018
- East side land sales begin after complete absorption of west side units. 500 residential units annually commencing after west side is sold out.

- Town Centre has all lands absorbed by 2028
- Annual land value growth factor: three percent
- Annual escalation in costs: six percent until Stage 1 is complete, three percent thereafter
- Discount rate: 4.5 percent. (Discount rate illustrates the return on investment that could be earned if the money were put into another long-term investment instead of Blatchford.)
- Enmax anticipates that by 2017, power generated in Alberta using Solar PV will be competitively priced with electricity generated through other sources

Additional Design Elements

During the course of evaluating options for achieving the vision for Blatchford, the project team and our consultants assessed additional design attributes that are not suggested at this time.

The pneumatic underground waste collection system was investigated, and was deemed to not be pragmatic for the entire redevelopment. This approach was validated with one of the company proponents which recommended use of the system in the highest density areas. For the Transit Oriented Development (TOD) area surrounding the north LRT station, it would cost an estimated $20 million. The project team is working with Waste Management which has plans underway to reduce greenhouse gas emissions from their waste collection program city-wide. It is intended to revisit the merits of this system at the time when the TOD areas are to be developed.

Evaluation of the district energy alternatives determined that the proposed deep geothermal and biomass technologies are not recommended. When considering drilling risks for deep geothermal, supply risks and on-site storage requirements for biomass, and the financial cost vs. the environmental impacts of each system, these options do not offer the same value as the options the team is still investigating.

Edmonton currently has an enviable water story, with a high quality source, low water consumption and world-leading water and wastewater treatment. Under these circumstances the need for an onsite wastewater treatment plant and district-wide reuse system is not justified. Additionally, a study (HDR, 2013) on water reclamation facilities for EPCOR Water Services indicates that:

- A water reclamation facility in Blatchford is not the best use of capital from either a financial owner/operator perspective or a societal perspective.
- The social benefits of water reclamation in the Edmonton area are not great enough to outweigh the additional financial and social costs.

However, it is the intent of the project team to incorporate grey water reuse within buildings, as noted earlier in this report.

In the extreme northeast corner of the site, immediately south of the Yellowhead Trail, and area was originally identified as park space. In further review of the land uses it was deemed to not be an optimal location for a park. As additional development land, it benefited the financial outcome by approximately $15 million in net revenues.

Key risks and mitigation strategies

Blatchford faces the same market risks as every other traditional land development project. A weakening or downward shift in the residential market would affect pricing and the rate of dwelling unit absorption. As well, an increase in interest rates could make it more difficult to sell properties and change the City's costs for infrastructure. Timing and phasing of the redevelopment will need to be monitored and evaluated annually to minimize the City's risk of over or under investing in infrastructure on a stage by stage basis.

Timing of NWLRT construction and moving to the permanent NAIT station will also be an important consideration for Blatchford. The east residential development has been designed using Transit Oriented Development design principles. A significant delay in implementing the extension of the NWLRT to the two Blatchford stations would result in many impacts, including changes in parking requirements, projected density, and market value for the lots in the east residential area of Blatchford. As Blatchford moves forward, the City will need to ensure the timing and development plans for both projects are coordinated.

There has been a great deal of environmental documentation and testing done for the site, as the City has a responsibility to manage all environmental risks. This information was used to forecast projected remediation costs, but there is a risk the City could identify the need for additional remediation action. Further testing on the site's east side has shown there is very limited contamination in the area, and more testing on the west side of the site was completed in March and April 2014 and the test results are being reviewed.

At the present time the City is defending against one legal action brought by the Morningstar group of companies.

The projected acquisition costs for the leasehold interests could impact the project. Since initiating the property acquisition and expropriation process, administration has actively engaged with the property interest holders. Based on our current knowledge of the scale and nature of the businesses that have not yet reached a final settlement there will likely be a recommended increase in the leasehold acquisition budget. This amount is included in the recommended scenario.

Current development approach

As per Council's July 2009 direction, Blatchford Redevelopment Project Office leads on formal planning submissions, including zoning, subdivision and engineering drawing approval, as well as coordinating the construction of all physical infrastructure, such as roads, utilities, streetscapes and parks. As well, the City will establish the high environmental and architectural standards that must be met for all buildings in Blatchford.

This approach reflects current City's Land Development Policy (C511), which indicates the City, through its land development program, will actively promote initiatives in evolving areas of sustainability, revitalization, and urban form.

With respect to project governance and the associated Project Office operating model, two concurrent review processes are underway. For governance, it is time to fundamentally change the steering and advisory body for the initiative. The initiative to this point has been strongly driven by many municipal processes including expropriation, bylaw development, associated legal challenges, as well as community and Council engagement. The closing of the airport as well as acquiring all interests in the land represents the appropriate time to shift to a development focus. Similar to the City's approach with LRT, the revised governance model should incorporate added expertise in land development and city building.

In discussions with the development industry, various operational models have been discussed regarding Blatchford. For example, an approach where larger blocks of land are made available to the development industry for them to phase larger multiple projects over time, and carry the risk of infrastructure investment, have been suggested. This discussion is being advanced in context with other proposed land development projects managed by the City. Any alternative models will be tested to ensure all the objectives of Council's vision is achieved including revenue potential, social and environmental outcomes.

The Blatchford Redevelopment demonstrates social leadership through the planning and design for the community, which emphasizes connectivity, walkability, generous open space allocation and a mixed use approach to development. Environmental leadership is shown through innovative water reuse, high performance buildings, a district energy system, and tying into the City's world leading waste management and water conservation programs.

Notwithstanding the confirmed long term operational model, the project team is working with industry to identify small and large scale, multistage building opportunities to gain a full spectrum of experience and innovation amongst the builders participating in the project.

The strategic objectives set out in Council's vision for Blatchford can be achieved. This includes energy and environmental sustainability, embedding the aviation and site history into the fabric of the community, and achieving the targets for affordable housing, infill housing, increased

densities, and Transit Oriented Development at the two future LRT stations, while delivering financial returns to the City.

Implementation strategy

Council direction is required to:

1) Prepare a Capital Profile for the implementation of the Blatchford Redevelopment Project and submit it with a funding strategy.

2) Proceed with the implementation of the recommended scenario for the Blatchford Redevelopment Project as outlined on page eight of this attachment.

3) Have the Blatchford Redevelopment Project Office work with Transportation Services and Financial Services and Utilities to explore a preliminary timeline for LRT extension into Blatchford and the construction of Blatchford NAIT LRT station and the Blatchford North LRT station on a timeline that works with the development of the east residential area.

4) Advance the review of the project governance and operating model in a future Sustainable Development report CR_1085, *Land Enterprise Options*, in response to Council direction given on February 25, 2014.

Conclusion

Blatchford will be a landmark development for Edmonton. It has potential to transform Edmonton into a city that builds environmentally, socially and financially sustainable communities.

This means that the innovation embedded in the Blatchford Redevelopment is not limited to the residents of Blatchford, but will inform future communities and infill projects.

As the world grows and changes, so will Blatchford. It will incorporate the best ideas of the day, and continually be seen as a progressive development to watch.

Most importantly, Blatchford will be a great place to live, learn, work and play. It will offer Edmontonians a neighbourhood they will be proud to be a part of, and offer an affordable higher quality of life.

By achieving these things, Blatchford will help position Edmonton as a leading sustainable city in North America and around the world.