

PEARSON ECO-BUSINESS ZONE POLICY TOOLKIT

CASE STUDIES



CASE STUDIES

The Pearson Eco-Business Zone Strategy notes that in many jurisdictions, local government policies have inadvertently been a barrier to eco-industrial or eco-business development projects. The success of many of the initiatives in Pearson Eco-Business Zone will be impacted by local government policies. With three municipal and one regional jurisdiction, this challenge is magnified in the Pearson Eco-Business Zone. So, there are two tasks at hand: 1) Amend or adopt policies to support eco-business activity and 2) Align policies across the three municipal and one regional government to ensure that similar or at least complementary rules and incentives apply across Pearson Eco-Business Zone.

As the Strategy notes, each municipality already has a number of supportive policies in place. So, fostering knowledge exchange will support the overall policy harmonization work. In addition, municipal staff noted during Strategy consultation that it would be helpful to have policy examples from other jurisdictions, to see what might be adapted from elsewhere, and also to ensure that lessons learned from other municipalities are incorporated into municipal policies affecting Pearson Eco-Business Zone.

This document presents six case studies, three from Canada and three from outside Canada, where municipalities have attempted to create eco-industrial or green industrial retrofit projects. Alberta is the province that is home to the first two new eco-industrial parks in Canada; policies adopted to foster those developments are relevant to redevelopment, new development, and ongoing operations in Pearson Eco-Business Zone. The City of Edmonton has also committed to widespread policy changes to foster eco-industrial activity in new and renewal settings. The results of the first phase of their efforts are presented here. It is worth noting that although the development regulation and land use frameworks of both Ontario and Alberta are somewhat different, new regulatory changes in (e.g. provisions in the Planning Act) and tools in Ontario such as the Development Permit System, provide potentially key elements of the groundwork for implementing green commercial and industrial development policy. Similarly, like Places to Grow, Alberta's new provincial Land Use Framework provides direction to guide regional growth

policy. Policy frameworks in the US and Australia aren't as easily comparable to Canadian contexts, but the tools and the manner in which strategies made use of these tools offer valuable lessons.

The Case Studies have been broken down as follows:

- **Introduction & Context** - General information about the processes followed and how it relates to one or more PPG municipalities (Toronto, Mississauga, Brampton)
- **Development Regulation** – Identify how different tools are used by other jurisdictions to address the same goals as PPG municipalities.
- **Subdivision Regulation** – Design and planning decisions at the subdivision scale have a significant impact on the future efficiency and business case for green design at the lot level.
- **Engineering Standards** – Technical criteria and engineering decisions must align with planning policy to support eco-business development.
- **Education & Outreach** – Municipal staff, provincial actors, private sector developers and businesses all require varying levels of education around the concepts, benefits, and different roles for each sector for supporting eco-business activity.
- **Economic Development** – There is a direct link between sound planning policy and strategic business attraction and retention.

There are additional municipal tools, such as financial incentives, to promote eco-industrial activity. Only one of the jurisdictions profiled has instituted financial incentives, although the TaigaNova development was exempted from stormwater offsite levies (development charges) because it achieved full onsite stormwater management. There are some examples in the U.S., but generally in Canada, there have been studies of incentives to support eco-business activity but little implementation. Sewer use bylaws and related initiatives, such as pollution prevention plans associated with discharge permits, are also useful for achieving

some of the environmental performance targets established in planning and development policy. Hinton did update its bylaw to support a distributed wastewater treatment system, but the system was not built. Toronto's work in this area provides an excellent foundation from which to foster eco-business activity.

In addition, Community Energy Plans and Integrated Sustainable Community Plans could be useful for supporting eco-business activity. High level energy strategies must be developed in a way that effectively engages and integrates private sector requirements. Sudbury aligned its CEP with its eco-industrial efforts, but, generally, these plans have been underutilized.

It should be noted that there are a number of regions undertaking eco-business projects. The City of Markham, through its Green Print Strategy, and the City of Hamilton, through its Airport Employment Growth District Secondary Plan, are exploring policies to foster eco-business activity. There are at least two private development corporations in Ontario that are planning to incorporate eco-industrial design guidelines to shape their industrial park developments. In BC, the Corporation of Delta recently launched a project to develop eco-industrial design guidelines for a portion of its employment lands. However, none of these projects are far enough along to serve as case studies as of yet.

INTRODUCTION AND CONTEXT

The Acting Director for Planning & Development initiated a project to determine what new or amended policies the City of Edmonton needed to foster eco-industrial activity in new and existing industrial areas. The project included two multi-stakeholder workshops, one of which also served to educate third-party consultants working on one of the City's new Area Structure Plans (ASPs). Municipal staff who attended the workshops clearly articulated that they believed the City should adopt a long term goal of making eco-industrial activity the norm, rather than the exception. The outcomes included a report and a checklist of policy action items. The consultative approach ensured more buy-in for the action items than a more traditional draft-review-finalize approach.

The Edmonton case shares many similarities with the Pearson Eco-Business Zone, notably that the policy changes are targeting redevelopment and infill opportunities, as well as new development within their light industrial employment lands. The City clearly understood that it is necessary to address and integrate eco-business policy throughout the municipality - not just via the planning department- and made efforts to include multiple departments in the education and policy review process.

DEVELOPMENT REGULATION

Development Permits and Site Plan Control

It was recommended that City staff:

- Create New Eco-Industrial Zoning and/or Guidelines
 - » Establish a list of eco-industrial objectives
 - » Based on findings from other jurisdictions, and considering how Edmonton works best, determine what tools to use to best meet the objectives - for instance, should some objectives remain as high level principles in the Municipal Development Plan (MDP) (e.g. reduce energy consumption, increase land use intensity, etc)? Are others more easily implemented through zoning mechanisms, like Overlays or Direct Control?
 - » For those objectives that are best achieved through zoning, create new eco-industrial zone that is most suited to Edmonton: new designation, new Overlay or new Direct Control
 - » For those objectives that are best achieved through guidelines, draft new eco-industrial design guidelines, and incorporate through the following methods:

- Adopt by Council resolution; integrate into the zoning bylaw; include as part of the requirements of a new eco-industrial zone; and/or incorporate into area-specific plans like ASPs
- Link to Development Permit Process by asking developers to provide a letter from an architect or engineer stating which guidelines are met
- Encourage Business Clusters
 - » Create a direct link between planning and economic development activity, either via City Procedure, or a designated department liaison person
 - » The designated department liaison person would communicate between the City and EEDC, and act as a cluster coordinator
 - » Ensure that sectors targeted through economic development activity are specifically accommodated in zoning regulations. For instance, make sure lot size, layout, building height and so on meet sector needs. The planning department should include economic development staff in process for developing a new eco-industrial zone.
- Adjust Development Permit Process (communication tools, procedure for EI applications, adjust processing time and procedure to eliminate delays due to EI)
 - » Request specific information traditionally not included in development process, such as expected material inputs and outputs from business operations
 - » Consider allowing eco-industrial projects to skip the queue of other development permit applications, to make up for any additional time spent up front

SUBDIVISION REGULATION

Subdivision Design Guidelines

It was recommended that City staff:

- Amend the City's subdivision guidelines to support best practices in subdivision layout and design for high performance eco-industrial site development, such as:
 - » Efficient road & ROW design to avoid the “bigger is better” trap
 - » Integrate utility easements with ROWs
 - » Energy efficient site layout to promote building orientation for solar access and wind shelter
 - » Diverse parcelization
 - » Multi-modal transportation network (trucks, vehicles, transit, pedestrian, bikes)
 - » Protection and integration of ecological functions

Specialized Subdivision Approvals and Development Agreements Process

It was recommended that City staff:

- Create a pre-application process to collect sufficient information from applicants to determine if the proposed development meets the subdivision guidelines, and overall eco-industrial objectives
- Require eco-industrial features to be shown on tentative plans of subdivision
- Create a checklist form to demonstrate compliance with the above subdivision design guidelines
- Consider expedited approvals for eco-subdivisions

Area Plans

The City of Edmonton is encouraging eco-industrial activity through some of its new Area Structure Plans. For example the Horse Hills Northeast ASP (12,800-acres) aims to “create a greener business environment through innovative and efficient facility design, infrastructure design and business relationships”. Wildlife and habitat protection is a fundamental feature of the ASP, and opportunities will be sought for efficient infrastructure and use of resources.

http://www.edmonton.ca/city_government/horse-hills-northeast-area-str.aspx

ENGINEERING STANDARDS

Design and Construction Standards

It was recommended that City staff:

- Consider performance based standards, based on best practices from other jurisdictions e.g., alternative designs must result in a minimum of xx per cent reduction in potable water consumption
- Work with other departments, developers, and private sector to develop incentives, if required
- Create new eco-industrial section to address alternative design standards including, but not limited to:
 - » non-potable water distribution
 - » on-site ecological stormwater management
 - » alternative sanitary systems (e.g. dual plumbing)
 - » additional uses within green/amenity spaces
 - » alternative energy systems
- Foster a culture that can expeditiously process deviations from standards that support eco-industrial innovation. The City already sends a signal it is open through this clause:

3.3 *These standards shall not be considered a rigid requirement and Consultants are encouraged to continuously seek new and better solutions. Where a variation to the standards could achieve a better technical and economical result a proposal should be presented for approval.*

- Create a guide document or an internal planning department procedure that an interested business can follow to facilitate the management of building co-location options (e.g. shared wall across property boundaries, shared shipping facilities, future easements for materials movement, etc)

District Energy, Heating and Cooling

It was recommended that City staff:

- Review and adapt engineering design standards for district energy systems from other jurisdictions
- Identify scope of feasibility studies that will be needed to support a district energy project
- Include a sub-section in the new eco-industrial chapter to address the design, placement and specifications for district energy systems and equipment
- Establish a procedure with utility companies for coordinating planning, design, construction of district energy systems, e.g. proximity to utilities, use of ROWs, combined construction schedules, and so forth
- Identify an Asset Management & Public Works person to act as liaison with utility companies on district energy projects

EDUCATION AND OUTREACH

Staff Training:

- Eco-industrial planning and development training was held in July 2008 with staff from multiple departments such as Parks & Recreation, Public Works, Transportation and Planning; the two large workshops were meant to engage municipal staff and create a broad base of support across the City

Developer Education

- The City's consultants on the Horse Hills ASP were also invited to the eco-industrial development training to learn about EIPs and then incorporate similar principles into the ASP

ECONOMIC DEVELOPMENT

Integration with Planning

- Edmonton Horse Hills Northeast ASP somewhat addressed the integration of economic development in the planning process (see above)

- Policy checklist: Understanding that it must influence privately held lands, the City has examined all its policies in an integrated manner and developed a checklist of new policies, as well as amendments, to create a sound framework to promote eco-industrial activity. The City examined everything from its subdivision approval process to its municipal development plan to its engineering design standards

Leverage Eco-Industrial Activity for Branding, Business Retention and Attraction

It was recommended that City staff work with Edmonton Economic Development Corporation (EEDC) to:

- Align economic development efforts with eco-industrial objectives
- Help promote eco-industrial policy framework to attract progressive industries
- Identify options for, and feasibility of, financial incentives
- Include EEDC in eco-industrial training efforts – as the first point of contact for business interests, the EEDC has an important role in communicating the advantages of the City's eco-industrial efforts
- Attract businesses that could use existing industry waste
- Revise existing Business Revitalization Zones Handbook to include an eco-industrial chapter

TaigaNova Eco-industrial Park

Alberta, Canada

CASE STUDY

INTRODUCTION AND CONTEXT

The Wood Buffalo Housing and Development Corporation (WBHDC) is developing the 131-acre TaigaNova Eco-Industrial Park. TaigaNova is the first greenfield EIP to be developed in Canada with conventional financing, industry-standard profit targets, and conventional construction schedules. The Regional Municipality of Wood Buffalo (RMWB) initiated the project. Prior to transferring it to the WBHDC (its wholly owned subsidiary), the RMWB adopted land use bylaw amendments to support the plan for TaigaNova. In addition, the WBHDC pursued an innovative sales strategy, and was successful in incorporating eco-features into the infrastructure and landscape design that deviated from the RMWB's standards.

The project website is www.taiganova.com.

Similar to the Pearson Eco-Business Zone, the municipal regulatory frameworks had to first be aligned to collectively support eco-industrial development. To make the transition from conventional to green industrial development, the municipality amended the Land Use Bylaw, the Municipal Development Plan (MDP) and an Area Structure Plan (ASP) to facilitate the TaigaNova project. These amendments included accompanying design guidelines and the municipality also created a streamlined development approval process and assigned dedicated staff to process permit applications for TaigaNova.

Land sales involved a competitive process in which interested businesses competed based in part on the strength of their green performance (design and operations). The WBHDC further supported successful buyers with a free green building workshop and online resources, and a comprehensive marketing strategy. The success of the project required all of the above policy and procedural changes were necessary to facilitate the process of reducing impacts throughout the construction, development and operation of businesses in TaigaNova.

DEVELOPMENT REGULATION

Development Permits and Site Plan Control

- Site-specific zoning bylaw amendments addressed aspects such as strategic selection of land uses, energy efficiency considerations for setback & siting requirements, and water conservation and recycling (the full amendments may be found at <http://www.taiganova.com/site/zoning.asp>)
- The municipality revised their development permitting application process to require several key pieces of information from applicants wishing to build in

TaigaNova

- » Before issuing a permit, applicants must provide written statements from accredited architects and engineers regarding how they addressed land use efficiency, alternative transportation, water/ wastewater reuse, and waste reduction among other criteria
- » Applicants must also provide information about their inputs and outputs to support future potential by-product synergies

Design Guidelines

Additional design guidelines guide development and facilitate higher performance green buildings and operations. There are some mandatory guidelines, plus developers must meet 22 guidelines, of their choosing, from a list of 43 optional guidelines.

- Guidelines developed in consultation with developers and businesses to ensure that all concerns were properly addressed and that guidelines did not present significant difficulty or costs increases to either group
- Guidelines adopted as a series of general, and site-specific amendments to zoning by-law
- By linking verification of guideline compliance with changes to the DP application process (above), the RMWB can enforce the guidelines without requiring staff to have special training

SUBDIVISION REGULATION

Subdivision Design Guidelines

RMWB does not have subdivision design guidelines. The subdivision plan itself included a number of easements not normally found in industrial subdivisions –including, for example, swales and pedestrian path.

Area Plans

A minor amendment to the ASP (and Municipal Development Plan, Alberta’s equivalent to an OP) governing TaigaNova was required.

ENGINEERING STANDARDS

Deviations From Existing Standards

The infrastructure design for TaigaNova included the following deviations from the RMWB standards:

- Even though not required, a walkway is located within the subdivision, outside of the road right-of-way, to encourage pedestrian movement within the industrial park
- Carriage way widths were reduced from 14 to 9 metres (collector roads) and from

12 to 8 metres (local roads) to accommodate stormwater swales within the right-of-way

- A future location for district energy piping was approved in the Road ROW

EDUCATION AND OUTREACH

Staff Training:

- A number of Council workshops were held by the development team during the planning and design phase of TaigaNova to either discuss options and/or review new strategies (e.g. sales process) adopted for the eco-industrial park
- The guidelines and LUB amendments were developed in a consultative process
- High staff turnover makes staff training a challenge

Business Sector Consultation

- Consultation with the development community in the early stages of planning for TaigaNova allowed the municipality to gauge interest and possibilities for greener development (this market outreach also supported later marketing efforts)

Developer and Buyer Education

- The WBHDC hosted a workshop for buyers and members of their design team, where participants were introduced to eco-industrial concepts and specific strategies relevant to their facilities such as green building technologies for warehouses

ECONOMIC DEVELOPMENT

Leverage Eco-Industrial Activity for Branding, Business Retention & Attraction

- TaigaNova is branded as “a highly efficient EIP using green infrastructure and sustainable design approaches resulting in a higher quality industrial development”
- It supports local economic development by providing quality and accessible land to businesses

Other – Sales Process

- A Request for Proposal process was used for the first round of sales, with points provided for environmental (such as commitments to purchase green power), social (promote local small business) and economic (longevity of business activity) criteria
 - » Tight market allows municipality greater control over business attraction
 - » Sales process rewards the most sustainable businesses
 - » Process allowed local business a first round advantage to obtain land

CASE STUDY

- The RFP submission form was then modified to an application form for subsequent sales, so that the WBHDC could still base its decisions to sell on the sustainability of the business

Innovista Eco-industrial Park

Alberta, Canada

CASE STUDY

INTRODUCTION AND CONTEXT

Innovista is Canada's first greenfield Eco-Industrial Park, and features green infrastructure and green development throughout the site. A number of regulatory mechanisms, including Canada's first official eco-industrial zoning designation, were leveraged to ensure developers and businesses operating in the park are able to meet the municipality's desire for environmentally and economically beneficial development. The development process included a conceptual plan based on ecological design principles, and a business plan with financial analysis demonstrating that an Eco-Industrial Park would actually provide a greater return on investment for the Town than a traditional industrial park. A concept plan was developed according to ecological Innovista also features green design guidelines with "required" and "encouraged" features to promote innovation in the areas of energy, waste, transportation, ecological impacts and other resource conservation.

At the outset, the Town of Hinton declared that all aspects of the project would demonstrate the Town's commitment to sustainability and innovation. The process for developing Innovista, as well as the design guidelines, can provide guidance for enhancing the performance of existing industrial parks (such as Brampton), or act as a template for the planning and design of new industrial subdivisions – for instance, within the developable industrial areas in Mississauga.

DEVELOPMENT REGULATION

Development Permits and Site Plan Control

- The Town developed a new Eco-Industrial District zoning designation "intended to establish an area that will allow for the development of an industrial park that will demonstrate innovation and high levels of environmental and economic performance"

http://www.eip.hinton.ca/index.php?option=com_content&task=view&id=119

Design Guidelines

- The new zone is supported by flexible Development Guidelines. The guidelines – including both optional and required elements - allow developers the flexibility of meeting the EIPs' sustainability objectives in a manner that made the most sense to them.
 - » Guidelines based on extensive research into existing sustainability guidelines and practices

- » Guidelines reviewed by design professionals to ensure they would not unduly increase developer costs
- » One of the buildings included solar hot water heating, and another examined applicability of exploring geoexchange
- » Two similar businesses were able to realize a synergy around materials storage

Since EIPs entail additional performance requirements that are typically not found in zoning bylaws, OCPs or other plans, a set of customized design guidelines were necessary to facilitate green industrial development.

The process for creating the design guidelines involved researching other best practices in green development, including: eco-industrial design guidelines; Canadian municipal policies on green building and financial impacts, as well as green procurement; green infrastructure guidelines; energy and electricity requirements for industrial buildings; green business practices; and native plant considerations. The guidelines were also created to complement a new eco-industrial zoning designation.

The design guidelines were created to provide a mix of required and optional guidelines: a minimum number of guidelines must be met before a development permit is issued. This approach gives developers flexibility to be innovative in their designs. The guidelines are provided to developers and businesses in an easy to read, fully illustrated document, and feature a quick checklist to make it easy for developers to ensure they are meeting all the requirements. The guidelines were adopted by the Town of Hinton Council, and integrated into the existing municipal development process.

http://www.eip.hinton.ca/index.php?option=com_content&task=view&id=119

SUBDIVISION REGULATION

Subdivision Design Guidelines

The Town does not have specific Subdivision Design Guidelines. However, non-standard features were included in the subdivision plan:

- Public Utility Lot land use designation was applied to a central lot to allow it to be used for stormwater and wastewater infrastructure
- Negotiations with utility companies allowed utility rights of way to double as paths and vegetated buffers
- Additional easements, placed ‘under’ pedestrian paths, were dedicated to future piping to help businesses move materials and energy around

Area Plans

No Area Plan was in place or was put in place for Innovista.

ENGINEERING STANDARDS

- The Town approved deviation from its road standards to allow for a narrower carriage way (less pavement) that still facilitated the safe movement of vehicles
- The Town approved a deviation from its Minimum Engineering Standards for the cross-section of underground utilities, based on the rationale and credentials of the new wastewater collection system (SBS) technology to be used in Innovista
- Alberta Environment approved a reduction in required capacity for the design basis of the on-site wastewater treatment system
 - » The use of the SBS collection technology combined with design guidelines that require lot owners to use water efficient strategies were use to justify a lower per capita wastewater generation estimate
 - » This approach to infrastructure, called right-sizing, is an important means of moving towards sustainable infrastructure, helping to manage economic resources more efficiently, as well as reducing environmental impact, by minimizing resource use, from raw materials to land
 - » The Town was also willing to amend and enforce its own sewer use bylaw to place a wastewater discharge cap on the Innovista development
- The Town also asked Alberta Environment for a variance in the setback from the wastewater treatment plant, as the ecological design was believed to pose less risk and inconvenience to surrounding users than a conventional design

As a mill town, the Town does not own and operate its own wastewater treatment plant – the local mill does. Therefore, the Town needed a utility partner to support its plans for distributed wastewater treatment that would demonstrate a green technology and provide a source for non-potable water for businesses. Unfortunately, the Town and its chosen utility partner were ultimately unable to agree on a public-private partnership deal, and the wastewater treatment plant was not built.

EDUCATION AND OUTREACH

Staff Training:

- Multiple workshops and meetings with staff and council were held in the planning and design stages

Business Sector Consultation

- The Concept Plan incorporated feedback from industry one-on-one meetings, focus groups, and a public open house
- The development guidelines for Innovista were developed in consultation with industry and developers to ensure feasibility and buy in

Developer and Buyer Education

- A Developers Workshop was held to inform potential buyers about the eco-

industrial park, its features, the implications and advantages for developers, and how to buy land

- A Developers Resource Guide has been prepared to assist developers, designers, contractors, engineers, and business partners gain some familiarity with green buildings, eco-industrial networking (EIN) and related concepts, and the resources were selected with a developer's perspective in mind

<http://www.ecoindustrial.ca/hinton/index.html>

ECONOMIC DEVELOPMENT

Integration with Planning

Leverage Eco-Industrial Activity for Branding, Business Retention and Attraction

- The need for economic diversification beyond primary forestry was a key driver behind the Town's decision to build its eco-industrial park– the Town wished to attract a variety of progressive businesses
- Innovista being an eco-industrial park brings more value for prospective buyers, meaning more efficient infrastructure and a better workplace than conventional developments, and these advantages are in line with the Town's efforts to attract investments and employers

Official website: <http://www.eip.hinton.ca/>

Media Kit: <http://www.eip.hinton.ca/images/stories/pdf/abbreviatedmediakit.pdf>

Menomonee Valley Wisconsin, United States

INTRODUCTION AND CONTEXT

A mix of public and private sector partners are working to transform a 1200 acre swath of industrial brownfields within Milwaukee's urban core. The Menomonee Valley industrial site is located within the floodplain boundaries of the Menomonee River, and as such requires careful attention to flood and stormwater management issues.

The area had been underused for years, before private-sector interests worked with the City to come up with a plan for redeveloping and revitalizing the area into one characterized by i) high quality employment and economic development opportunities, and ii) sustainable industrial development. Collaboration between the private sector, the City, and economic development groups led to a sustainability charette, and led the development of a redevelopment strategy to create jobs near areas of existing high workforces and to restore environmental connections. Their efforts are focused at attracting high-quality, high-yield manufacturing businesses. Development will include industrial activity, a business park, some small-scale retail & services and public open spaces.



Although the focus of the Valley Land Use Plan is on environmental remediation and clean up, it still offers lessons for the Partners in Project Green businesses in terms of processes created for the project, as well as an ongoing focus on sustainable industrial lands and enhancing local ecosystems. Other lessons from Menomonee Valley include a substantial linking and harmonization of policies and plans that each reinforce different components of the overall vision, including low impact development, economic development targets, and enhancing surrounding ecological and watershed systems.

DEVELOPMENT REGULATION

Planning and Policy

- The City and Menomonee Valley Business Association jointly created a Land Use Plan (LUP) to establish a vision, principles, and action plan to redevelop the area

- The LUP emphasizes high quality and mixed use industrial development via policy recommendations to:
 - » Create a public-private partnership to oversee development efforts
 - » Change development regulations to accommodate anticipated range of industrial activity
 - » The City and other entities should share efforts attracting business to the area
 - » Review land uses to remove uses that reduce overall environmental and aesthetic quality
 - » Enhance the physical appearance of the region via attention to green spaces and public amenities.
 - » Create a BR&E plan
- One of the key recommendations of the Redevelopment Plan was to create a 'predictable, transparent and uniformly-applied regulatory process' to retain developer interest
- Sustainable Design Guidelines were created with input from businesses, property owners, building, design and real estate professionals, and developers to ensure they were appropriate to the area, and would support the project's economic development objectives
- The guidelines maintain a principle of transparency by noting that businesses may find up-front cost increases of up to 5 per cent, but that these will be recuperated in the long term
- Accompanying materials give further support for:
 - » Site-specific stormwater management
 - » Landscaping with native plants
 - » Energy efficient industrial facility design
 - » Construction and demolition management best practices



Development Regulation

- A pre-development program reduces risk, uncertainty and time involved for developers. For brownfield sites, the partners buy a parcel and undertake environmental testing, due diligence and remediation activity. They then create a marketing and reuse plan and selling it on the market.
- Prior to redevelopment, the entire area had a single industrial zoning designation which included undesirable conflicting with project goals, and also restricting the more flexible range of uses desired to attract higher quality development. These

zoning barriers were removed, and also adjusted to maximize buildable area by supporting shared parking and reduced setbacks

- The Redevelopment Authority has a checklist of items when reviewing development proposals to ensure it meets the MV principles, including:
 - » Does plan maximize land use & meet target site coverage?
 - » Minimize on-site parking by taking advantage of adjacent facilities (e.g. shared parking, stormwater management)?
 - » Building at minimum setbacks?
- The Department of City Development has dedicated officers to assign to help businesses through the development process

SUBDIVISION REGULATION

- The site layout is oriented to meet the Land Use Plan objectives of integrating with the surrounding neighbourhoods – this approach can also be adapted to meet sustainability objectives, such as maximizing solar gain
- Master Plan integrates open space, stormwater management & trails throughout the site

ENGINEERING STANDARDS

- Not applicable for this case study

EDUCATION AND OUTREACH

- A number of resources assist businesses in addressing local development concerns, including: guides to state-level environmental regulations, financial / funding opportunities, how to find appropriate consultants, stormwater management, etc
- Multiple partnerships (e.g. BIA, Redevelopment Authority, Menomonee Valley partners) support the LUP implementation by creating plans, policies and economic development objectives linked to the LUP vision and principles
- The Menomonee Valley Partners can put businesses and developers in touch with appropriate design professionals to provide advice in meeting the design guidelines

ECONOMIC DEVELOPMENT

- A Business Association & Business Improvement District (BID) to raise funds for redevelopment and revitalization was established

CASE STUDY

- The BIA was a partner in the Land Use Plan process, and the BID helps implement the Land Use Plan, via:
 - » Educating property owners on environmental issues identified in the Land Use Plan
 - » Creating financial opportunities for area-wide site improvements
 - » Promoting cleanup programs
 - » Liaising & negotiating with regulators that have an impact on implementing of the Land Use Plan
- The Redevelopment Authority created a sales process for businesses interested in locating in the area, directly linking development proposals to the project's economic development objectives. Businesses are evaluated according to a range of criteria, including:
 - » Capacity to meet job density targets for the area (e.g. 1.5 jobs/1,000 square feet)
 - » Minimum 30,000 square foot building is preferred, as well as manufacturing uses
 - » Hiring from local workforce
 - » Salary range meets targets established in local social sustainability plan
 - » Businesses are in sectors with projected growth
 - » Businesses that derive a competitive advantage from locating in the area (such as partnerships with local suppliers and access to local goods movement facilities)
- The City's planning & development department actively advertises and promotes land in the Menomonee Valley area

Devens Enterprise Commission Massachusetts, United States

INTRODUCTION AND CONTEXT

The Sustainable Devens project began with the need to redevelop a former air force base, which encompasses portions of four surrounding municipalities. Devens is about 4,400 acres in size, with mixed use development that includes industrial and office parks, residential nodes and some adaptive reuse projects. Some 1800 acres are retained for development and the rest is protected in range of open space features such as wildlife refuge, sustainably designed golf course and open space.

A sustainability charrette identified the community's support for a master plan for the redevelopment of the lands, the Devens Reuse Plan, and creating the "Devens Enterprise Zone" covering the entire site. The Reuse Plan includes goals for protecting the local aquifer, site remediation, implementing sustainable agriculture, implementing a comprehensive recycling strategy, and support for eco-industrial principles. The big picture approach makes it more likely that synergies between residential, agricultural, and industrial activity will be identified.

The Devens Enterprise Commission (DEC) was chartered by the State and given the mandate to oversee implementation of the Reuse plan and develop and administer bylaws. The DEC functions as a regional government that oversees and regulates all development in Devens, including in the local towns under its jurisdiction. It also allows a 'one stop' permitting process, where all development approvals are administered and regulated by the DEC.

More than 75 businesses and other organizations are now operating at Devens, representing business and industry, government, educational institutions, recreational developments, and residential communities.

DEVELOPMENT REGULATION

Planning and Policy

- Devens Open Space and Recreational Master Plan articulate a goal of achieving 33 per cent of site to remain in permanent protection from development
- The Reuse Plan calls for sustainability in the redevelopment of Devens, with an emphasis on protecting existing ecological features
- The Plan identifies a strong interest in promoting industrial ecology as one of the driving themes for business activity in Devens

Development Regulation

- Development regulations are linked to the strategic plan and centered on the principle of ‘reuse’. Development applications must demonstrate how the proposed project will meet the goals of the “Reuse” plan including:
 - » adding to the diversity of uses
 - » discussion of how project meets general intent of sustainability
 - » material contributions to sustainable economic activity and
 - » the range and diversity of skilled employment it offers
- Devens offers an expedited permitting process to maintain market interest, and may request additional studies or information to address specific environmental aspects of the development proposal
- Considering implementing a new ‘energy stretch code’ that will require 20 per cent to 30 per cent increase in efficiency in new buildings compared to the current International Building Code
- The Devens By-Laws build on sustainability objectives in the Reuse Plan, including: zoning, density, dimensional requirements, floodplain, water resource, historic district, signage, and wetland protection provisions
 - » For example, the Environmental Business Zoning District was created with language to support eco-industrial activity (such as ordinance encourages by-product or process exchanges)
- Zoning by-law encourages developers to consider innovative development strategies – for instance, the Commission can approve zero setbacks and relax other dimensional restrictions if it will help a project achieve its stated innovative potential
- Development approvals including evaluation of how proposed project reduces impacts and allows for more efficient provision of services
- Businesses may build physical connections between buildings to facilitate collaboration so long as vehicle and pedestrian access is not impacted
- In reviewing applications, the DEC may seek outside assistance from professional architects and/or engineers if necessary (this approach ensures review is not part of the applicant’s costs)

SUBDIVISION REGULATION

- Development regulations support for innovation in site design, including clustered development
- Devens makes use of design guidelines to help meet sustainability objectives

ENGINEERING STANDARDS

- Devens Industrial Performance Standards include air quality, noise and vibration, wetlands protection, earth removal, stormwater management, and water resource protection
- Water harvesting is encouraged as part of each site's stormwater management strategy
- Department of Public Works provides free recycling to businesses as incentive to reduce waste, and they negotiated the recycling contract on behalf of all businesses

EDUCATION AND OUTREACH

The EcoStar program was created to help implement eco-industrial activity in Devens, by providing an award system for participating businesses. The program consists of a set of 25 standards, of which participants agree to meet a minimum number. The program is designed to reduce impacts as well as costs within a business, and beyond (by exerting influence further up the supply chain), and addresses spheres of activity that aren't possible via policy and regulatory tools, such as: business to business networking (such as by-product exchanges), employee training, analyzing packaging requirements, and review of product design. The program acts as an incentive by offering certification, which businesses can use in their marketing and branding efforts.

The Commission is also planning to complete a Solid Waste Master Plan, which will examine the provision of collective waste disposal, by-product exchange facilitation, and reuse/recycling services to all businesses and residents of Devens. Devens has also established sustainability indicators, some of which are impacted by EIN, such as renewable energy use or solid waste recovery.

As a result of business consultation, the Devens Eco-Efficiency Centre was established in 2008. The Centre's mission is to implement sustainable business practices within Devens, and assist companies in becoming more economically and ecologically viable.

ECONOMIC DEVELOPMENT

- Developers must give priority to existing businesses in Devens before marketing lots to the broader public
- Municipalities noted a need increase their input into the regional business recruitment strategy, to ensure it was properly aligned with municipal interests expressed in the Reuse Plan
- Financial incentives:
 - » Devens offers a 15 per cent rebate on permit fees up to a maximum of \$10,000 for green building projects
 - » Permit fees are waived for renewable energy systems

CASE STUDY

- » DEC is working with state funding agency to create a revolving loan to offer businesses for energy efficiency retrofits
- » Although not an incentive, Devens has considered investigating the use of higher permit fees for development that does not meet green standards, but has not pursued this as yet due to low interest from business community for such an approach

Synergy Industrial Park Ipswich, Australia

INTRODUCTION AND CONTEXT

The Carole Park Industrial area near Ipswich, Australia, is a long established industrial area in the region. When the region underwent a decline in industry and manufacturing, the state and local governments formed a partnership with a private developer. The resulting partnership helped the state develop a new eco-industrial park as part of a larger strategy to acquire new industrial lands, and to attract and retain businesses in the region.

In 1998, the state and private development partner began the planning and development of a 37 ha eco-industrial park – the Synergy Industrial Park (SIP). Key to the project was the creation of the Synergy Unit Trust (SUT) – an alliance of industry groups to give input on park concept and to market the park, and negotiate leasing to individual companies – essentially, to function as a regional economic development corporation. The SIP was envisioned to attract and support a targeted industry sector – the food and beverage manufacturing sector, and supporting industries (such as pharmaceutical and packaging). The project sought to identify common infrastructure, service and facility needs between to provide shared services where possible.

As a result, the SIP features shared infrastructure systems to service all the businesses in the park, include a co-generation facility, a central shipping and receiving warehouse, and a planned wastewater pre-treatment facility. The infrastructure systems are located in a single area of the park, and clustering and co-location of businesses is encouraged through policy and direction by the development managers for the park. The SIP features other supporting uses and amenities, including a central cafeteria and childcare facility. Medical facilities and professional office space are planned for future expansion of the existing facility.

DEVELOPMENT REGULATION

Planning and Policy

- The municipal partnership with the state had considered developing an energy park to take advantage of the airport, but it never progressed due to lack of supportive planning regulations
- The Queensland Department of State Development (Provincial government) established policy support industrial development through:
 - » State-level advocacy for shared infrastructure and clustering to promote synergies between businesses

- » Shift in focus to land use impacts rather than regulating uses
- State-level policy created regulatory opportunity to support eco-industrial projects by linking economic development, infrastructure planning and land use planning to environmental management, and the reuse of industrial waste materials
- The SIP was developed by taking advantage of broad policy directions within the existing land use framework. In particular, the Ipswich Eastern Corridor Structure Plan (IECSP is similar to an Official Plan) provides strategic directions for development in the region, and includes industrial policy objectives relating to:
 - » Environmental management
 - » Green space
 - » Employment and economic development
- The IECSP provides detailed planning principles for the ‘business & industry’ land use designation that include:
 - » Low impact and high quality design
 - » Aim to attract Small & Medium Enterprises and a variety of tenants
 - » Investigate opportunities for promoting renewable and clean energy production
 - » Investigate opportunities for taking advantage of industry co-location to support innovative energy servicing options
 - » Opportunities for shared outdoor amenities (such as parking and access)
 - » Landscape buffers between surrounding uses
- The IECSP is accompanied by additional detailed design and performance regulations in an area plan for the industrial park area
- The SIP has customized form and character regulations (zoning), and the designation includes expectations around desired levels of performance and impacts
- The SIP has development guidelines (development code) addressing Environmental Protection Authority recommendations, and includes performance criteria, such as support for wastewater recycling and energy efficient industrial development

SUBDIVISION REGULATION

- Development in the SIP is guided by a Master Plan in which layout is based on shared needs of the target industry sectors
- Strong emphasis on low impact development around interface / boundary edge of SIP and surrounding community uses

- Other site design features included:
 - » Industrial sites with minimal geotech needed for construction
 - » Sites to accommodate a range of building sizes
 - » Adequate vegetated buffer to adjacent sensitive uses
 - » Infrastructure services easements
- The project accounts for the rehabilitation of open space via an open space management strategy
- A central warehouse allows each business to reduce their development footprint by making use of this common facility instead of each requiring warehouse space in their own facilities

ENGINEERING STANDARDS

- The SIP takes a utility island approach—infrastructure systems are co-located to support district distribution systems, and to facilitate future synergies
- Utilities and target business sectors were consulted to determine what common infrastructure services would benefit these sectors; this resulted in an opportunity to design shared infrastructure systems, including a wastewater pre-treatment facility and a co-generation plant
- A waste-water pre-treatment plant was only developed after a few anchor industries had already located in the park so that the designers could determine demand for the facility
 - » Businesses send industrial effluent to the pre-treatment facility before it goes to the municipal system (this reduces the land and investment required by each business since wastewater pre-treatment needs are addressed at the common on-site facility, and not on their lots)
 - » Pre-treated wastewater is sent to the municipal sewer system, and remaining clean industrial effluent is reused throughout the park for non-potable applications

EDUCATION AND OUTREACH

- In hindsight, it was noted that there was greater opposition, drawn out construction schedules and loss of competitive advantage from beginning public engagement process later in the project planning process rather than sooner
- The project led to a multi-stakeholder group including local and state government, community members, economic development departments and utilities, to reduce impacts on adjacent uses

- In hindsight, it was noted that not having fast track approval process might have been responsible for a loss of interest from companies and investors

ECONOMIC DEVELOPMENT

- Subdivision design was optimised to increase return on investment (for example linked design to needs of target business sectors)
- The Synergy Unit Trust (SUT) was created to act as regional economic development corporation and manage leases with businesses in the SIP
- The SUT also develops some properties and leases them out to interested businesses
 - » The SUT targeted business sectors that were identified in the state's economic development strategy
 - » The SUT developed contracts to allow businesses flexibility in order to address their concerns around using a central warehouse rather than their own facilities