



# GUELPH INNOVATION DISTRICT

COMMUNITY DESIGN WORKSHOP | CITY OF GUELPH, ONTARIO

p

planningAlliance

09.15.2011

A

# AGENDA

- 6 pm Introduction
- 6:10 Presentation 10-15 minutes
- 6:30 Break-out Group Overview
- 6:40 Break-out Groups
- 8:30 Report Back
- 8:50 Next Steps



# PRESENTATION OUTLINE

Introduction

Vision + Principles

Design Approach

Area Structure Plan

Precedent Review

Alternative Design Option A + Option B

Application of the Principles

Building + Testing the Options

Sustainable Design

Questions

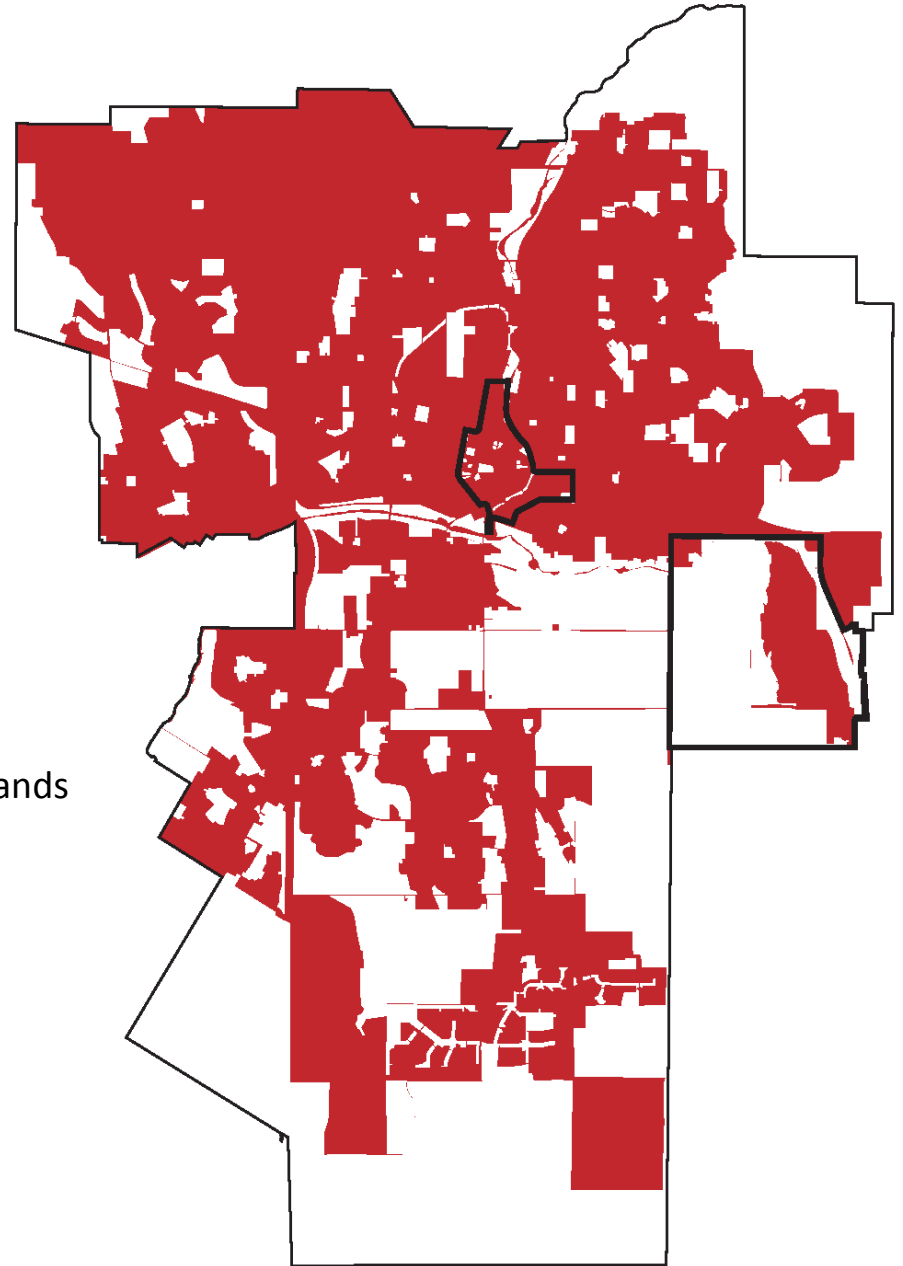


# INTRODUCTION

What is the GID?

## The GID Represents:

- 5% of Guelph's Total Area and
- 15% of Guelph's Undeveloped Lands
  
- 8850 Ha: Guelph Developed + Protected Lands
- 7550 Ha: Developed + Protected Lands
- 1300 Ha: Developable
  
- 454 Ha: Guelph Innovation District Lands
- 248 Ha: Developed + Protected Lands
- 206 Ha: Developable

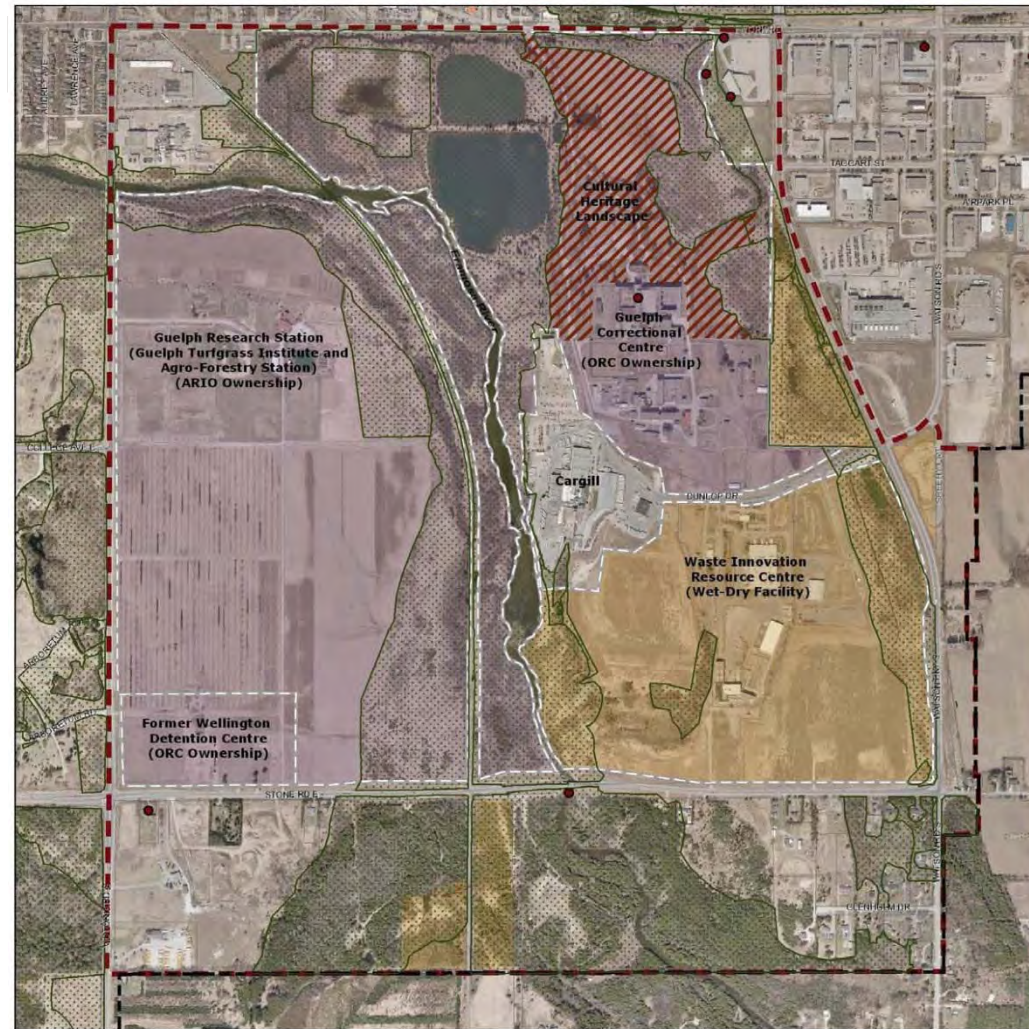




# INTRODUCTION

## How did we get here?

- **Early 2005:** Began work on Secondary Plan
- **End of 2005:** Phase I Background Report and Phase II Land Use Concepts Report completed
- **April 2007:** Council directed staff to use “York District Preferred Land Use Scenario”
- **2007:** Project paused to allow Province to conduct research
- **April 2008:** Urban design charrette - Two hybrid land use concepts presented
- **June 2009:** Community workshop - presented work completed and introduced key connections between Secondary Plan and other Guelph initiatives including Prosperity 2020, Agri-innovation Cluster and Community Energy Initiative
- **February 2010:** Council workshop – discussed draft vision, planning and design principles, and governance issues for the lands
- **July 2011:** Council Information Session



### Legend

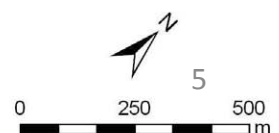
- Guelph Innovation District Study Area
- Major Ownership Boundaries
- Natural Heritage System (January 2010)
- Corporate Boundary

### Heritage Resources

- Cultural Heritage Landscape (Excluding the Natural Heritage System)
- Cultural Heritage Resources

### Parcel Ownership

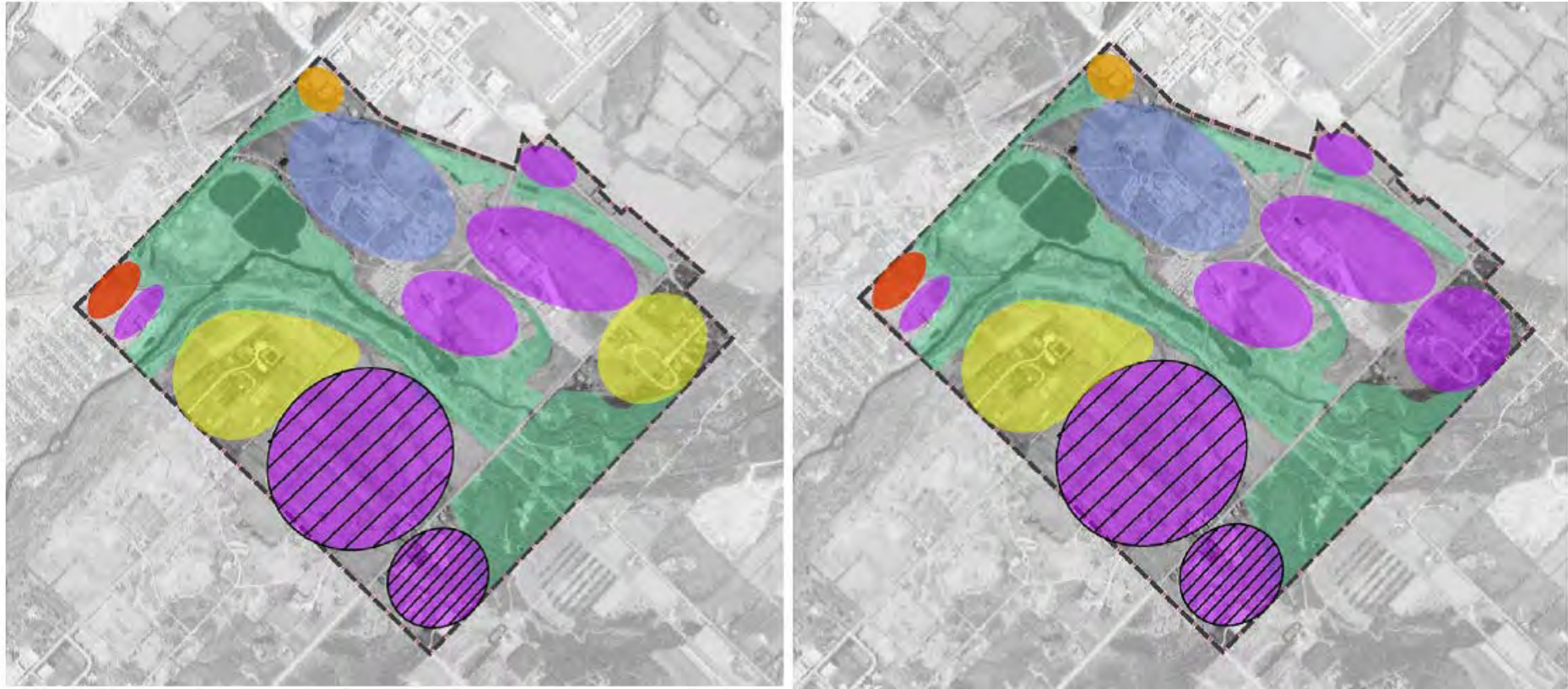
- Privately Owned
- City Owned
- Provincially Owned





# INTRODUCTION

Our Reference Point: Phase II Land Use Concepts (April 2008)



## Legend

- site boundary
- orange neighbourhood commercial
- yellow service commercial
- blue institutional
- purple with diagonal lines employment mixed use
- purple industrial employment
- yellow residential mixed use
- green greenlands

# INTRODUCTION

## What is our direction?

The Secondary Plan is to be structured around policies contained within:

- Guelph Growth Management Strategy
- Official Plan
- Prosperity 2020
- Agri-Innovation Cluster
- Community Energy Initiative

The formation of a Secondary Plan is expected to take one year.

Today we are exploring the two alternative design options towards:

- Generating public feedback on the options
- Generating ideas on refinements of the options



# INTRODUCTION

## Project Integration Highlights

### **Local Growth Management Strategy**

An opportunity to create a compact mixed use community and focus residential growth within an urban village

- Guelph Innovation District Contribution
  - 3,000 – 5,000 people
  - 8,000 – 10,000 jobs
- Density Requirements
  - 50 persons/jobs per ha in “Greenfield Area”

### **Economic Development Strategy**

An opportunity to support Prosperity 2020 which includes an Agri-Innovation Cluster

- Diversify Guelph’s economy and help balance residential and employment tax base by providing employment lands
- Support and strengthen agri-innovation sector

### **Community Energy Initiative**

An opportunity to strive for carbon neutrality

- Local energy generation and distribution
- Mixed land uses, transit supportive densities, pedestrian orientated development
- Green building design



# VISION

## Vision for the Guelph Innovation District

The Guelph Innovation District (GID) is highly innovative and intimately familiar, for it showcases an entirely new approach to planning, designing, and developing urban places, and at the same time reflects Guelph's history and celebrates the rich heritage resources of the District.

It is beautiful, pedestrian-focused and human-scaled. It provides a fine-grained mix of land uses at transit-supportive densities, offers meaningful places to live, work, shop, play and learn, and supports a wide range of jobs and residents. It features sustainable buildings and infrastructure and works towards carbon neutrality. It makes needed connections for all modes of transportation, but in a manner that prioritizes pedestrians, cyclists and transit users while stitching the District into the overall fabric of the City.

It is exciting and new and feels like it has been part of the City for a long time.



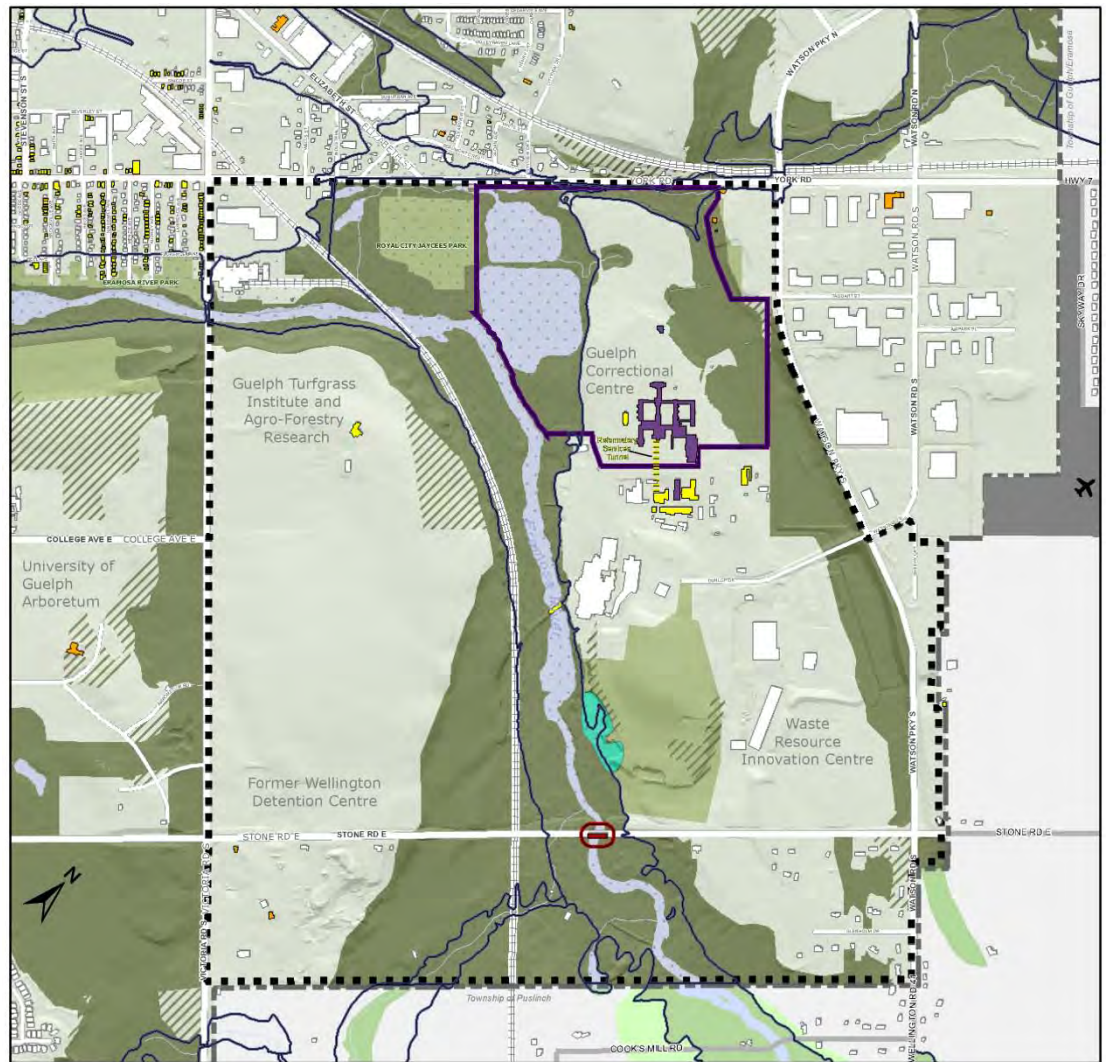


# PRINCIPLES

## Natural + Cultural Heritage

Protecting What is Valuable to create a place that respects our natural and built heritage making us stewards of our resources for current and future generations.

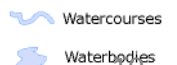
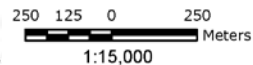
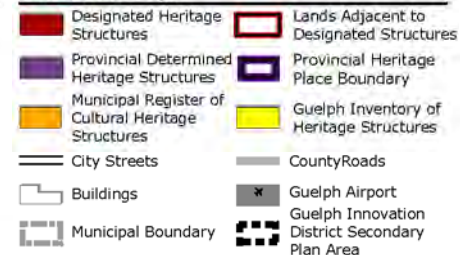
- Preserve and enhance the NHS
- Respect existing topography and site lines
- Ensure public access to NHS and Cultural Heritage
- Integrate the NHS and Cultural Heritage with land use
- Encourage the preservation and adaptive reuse of cultural heritage resources
- Create a sustainable natural heritage system



### Natural Heritage System, Open Space and Parks



### Cultural Heritage

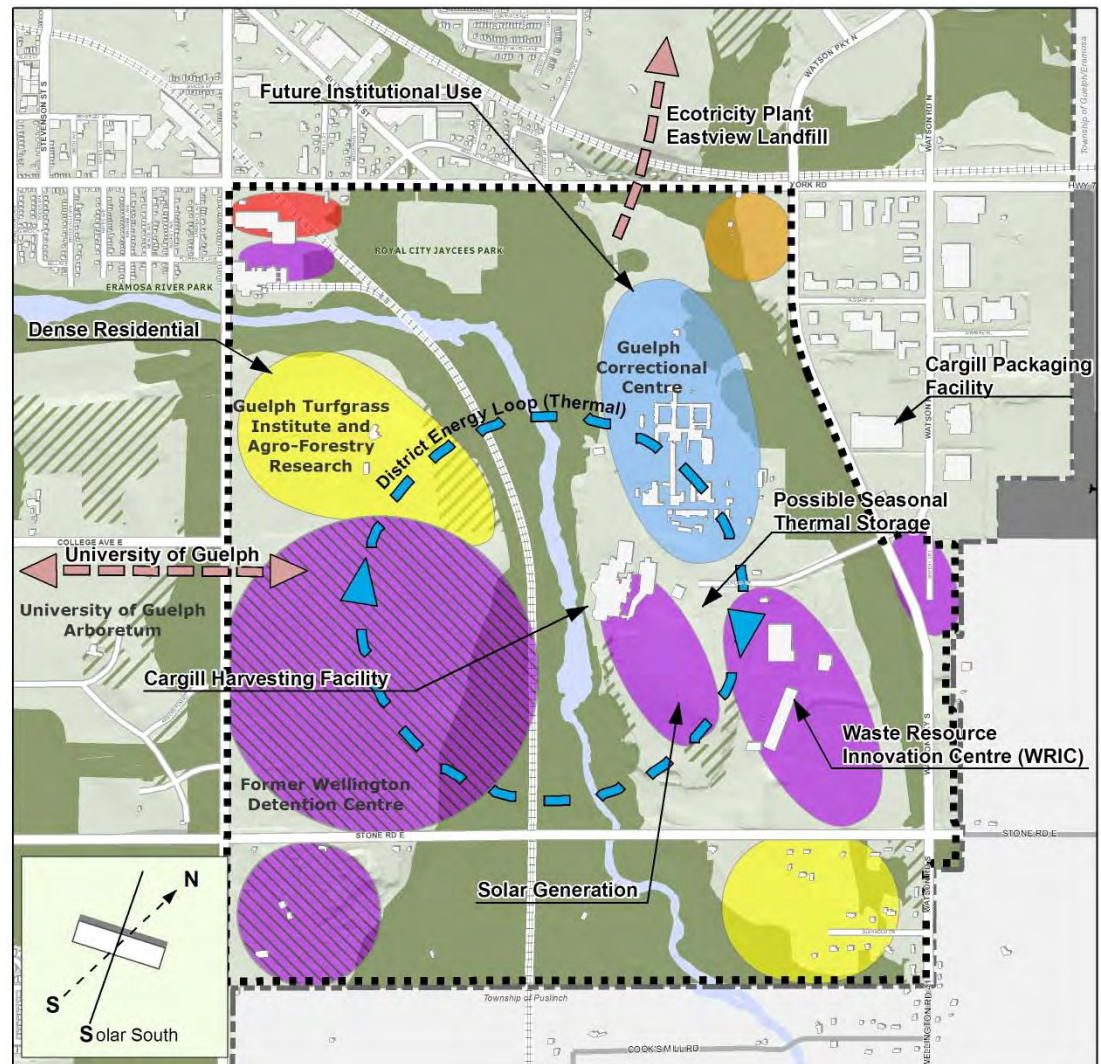


# PRINCIPLES

## Energy, Infrastructure and Sustainability

**Building Green** infrastructure that is efficient, focuses on renewable energy sources, and supports an integrated distribution system enabling a carbon free lifestyle.

- Create framework for carbon neutrality
- Support development of an integrated energy distribution system
- Support cradle-to-cradle processes (e.g. industrial ecology)
- Include strategies to conserve and manage energy, water, wastewater, stormwater and solid waste
- Develop model community that showcases sustainable, low impact urban development
- Serve as a learning environment for other communities



### Conceptual Land Use

- Employment Mixed Use
- Industrial Employment
- Institutional
- Neighbourhood Commercial
- Residential Mixed Use
- Service Commercial

### Natural Heritage System

- Natural Areas
- Significant Natural Areas

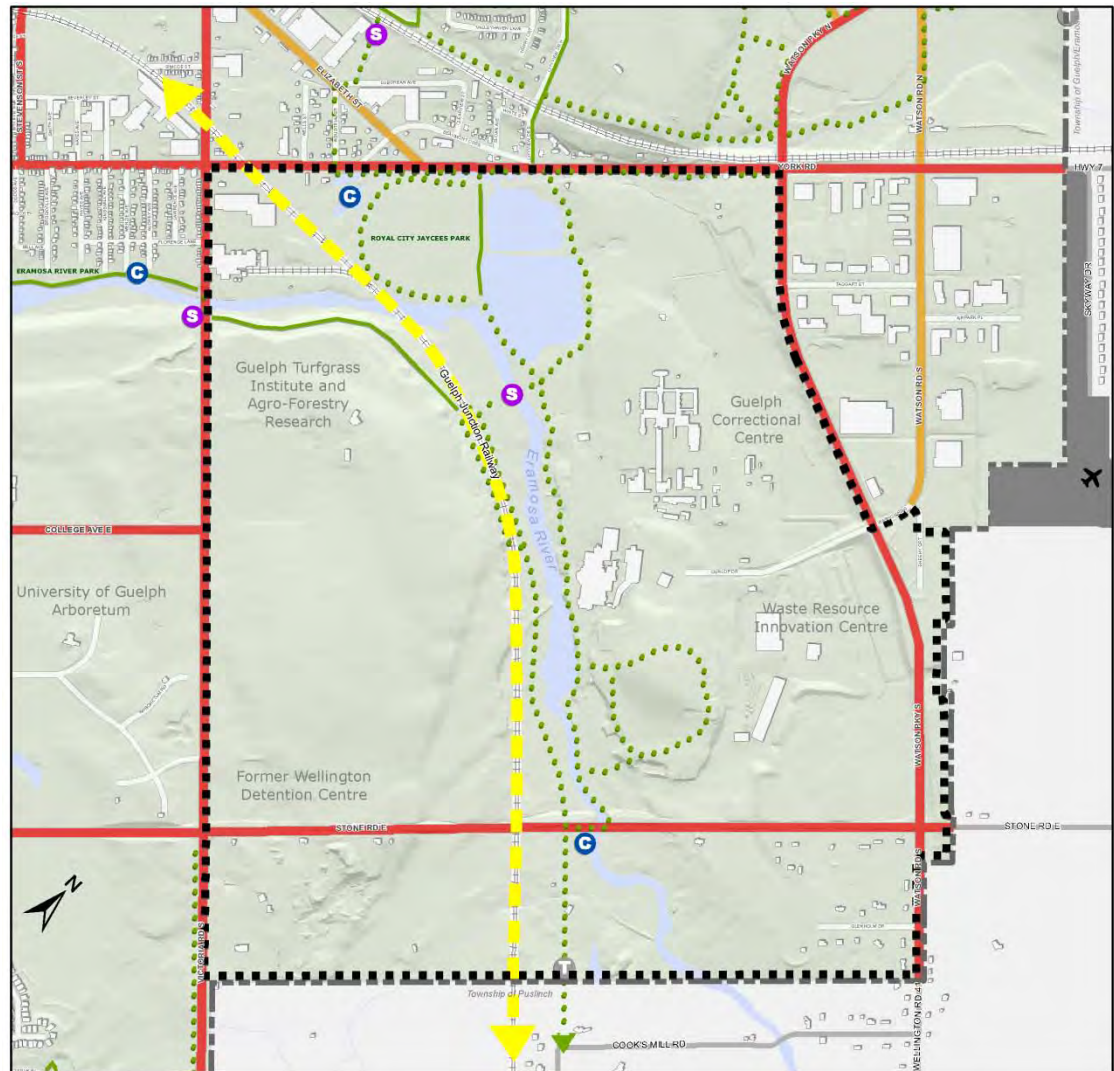


# PRINCIPLES

## Mobility

**Making Connections** that serve the community, allow us to walk to our daily needs, and provide us with convenient transit services to access broader activities.

- Integrate the new community with the City
- Provide a transportation system that serves the new community
- Transit-Oriented Design
- Provide universal access
- Build new connections for all users (e.g., bikes, pedestrians)
- Integrate the Guelph Junction RR
- Ensure sufficient transportation capacity within the network



### Mobility Framework

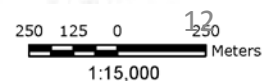
#### Roads & Rail

- Arterial Street
- Collector Street
- Local Street
- Railways
- Proposed Passenger Rail and Existing Goods Movement

#### Trail Network

- Existing Trails
- Proposed Trails
- Structure Required
- Canoe Launch and Node
- Trail Gateway

- Watercourses
- City Streets
- Buildings
- Municipal Boundary
- Waterbodies
- County Roads
- Guelph Airport
- Guelph Innovation District Secondary Plan Area

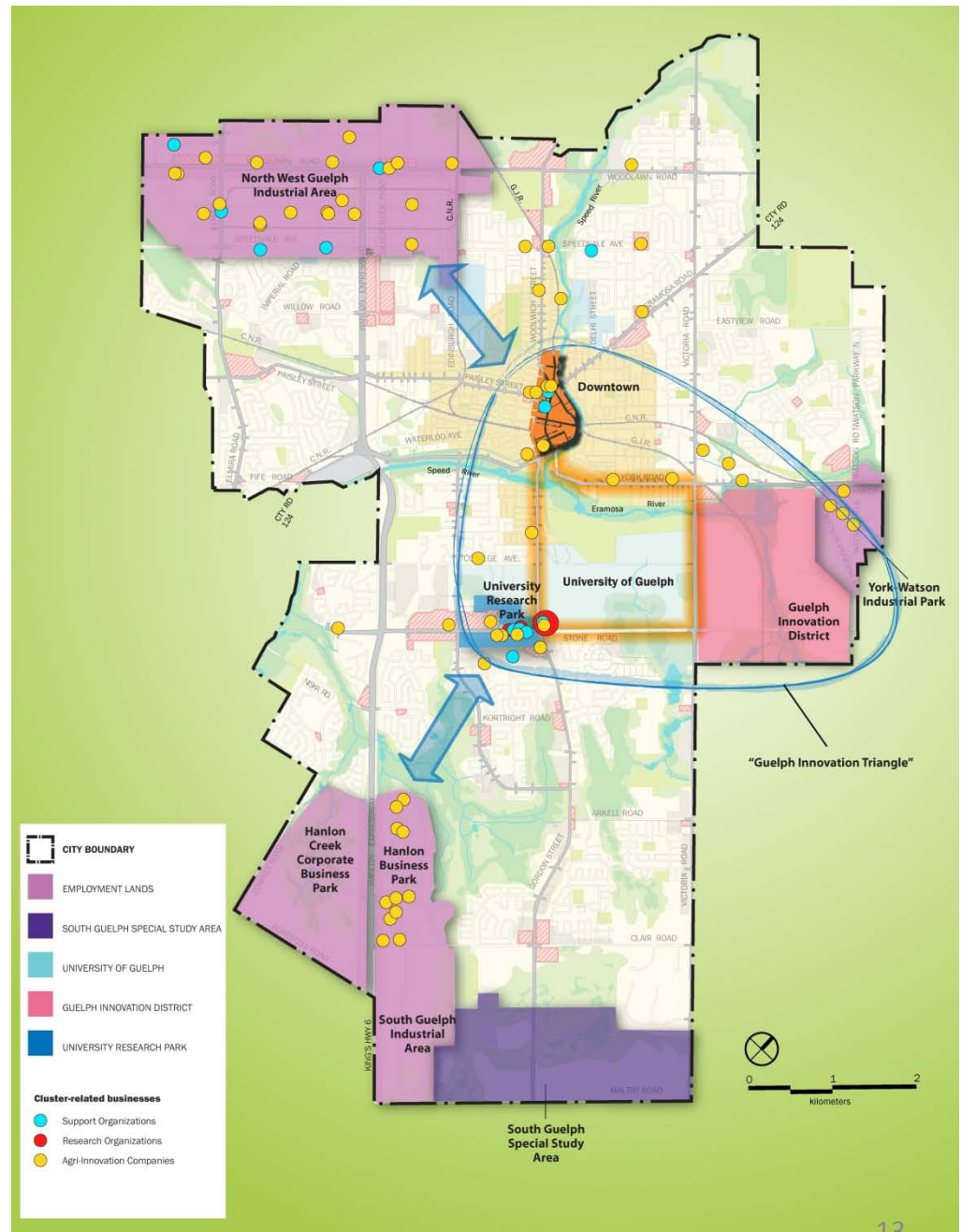


# PRINCIPLES

## Community Design

**Creating Meaningful Places** to bring people, activities, environment(s) and ideas together, creating a sense of arrival and inclusion.

- Create a District of landmark quality
- Define gateways and community focal points (nodes)
- Create a cohesive, efficient and vibrant transition area that will provide common supportive uses
- Define a block and parcel fabric that knits uses together and defines edges
- Create an accessible network of public facilities, parks and open spaces
- Respect the beaux-arts design of the cultural heritage



# PRINCIPLES

## Land Use Density + Diversity

**Mixing it Up** to create vibrant, resilient, and efficient spaces that make it possible, easy, and enjoyable to reduce our ecological footprint.



- Create an integrated, compact, mixed-use community
- Achieve transit supportive densities with human scale built form
- Promote mixed use developments in appropriate locations that provide three or more vertically integrated uses
- Provide for a significant number and variety of jobs with a range of employment uses
- Define a flexible block and parcel fabric that encourages evolution over time





# DESIGN APPROACH

## Process

- Preparation of two alternative design options were guided by the Vision and Principles.
- A common Area Structure Plan established critical elements that were retained within each of the design options.
- The designs were informed through a precedent review of a range of employment, residential and mixed use centres.
- Precedents served as building blocks for the formation of block patterns and building typologies in each of the options.

### Residential



**75 UNITS/HA = 100% DESIRED DENSITY**

The GID is targeting a residential density of 75 units per hectare.

### Employment



**145 JOBS/HA = 100% DESIRED DENSITY**

The GID is targeting an employment density of 145 jobs per hectare.

# DESIGN APPROACH

## Area Structure Plan

- Area Structure Plan contains main developable areas and core open space to be considered within the site.
- A natural + cultural heritage system, infrastructure framework, strategic connections and viewsheds are all depicted within the Area Structure Plan.
- Area Structure Plan also stresses connectivity with adjacent neighbourhoods.
- The topography continues to inform the overall layout of each alternative design option.
- Area Structure Plan served as the foundation for two alternative design options, each containing common design elements such as an urban village, mixed use employment and industrial blocks.



# AREA STRUCTURE PLAN

## NATURAL + CULTURAL HERITAGE SYSTEM

- GID Study Area Boundary**  

- Natural Heritage System**  

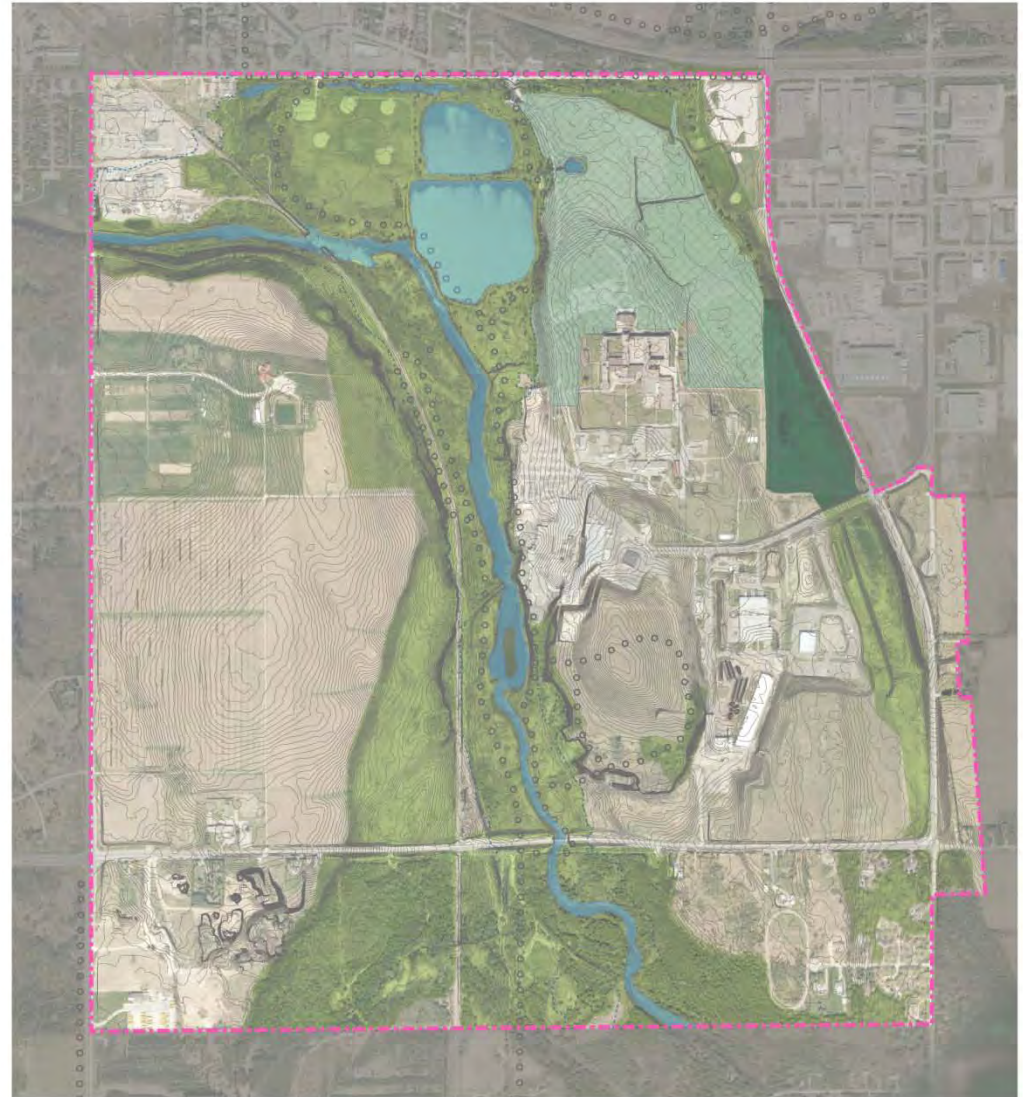
- Cultural Heritage Landscape**  

- Stormwater Management Ponds**  

- Waterbodies**  

- Trail Network**  

- Contours**  

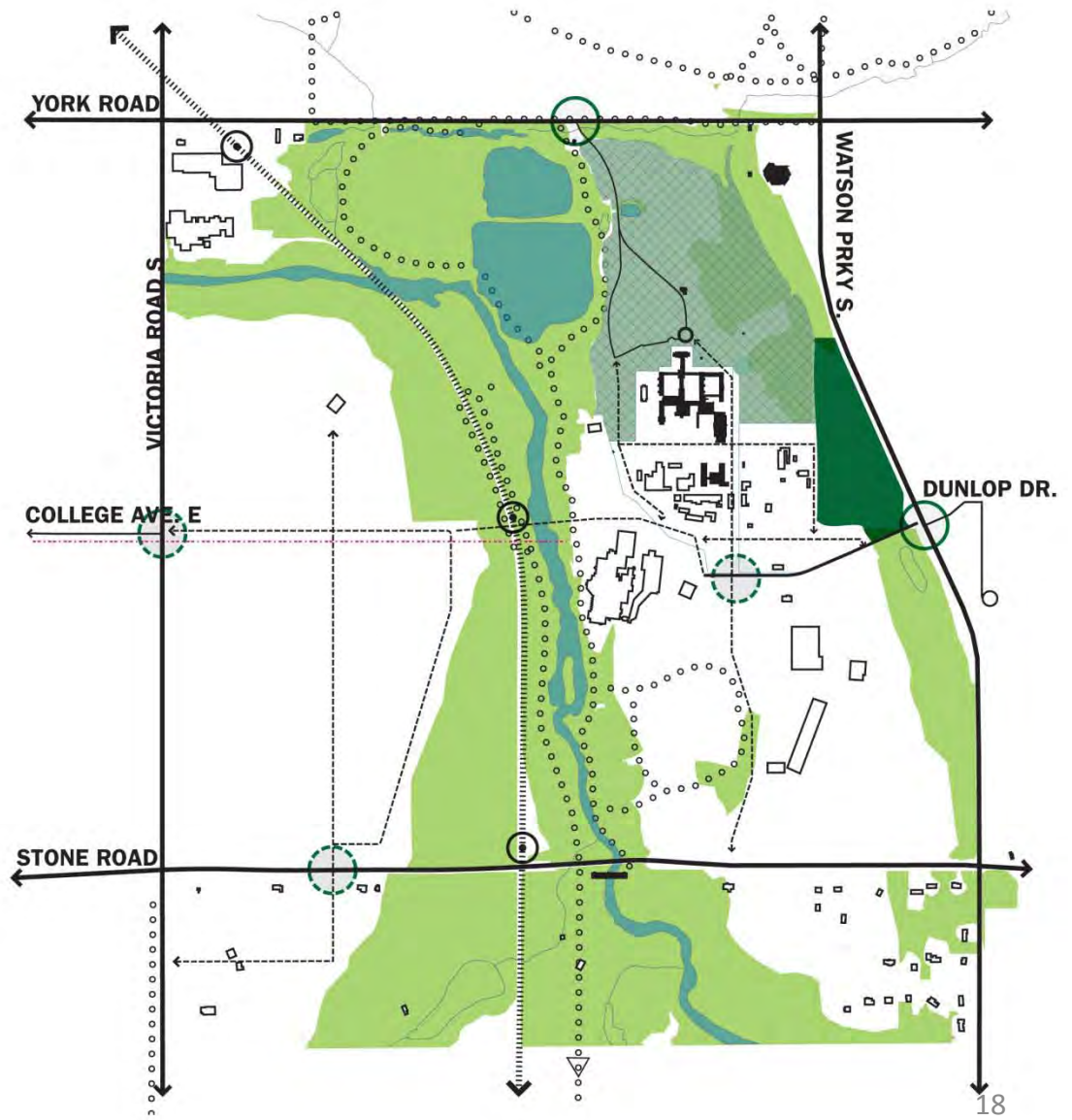





# AREA STRUCTURE PLAN

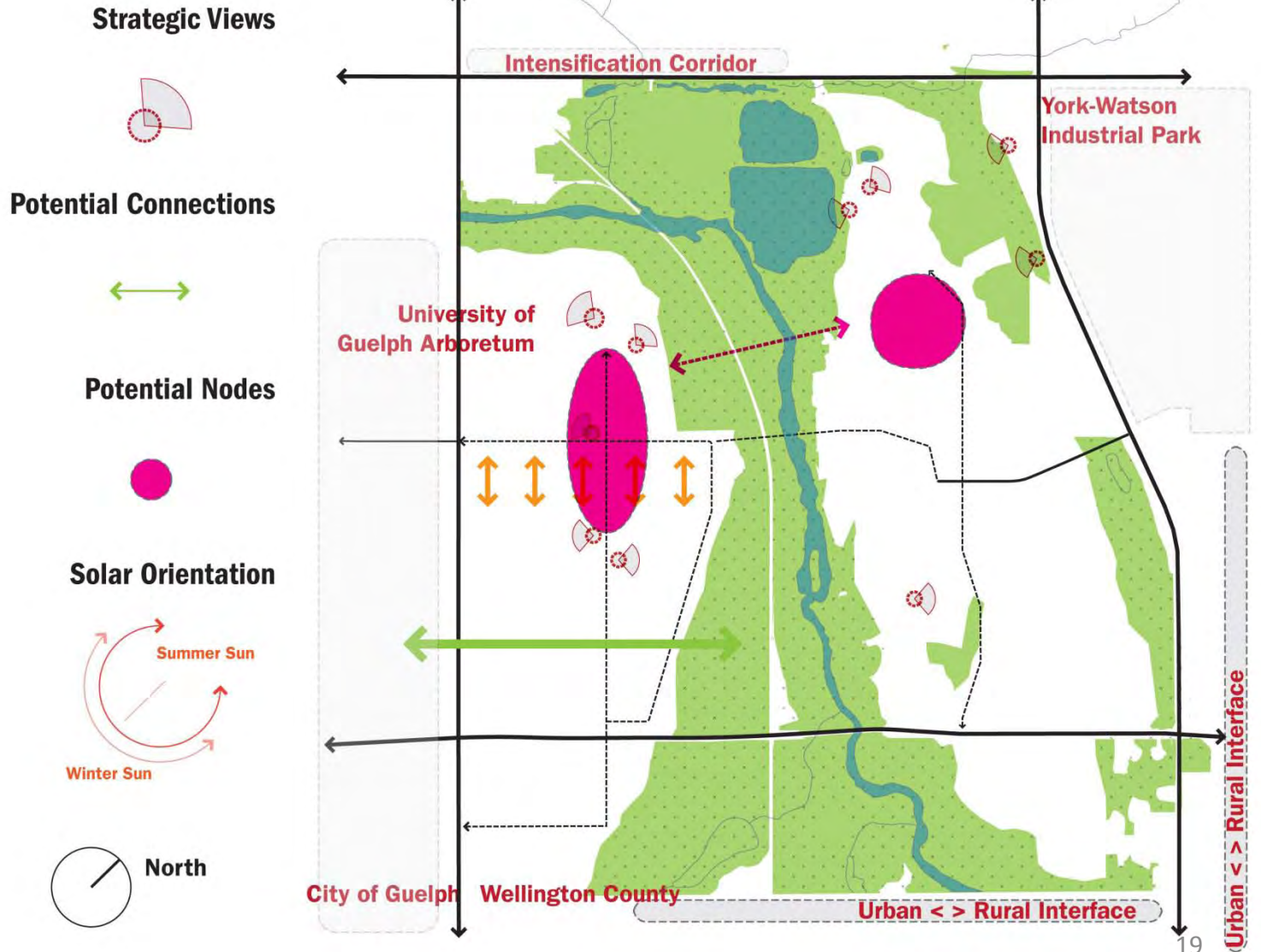
## INFRASTRUCTURE FRAMEWORK

- Arterial Roads**  
—————
- Collector Roads**  
—————
- Potential Roads**  
- - - - -
- Existing Gateways**  
○
- Potential Gateways**  
○
- Existing Hydro Corridor**  
- - - - -
- Guelph Junction Railway**  
.....
- Potential Mobility Hubs / Platforms**  
○
- Existing Built Form**  
□
- Heritage Built Form**  
■



# AREA STRUCTURE PLAN

## CONNECTIONS + VIEWSHEDS





# AREA STRUCTURE PLAN ..... FINAL

## Guelph Innovation District AREA STRUCTURE PLAN

### Open Space Framework

- City of Guelph Boundary
- G.I.D. Study Area Boundary
- Natural Heritage System
- Cultural Heritage Landscape
- ANSI Areas
- Stormwater Management Ponds
- Waterbodies
- Floodline

### Infrastructural Framework

- Arterial Roads
- Collector Roads
- Potential Roads
- Existing Gateways
- Potential Gateways
- Existing Hydro Corridor

- Trail Network
- Proposed Pedestrian Bridge
- Canoe Launch
- Major Staging Area
- Minor Staging Area
- Trail Gateway

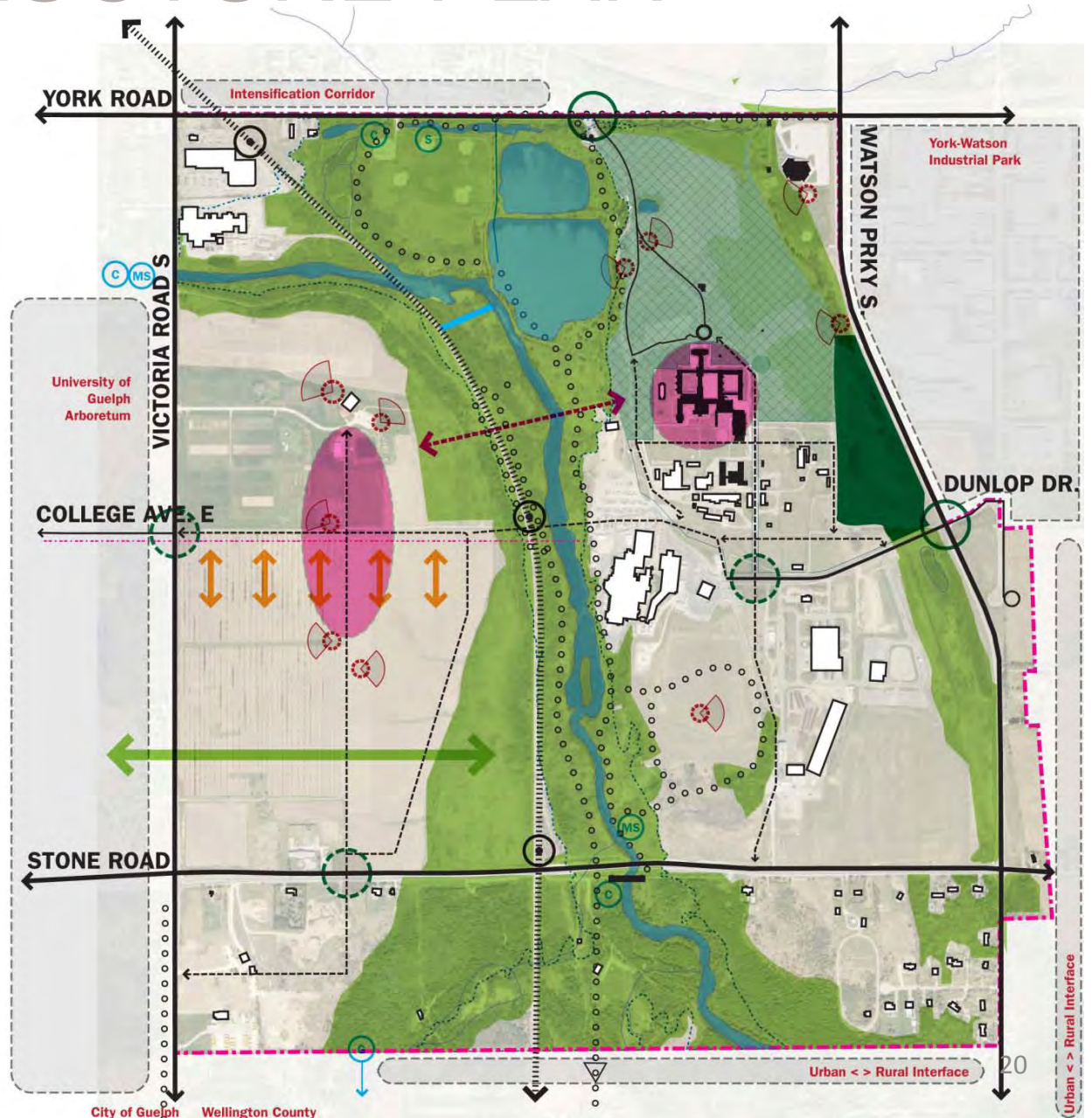
- Guelph Junction Railway
- Potential Mobility Hubs/Platforms

- Existing Built Form
- Heritage Built Form

### Opportunities

- Strategic Views
- Potential Connections
- Potential Nodes

- Solar Orientation





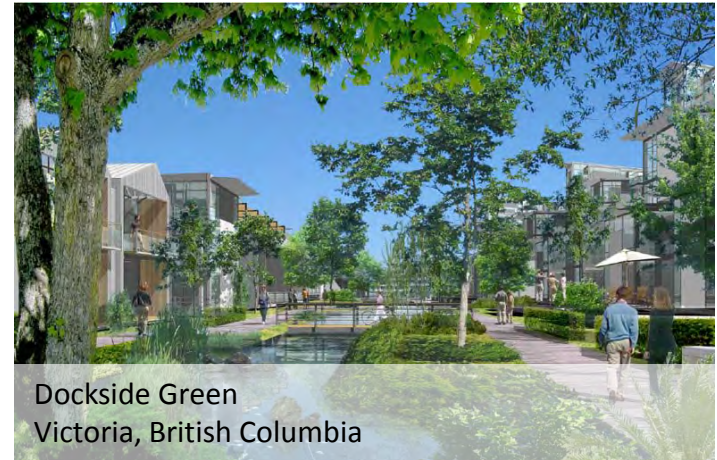
# DESIGN APPROACH

## Precedent Review

- A wide spectrum of precedents were reviewed to inform development of the options, including:
  - Eco-industrial areas
  - Mixed use employment areas
  - Campus business parks
  - Residential developments
- The form and density of these developments were assessed and used to guide the design of the signature block layouts and road patterns in each option.
- Precedents established density thresholds necessary to meet employment and residential targets that would establish the public realm within the site.
- Precedents became critical “building blocks” in the design process.



Kalundborg Eco-industrial Park  
Kalundborg, Denmark



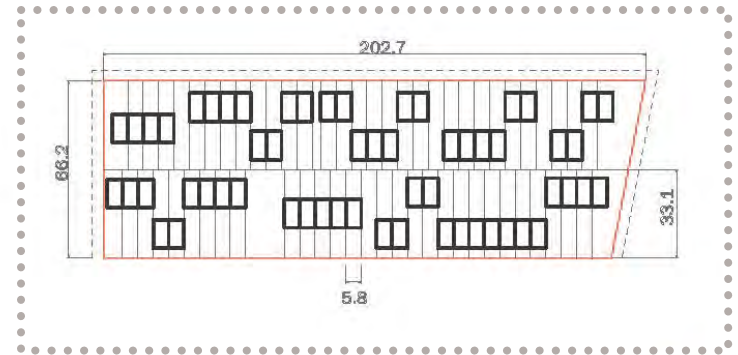
Dockside Green  
Victoria, British Columbia



Innovation Place Research Park  
Saskatoon, Saskatchewan

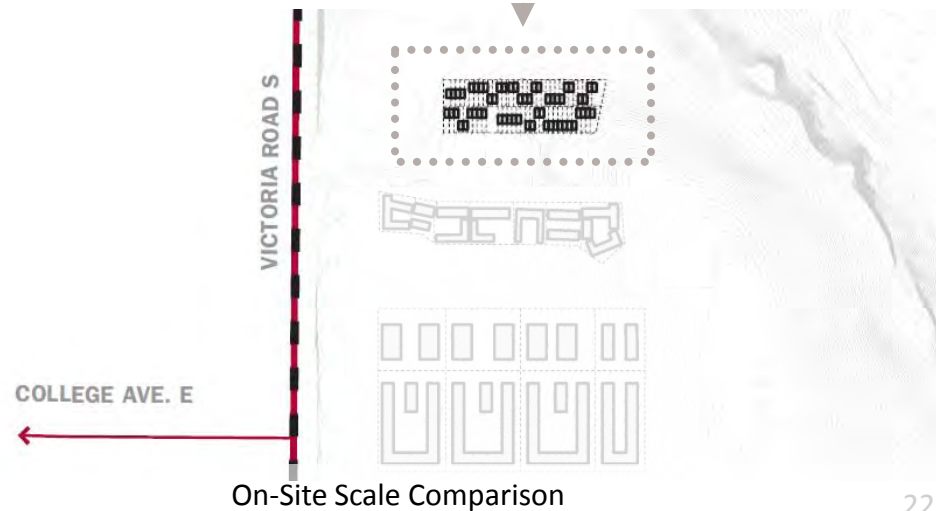
# PRECEDENT REVIEW

**Low Rise Residential:** Ypenburg Low-Rise Residential (Netherlands)



Blocks

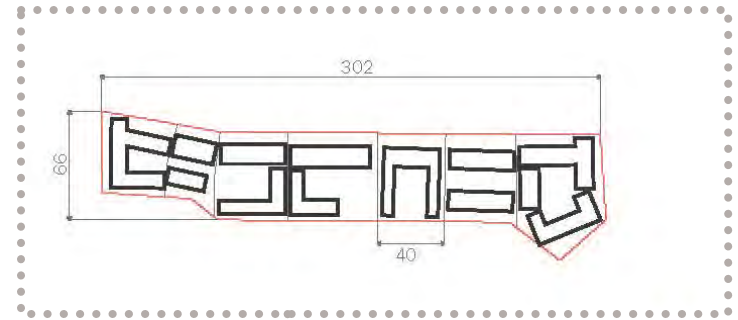
  
45 UNITS/HA  
**56%** DESIRED DENSITY





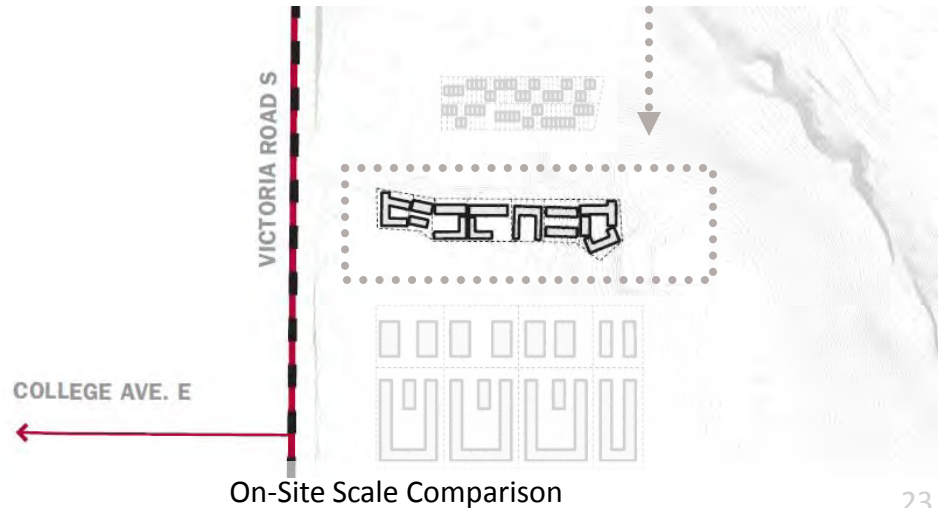
# PRECEDENT REVIEW

## Mid + High Rise Residential: Bo01 Housing Block (Sweden)



Blocks

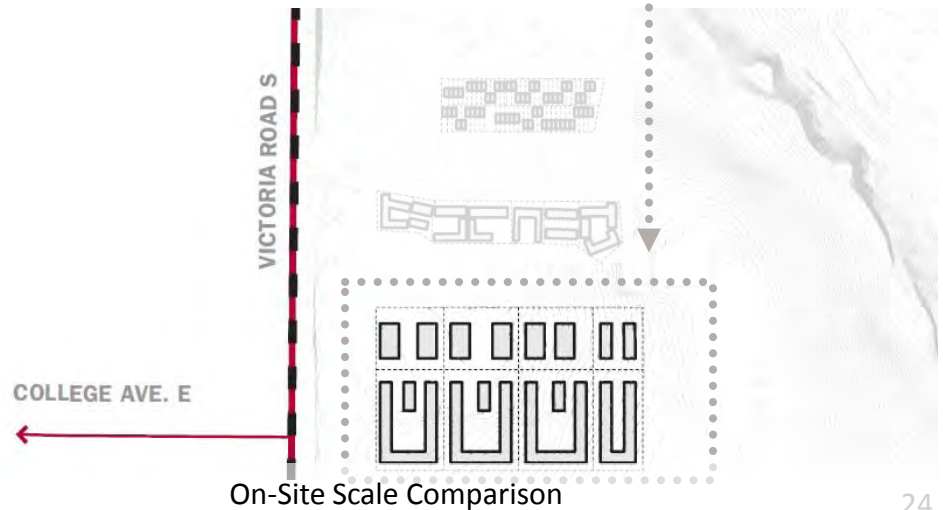
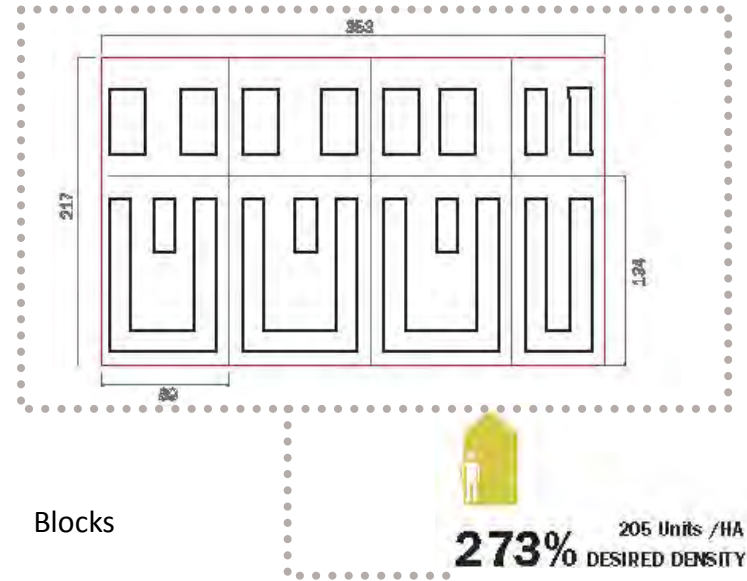
  
**184%** 105 UNITS/HA  
DESIRED DENSITY





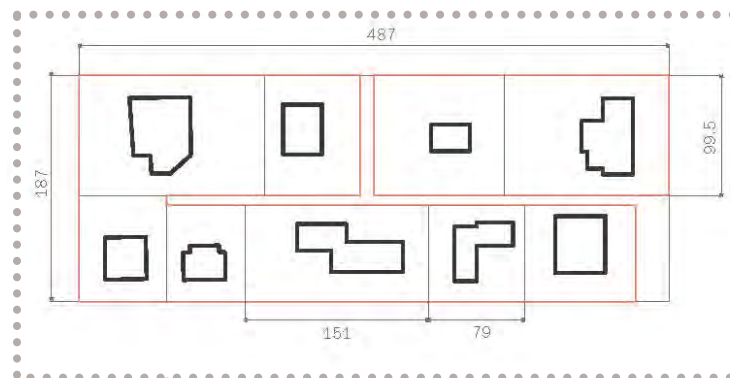
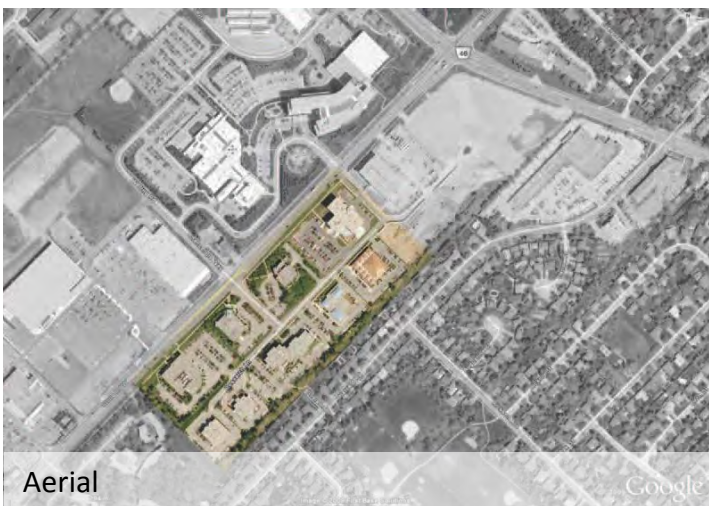
# PRECEDENT REVIEW

## Mid + High Rise Residential: Hammarby Sjostad (Sweden)



# PRECEDENT REVIEW

## Employment (Non-Industrial): Guelph Business/Research Park



Blocks



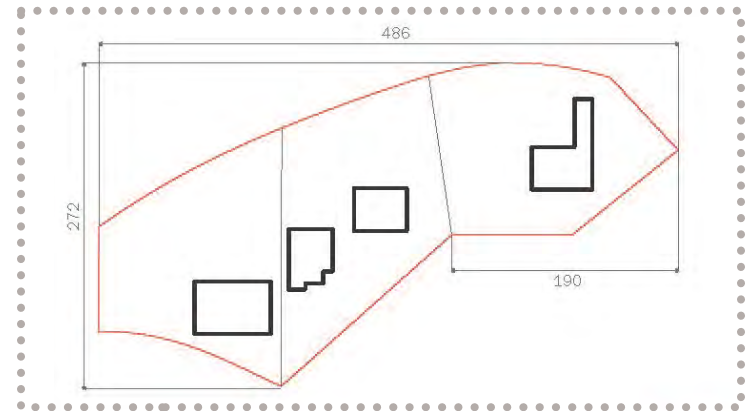
**105%** 153 Jobs / HA  
DESIRED DENSITY





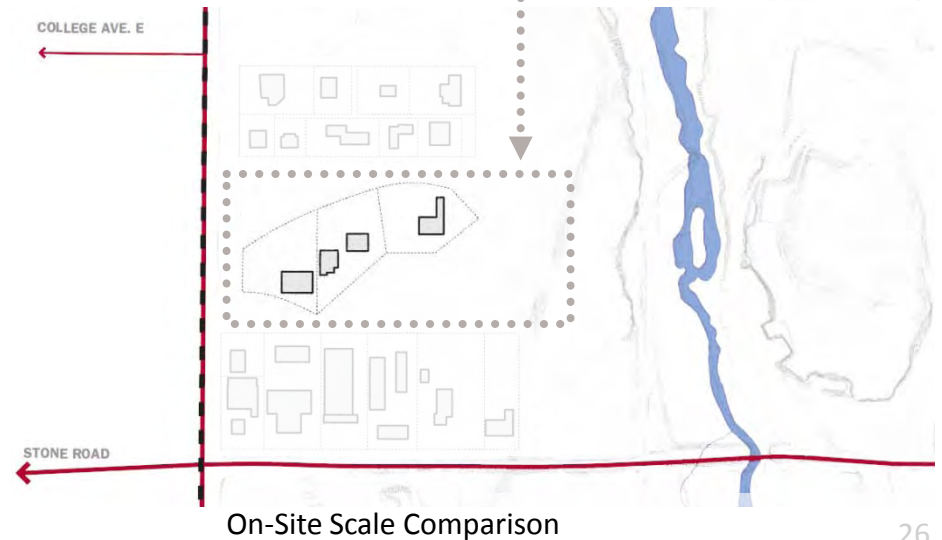
# PRECEDENT REVIEW

## Employment (Non-Industrial): Green Park (Reading, England)



Blocks

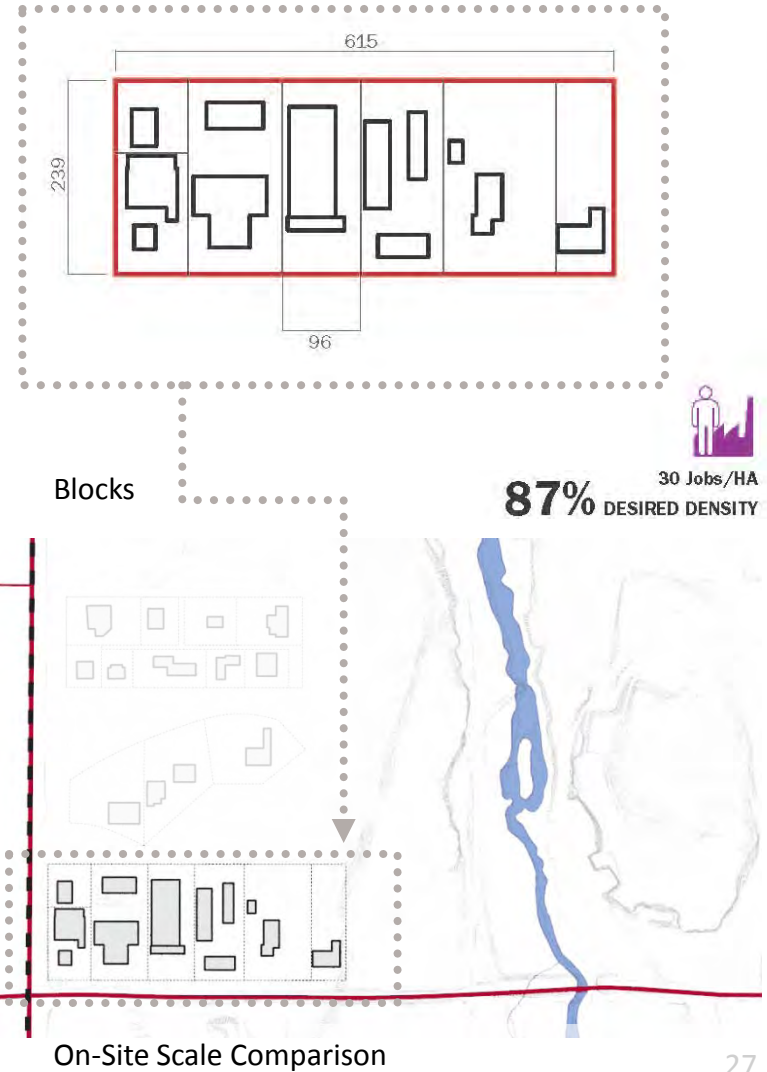
**112%** 162 Jobs / HA  
DESIRED DENSITY





# PRECEDENT REVIEW

**Industrial:** Guelph Industrial Site: Northwest (Speedvale Ave W)



# ALTERNATIVE DESIGN OPTION A

## The Green Grid

- The design of Option A was initiated with the principles of enhancing the natural and cultural heritage components of the site
- The design of Option A was also influenced by the historic development patterns of central Guelph and infrastructure efficiencies gained within a grid network
- The ensuring Green Grid contains linear open space that permeates the site providing accessibility for pedestrians and cyclists
- College Avenue forms the primary spine of the development in the west as a mixed-use corridor connecting the Arboretum and the Eramosa River.
- A series of tree-lined streets, boulevards and linear open spaces integrate recreational spaces, existing roadways, and local infrastructure

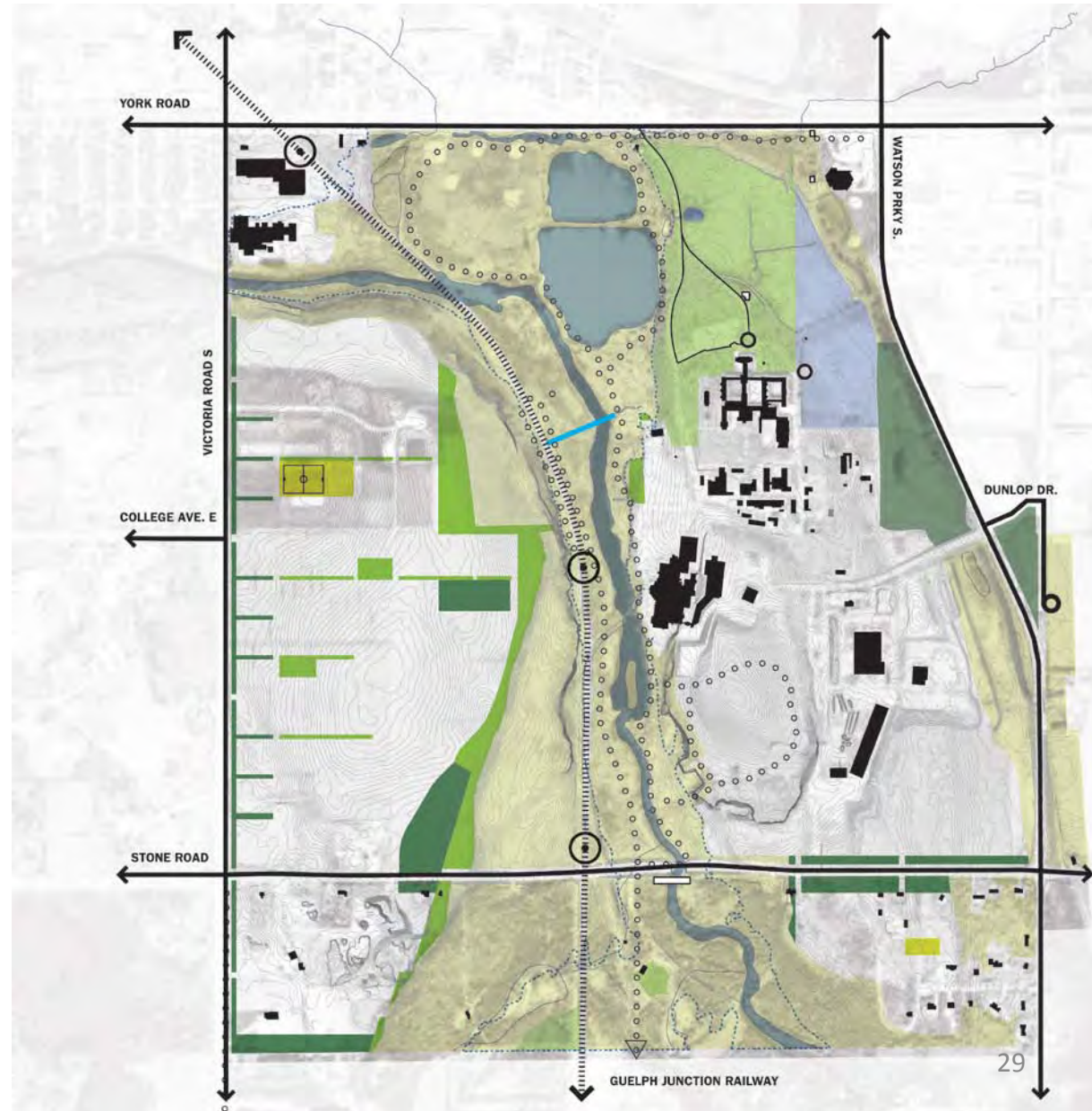




# ALTERNATIVE DESIGN OPTION A

## Open Space Framework

- The Green Grid network of parkettes, paths and storm water facilities provide east-west linkages between the Arboretum and Eramosa River
- Linear open space elements will become integrated with the local pedestrian network

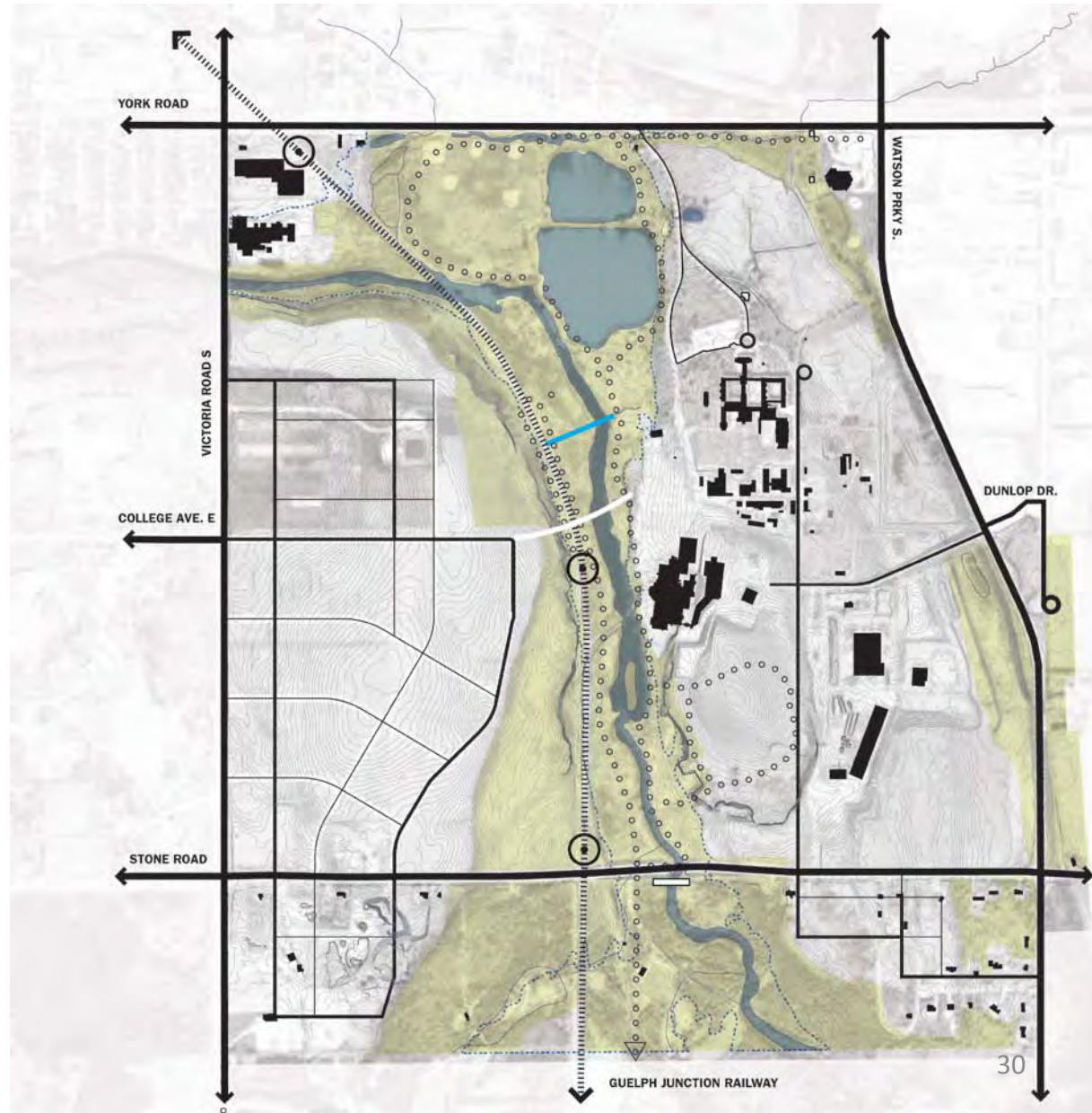




# ALTERNATIVE DESIGN OPTION A

## Circulation

- Access to the western portion will be from College Avenue and Stone Road
- Access to the eastern portion will be by access points off of Watson Parkway and a new access off of Stone Road
- Transit will form a key component of the grid primarily along the main arterials and along the rail corridor
- Local roads could serve as limited access roads



# ALTERNATIVE DESIGN OPTION A

## Land Use

### Centre

#### *Urban Village*

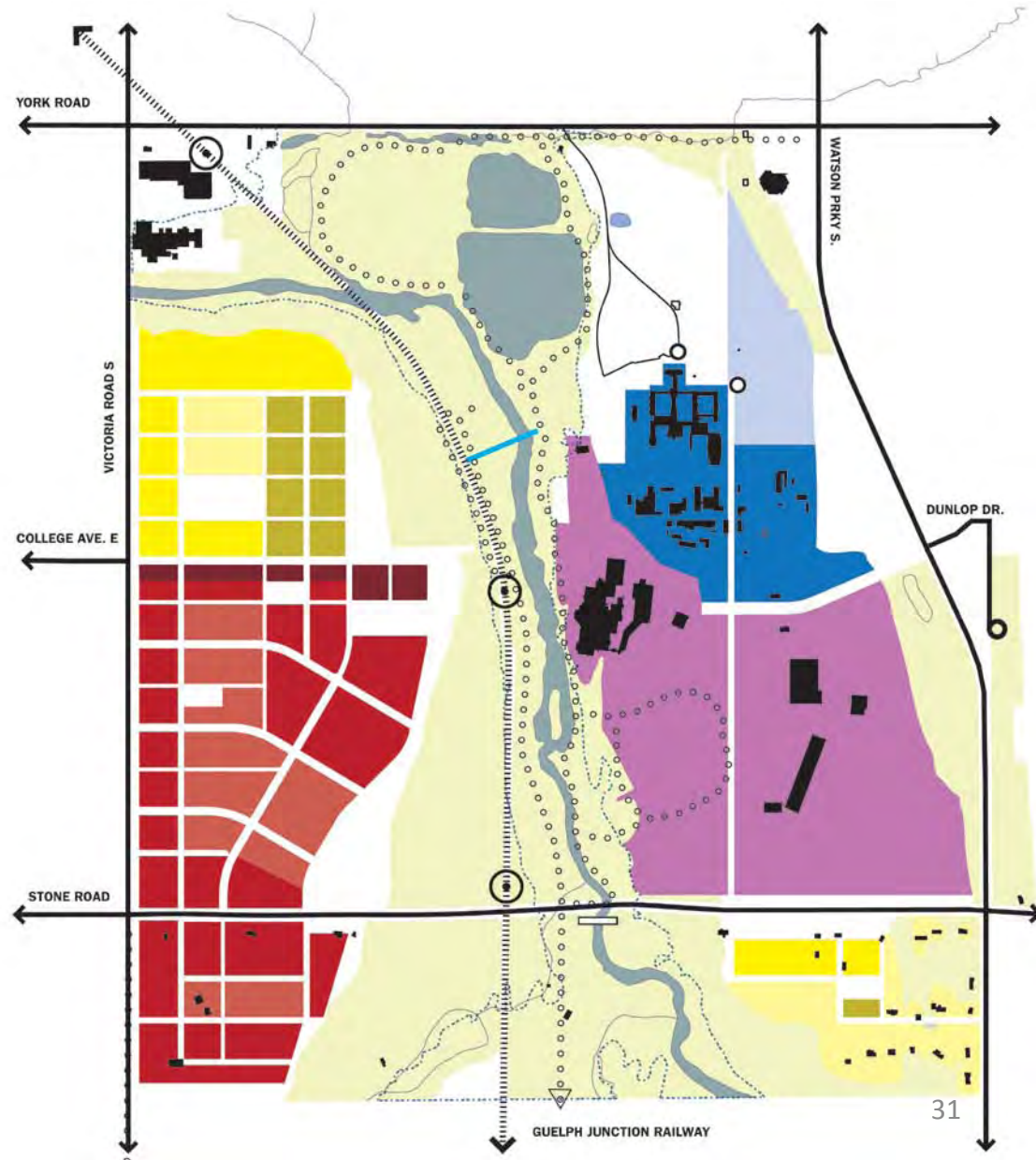
- Option A's urban village is fronted on three sides by mixed-use development while overlooking the Eramosa River

### Density

- Higher lot densities are positioned around the periphery of land use divisions and adjacent to arterial roads.

### Corridors

- Along College Avenue a transition of densities and land uses provide for an important spine that defines the site.





# ALTERNATIVE DESIGN OPTION A

## Guelph Innovation District LAND USE OPTION A : 2 HECTARE GRID

### Open Space Framework

	Area (Ha)
Natural Heritage System	170.1 Ha
Cultural Heritage Land	19.5 Ha
Recreation	2.1 Ha
Green Network	12.6 Ha
Storm Water Management	19.1 Ha
Waterbodies	
Floodline	

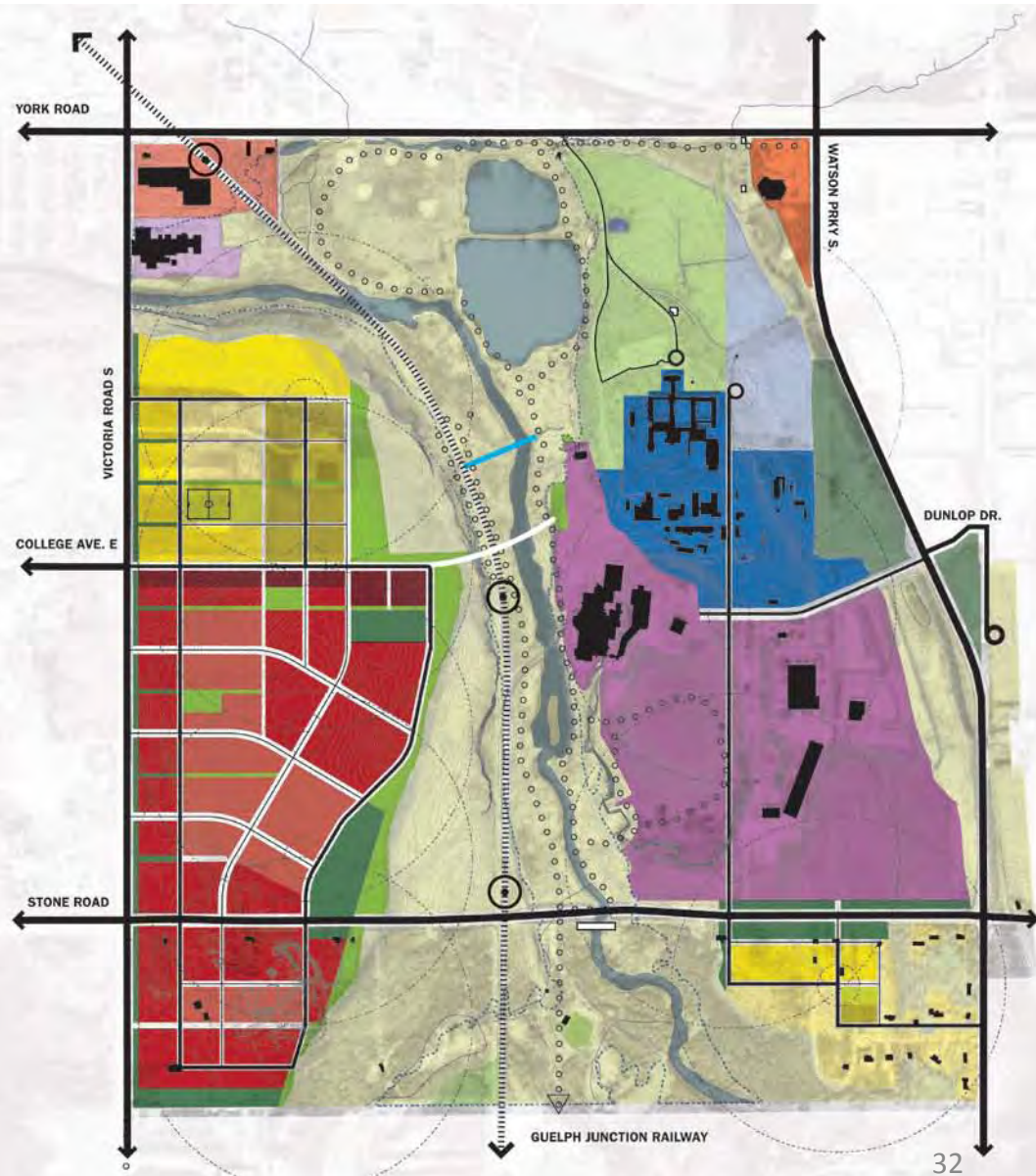
### Infrastructural Framework

Right Of Ways	
Arterial Roads	
Collector Roads	
Hydro Corridor	
Trail Network	
Proposed Trail Rail + River Crossings	
Proposed Public Transport Stops (5 minute walking radius)	
Existing Rail	
Proposed Mobility Hub	
Existing Built Form	
Heritage Built Form	

### Land Use Framework

Low-Rise Residential	12.3 Ha
Mid-Rise Residential	14.4 Ha
High-Rise Residential Mixed Use	6.5 Ha
Work / Live	2.5 Ha
High Density Employment Mixed Use	33.5 Ha
Mid Density Employment Mixed Use	15.6 Ha
Industrial Employment	61.0 Ha
Neighbourhood Commercial	5.7 Ha
Service Commercial	3.1 Ha
Adaptive Re-Use	20.1 Ha
Urban Agricultural	8.2 Ha

### Areas





# ALTERNATIVE DESIGN OPTION B

## Follow the Land

- The design of Option B was influenced initially by the preservation of existing natural heritage and respecting the existing topography using contours and landforms to define road placement and intersections.
- The resulting curvilinear street pattern is a low-impact alternative that follows the land and minimizes the amount of cut and fill and grading requirements
- Land Use and Densities are defined by a unique block and parcel fabric that maximizes adaptability to accommodate solar-oriented block patterns
- The design of Option B also retained key viewsheds while aligning higher density along College Ave.

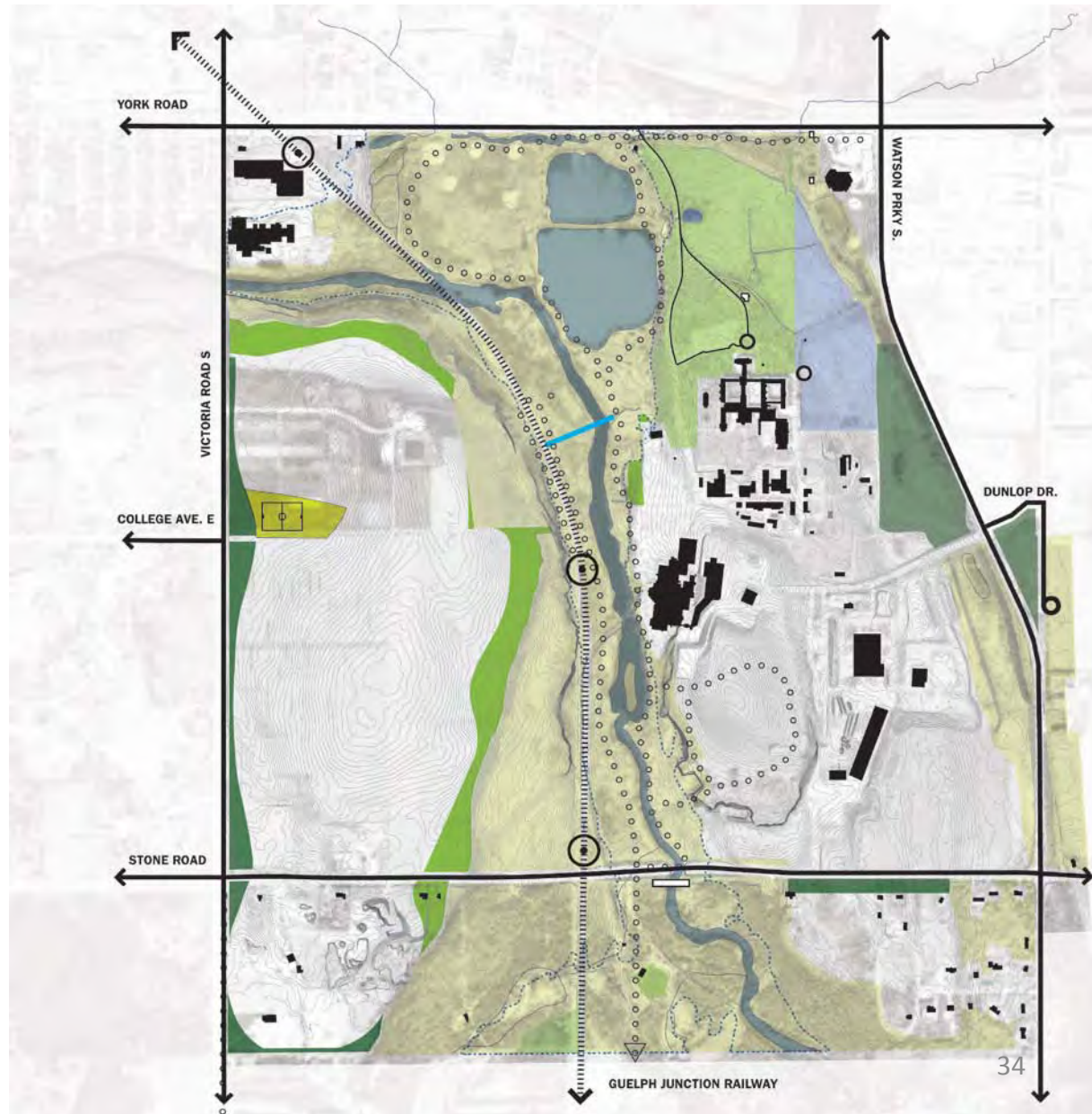




# ALTERNATIVE DESIGN OPTION B

## Open Space Framework

- Surrounding and buffering the development is a continuous band of green space and storm water management facilities that expand and contract to create a variety of exterior spaces
- The green perimeter surrounding the western portion insulates the site and softens the edges along Victoria Road



# ALTERNATIVE DESIGN OPTION B

## Circulation

- All road routings in Option B follow the natural slope of the site
- The primary road through the development runs along high ground, affording views back to Guelph's downtown and across the Eramosa River
- Fewer connections to Victoria Road ensure swifter traffic movement along the main exterior arterials





# ALTERNATIVE DESIGN OPTION B

## Land Use

### Centre

#### *Urban Village*

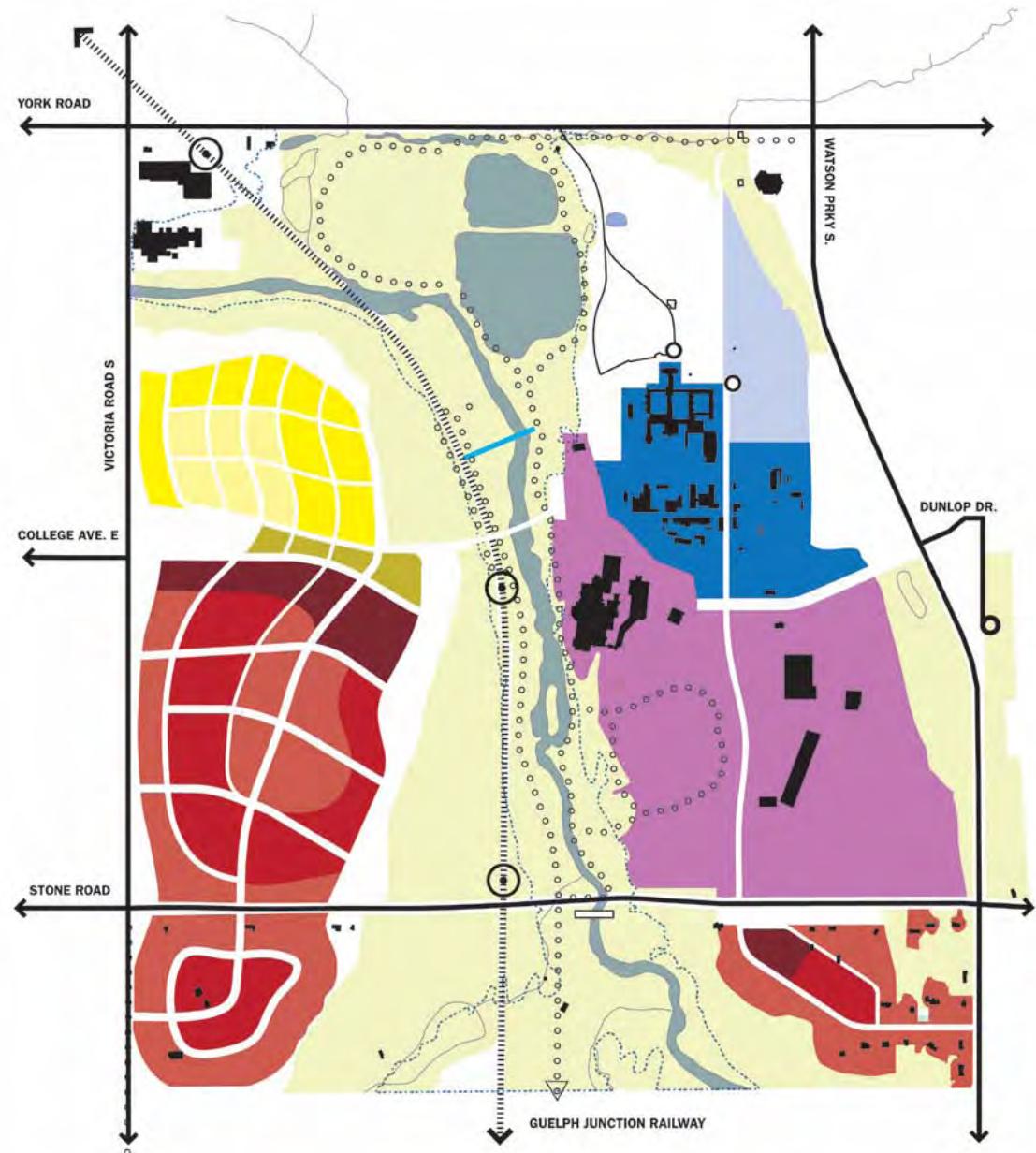
- The centre is located at the intersection of the College Avenue extension and Ridge Road

### Density

- The distribution of density in this Option differs from Option A as it caters to the topography of the site.

### Corridors

- The main high road corridor serves as a central spine within the site, connecting residential, live-work and employment land uses
- College Avenue takes less traffic becoming more of a pedestrian-oriented local main street



# ALTERNATIVE DESIGN OPTION B

## Guelph Innovation District LAND USE OPTION B : TOPOGRAPHIC

### Open Space Framework

Natural Heritage System		170.1 Ha
Cultural Heritage Land		19.5 Ha
Recreation		3.2 Ha
Green Network		12.6 Ha
Storm Water Management		16.6 Ha
Waterbodies		
Floodline		

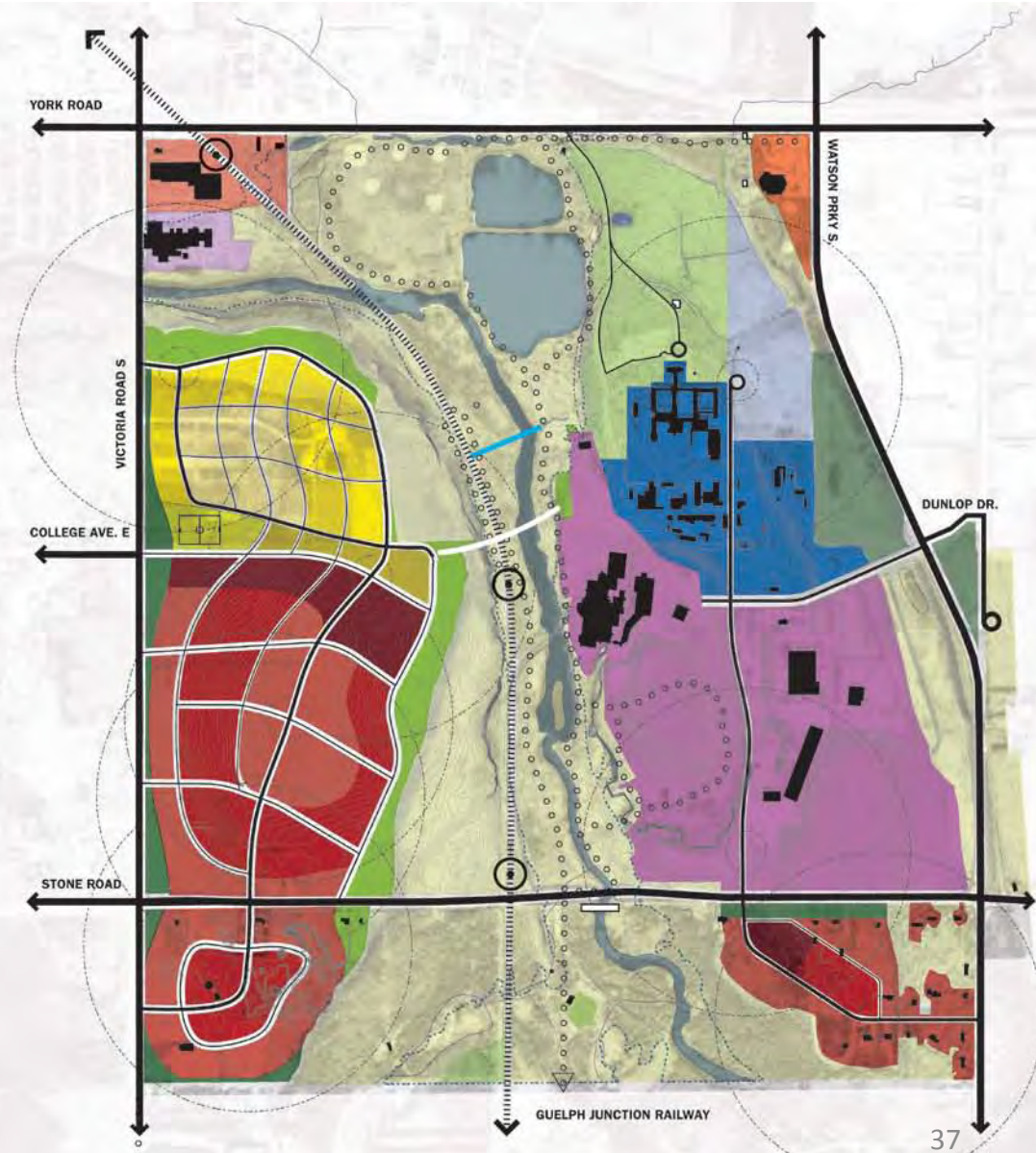
### Areas

### Infrastructural Framework

Right Of Ways	
Arterial Roads	
Collector Roads	
Hydro Corridor	
Trail Network	
Proposed Trail Rail + River Crossings	
Proposed Public Transport Stops (5 minute walking radius)	
Existing Rail	
Proposed Mobility Hub	
Existing Built Form	
Heritage Built Form	

### Land Use Framework

Low-Rise Residential		15.9 Ha
Mid-Rise Residential		13.7 Ha
High-Rise Residential Mixed Use		4.8 Ha
Work / Live		4.2 Ha
High Density Employment Mixed Use		27.4 Ha
Mid Density Employment Mixed Use		20.9 Ha
Industrial Employment		58.2 Ha
Neighbourhood Commercial		5.7 Ha
Service Commercial		3.1 Ha
Adaptive Re-Use		20.1 Ha
Urban Agricultural		8.2 Ha

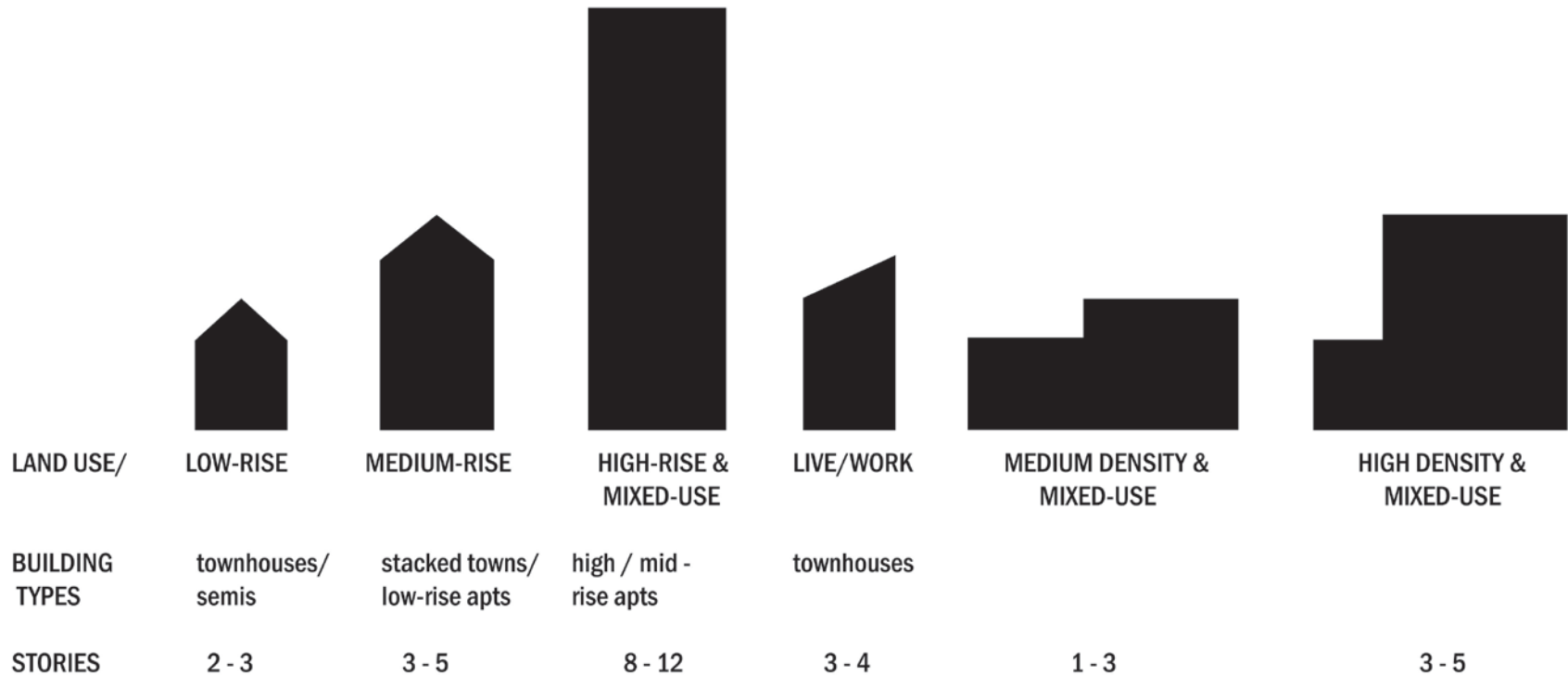




# BUILDING HEIGHTS

## RESIDENTIAL

## EMPLOYMENT



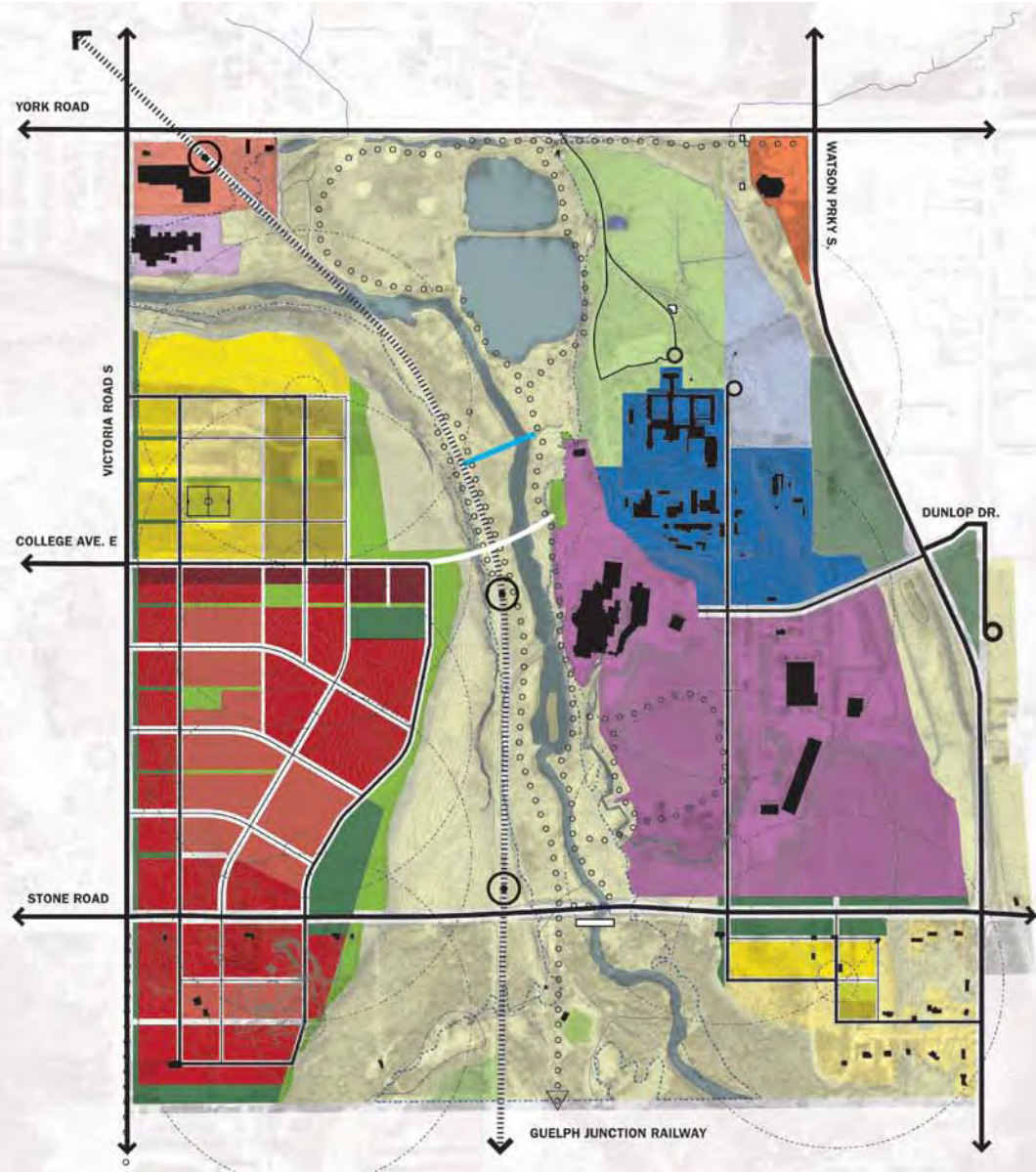
# BUILDING HEIGHTS

## Guelph Innovation District LAND USE OPTION A : 2 HECTARE GRID

### Land Use Framework

Low-Rise Residential		2 - 3
Mid-Rise Residential		3 - 5
High-Rise Residential Mixed Use		8 - 12
Work / Live		3 - 4
High Density Employment Mixed Use		1 - 3
Mid Density Employment Mixed Use		3 - 5

### Building Heights





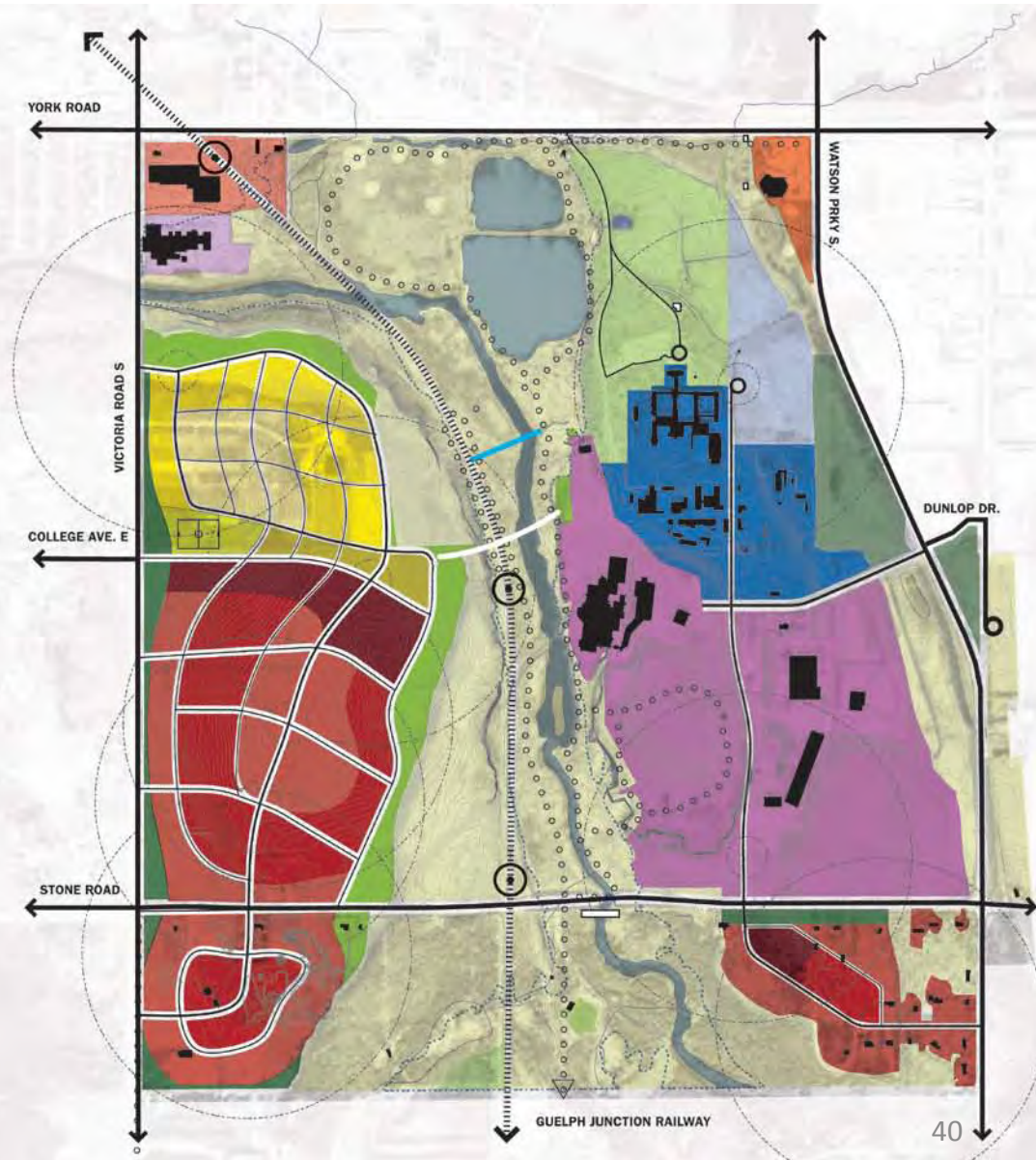
# BUILDING HEIGHTS

## Guelph Innovation District LAND USE OPTION B : TOPOGRAPHIC

### Land Use Framework

Low-Rise Residential		2 - 3
Mid-Rise Residential		3 - 5
High-Rise Residential Mixed Use		8 - 12
Work / Live		3 - 4
High Density Employment Mixed Use		1 - 3
Mid Density Employment Mixed Use		3 - 5

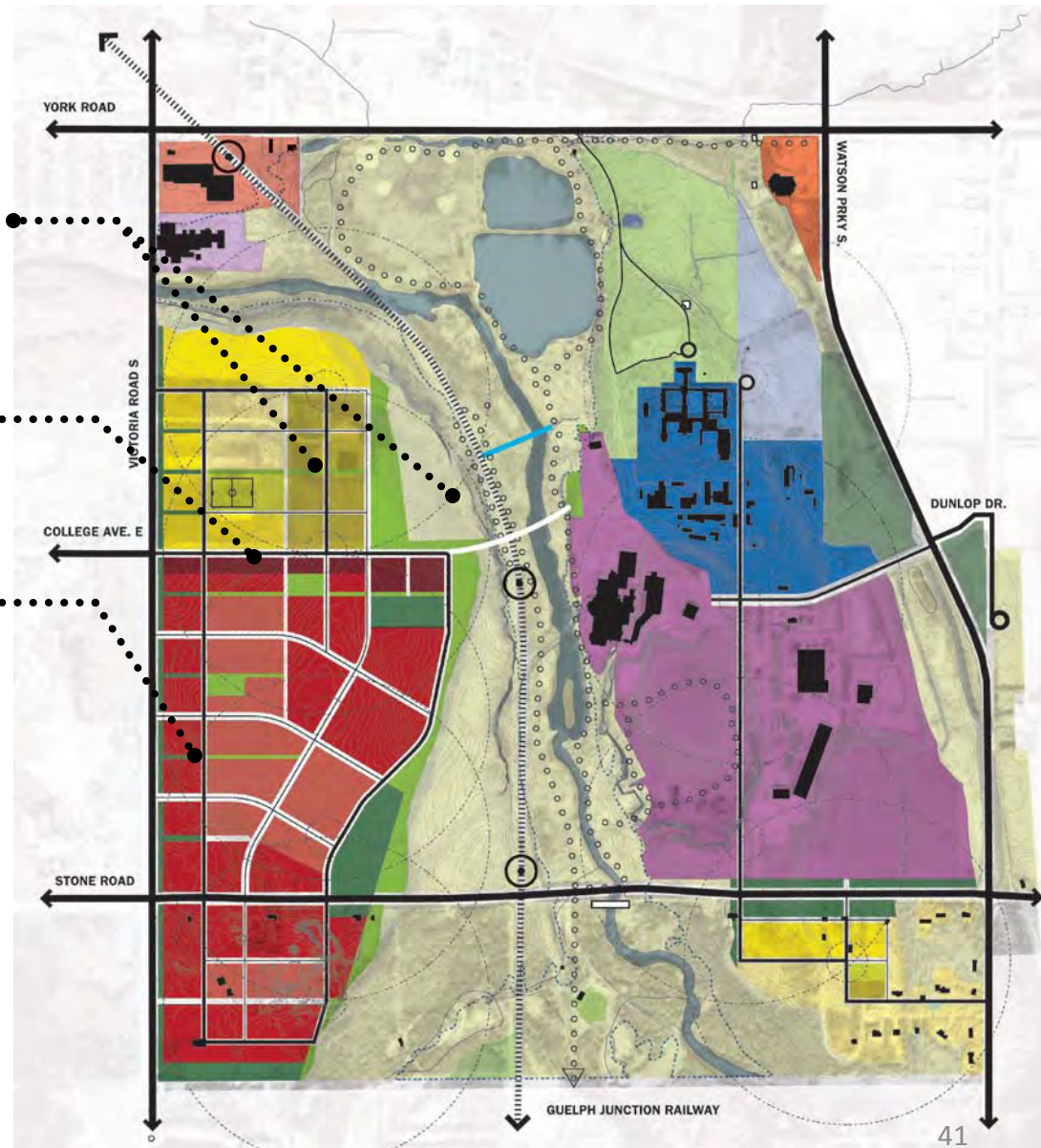
### Building Heights



# APPLICATION OF THE PRINCIPLES

## Option A

- Access to the Natural and Cultural Heritage Systems is ensured through a green grid of tree-lined streets, parks and open spaces which permeate throughout the site
- College Ave serves as a vibrant main street with a diversity of heights and uses
- A gridded street network serves the new community with rational and efficient connections for all users (e.g. cyclists, pedestrians)

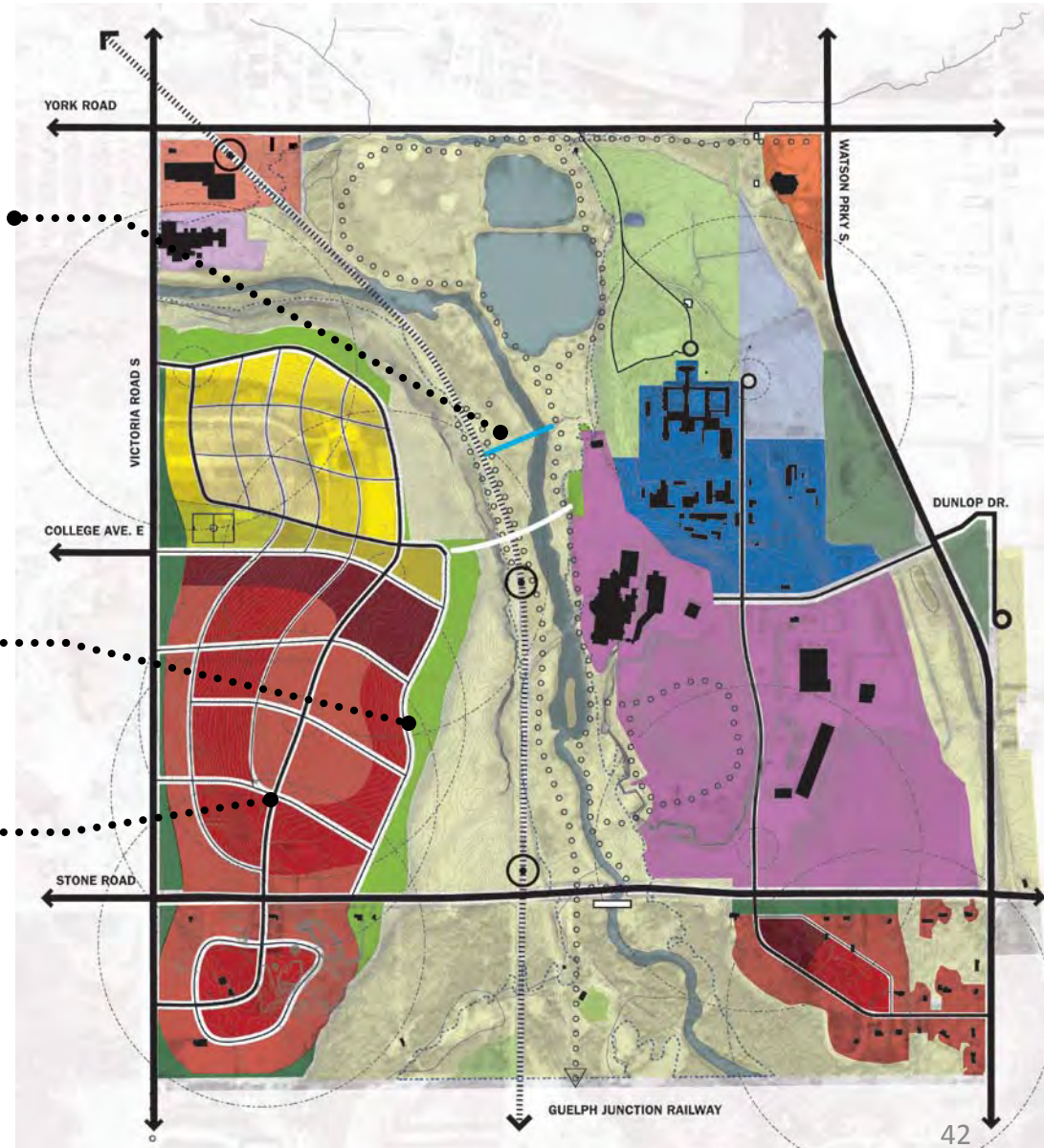




# APPLICATION OF THE PRINCIPLES

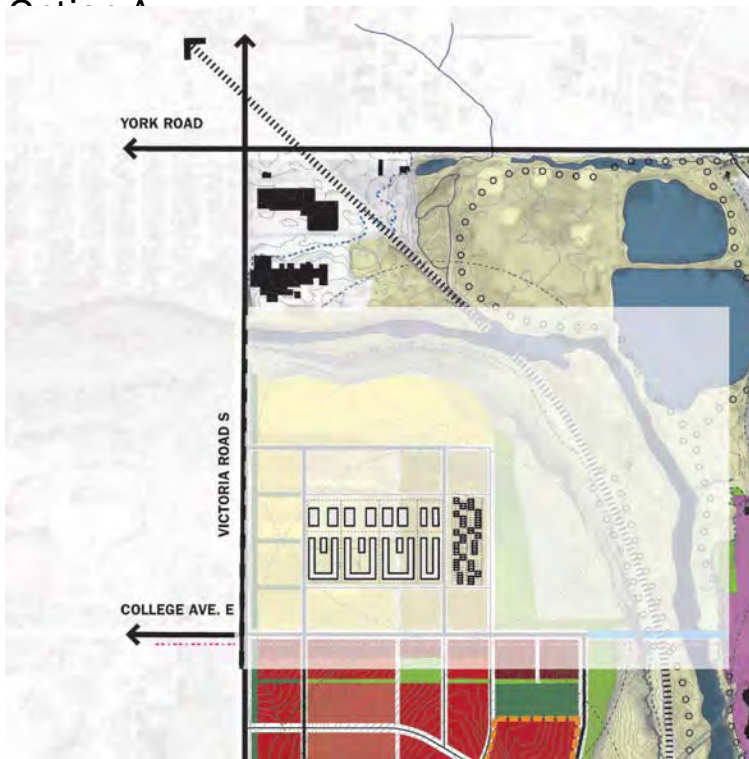
## Option B

- Respecting the natural topography of the site, the natural and cultural heritage is preserved allowing for the site design to take advantage of existing sightlines and views of both the Downtown and the Reformatory Complex.
- Solar oriented blocks are maximized as they utilize the existing topography thus affording a higher level of energy efficiency.
- The mixed-use community is afforded a unique block pattern through it's curvilinear streets which retains a sense of the topography over time.

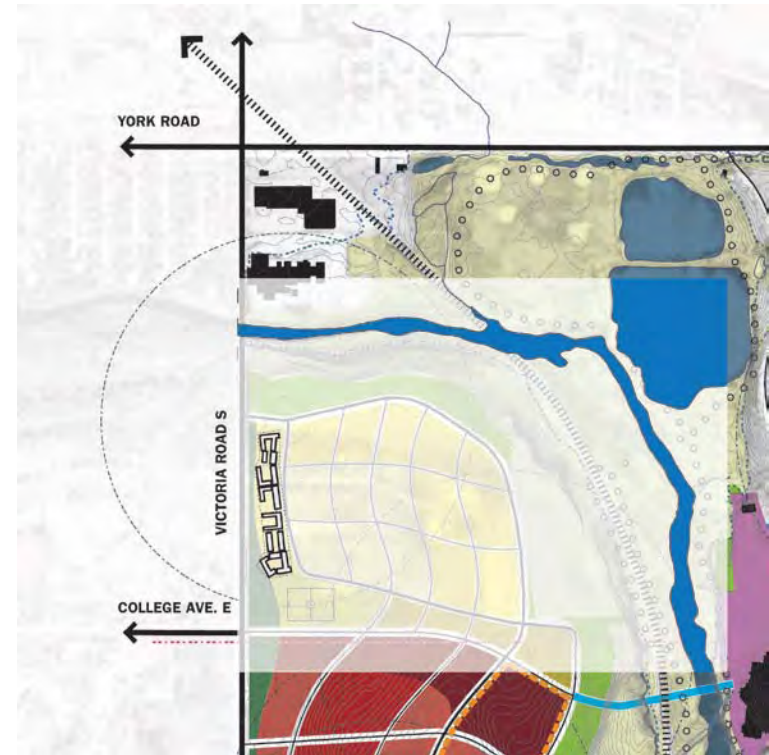


# BUILDING AND TESTING THE OPTIONS

## Residential Blocks



Option B



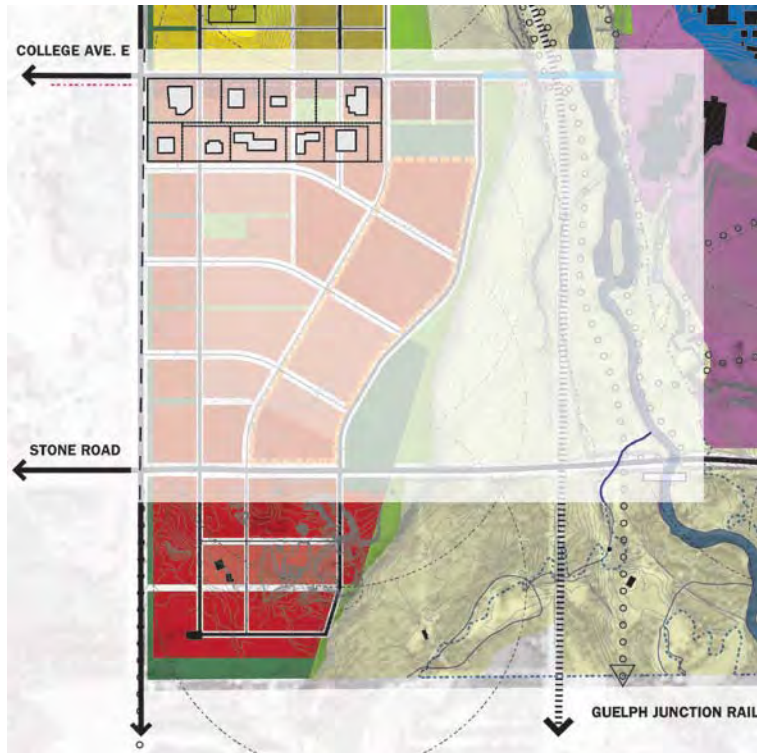
- The blocks can be efficiently broken and repeated to create a patterning effect of well structured community centric building clusters that allow for buildings to transition from lower to higher density
- Having less repetitive, more flexible blocks can follow this more organic layout, enabling more unique community gathering spaces and more flexible ways for buildings to transition from lower to higher density



# BUILDING AND TESTING THE OPTIONS

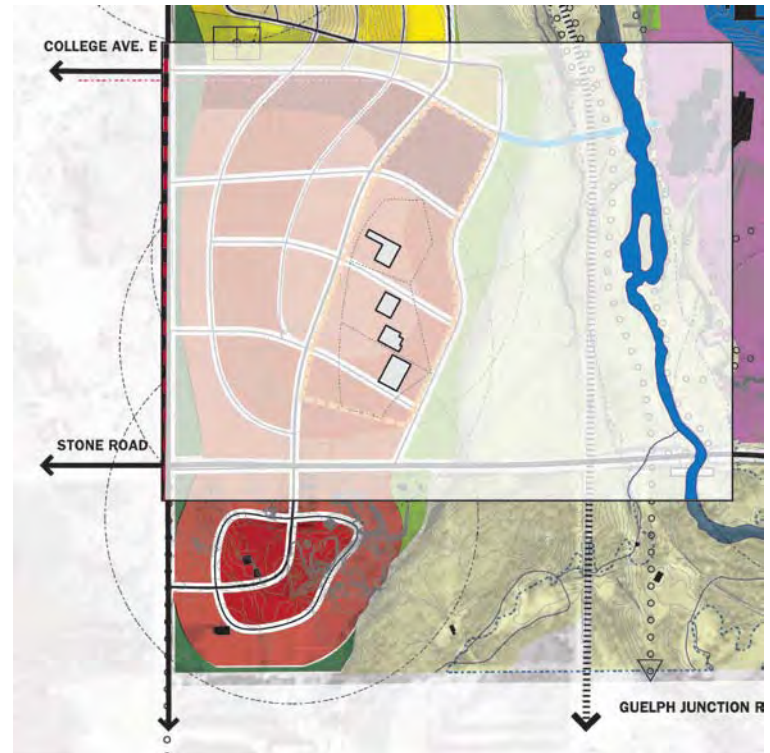
## Employment (Non-Industrial) + Industrial Blocks

### Option A



- Innovative or Standard buildings can be accommodated on the regular grid - an extension of Guelph's existing block structure.
- Efficiency of land allows us to reach density targets without controlling building geometry too closely.

### Option B

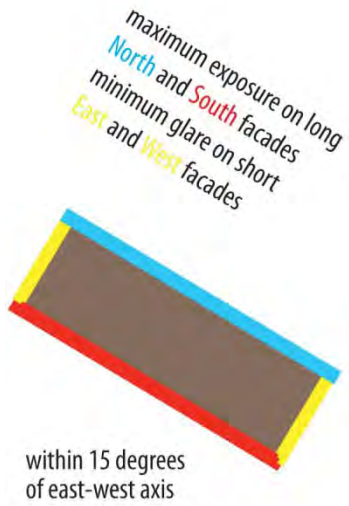


- Well spaced buildings with ample room for plantings and other landscape amenities - models from the western ideal of expansive development.
- Low impact development would protect all natural features.

# SUSTAINABLE DESIGN

Option A

Option B



- solar oriented buildings
- employment use with passive solar orientation
- arterial roads
- collector roads
- potential local road





# SUSTAINABLE DESIGN

## Sustainable Energy Land Use Synergies: 4 Ds

### Buildings & Energy Supply

- **Buildings:** smaller; shared walls increase efficiency
- **Dist Energy:** base load
- **Dist Energy:** residential, commercial, institutional mix balances load
- **Heat Optimization:** co-locating heat sources and sinks permits heat sharing
- **Buildings:** passive design
- **Dist Energy:** critical supply-demand analysis; integrated build out

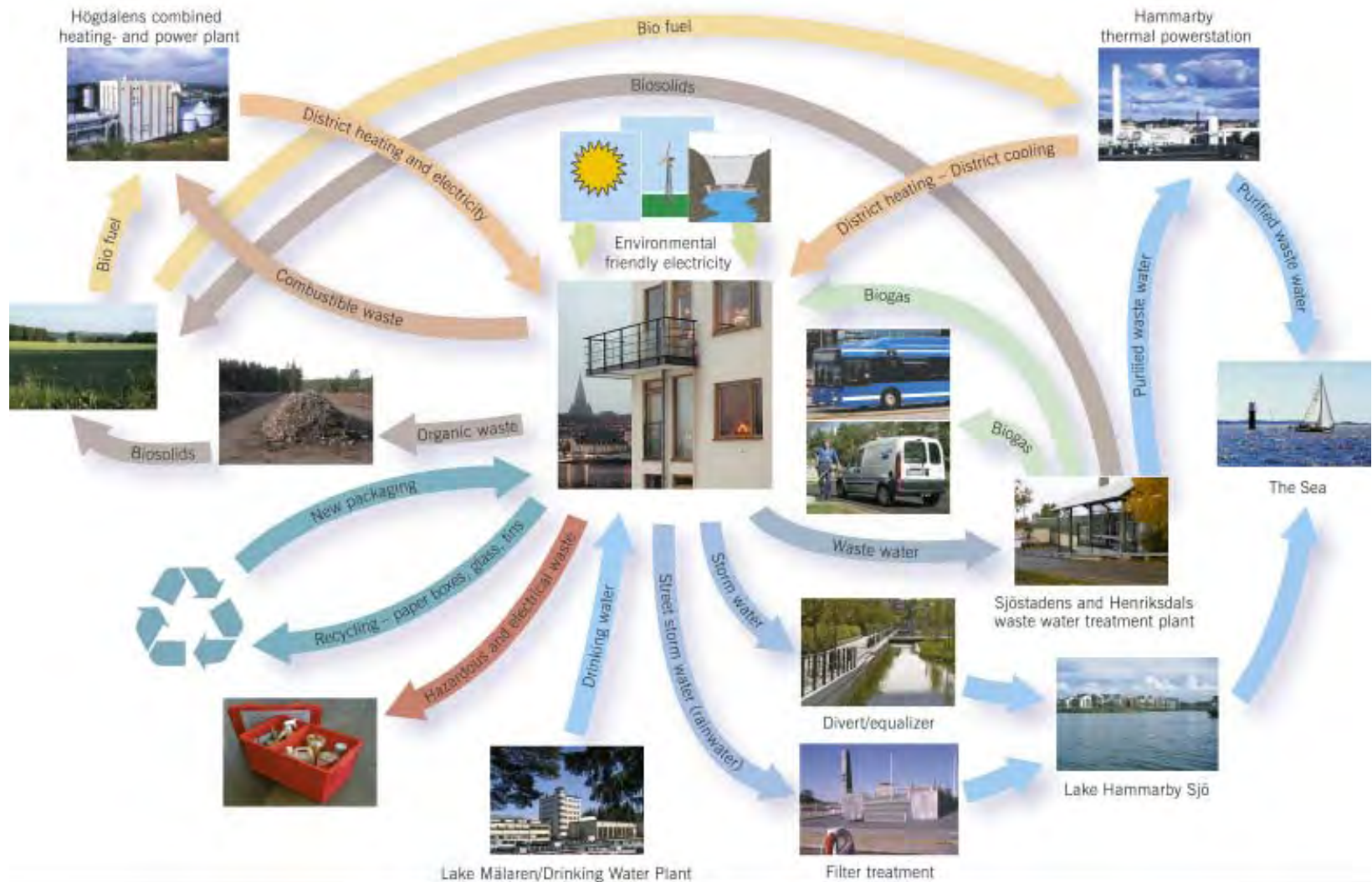
### Principle



### Transportation

- **Active Transpo:** closer destinations
- **Transit:** cost effective
- **Active Transpo & Transit:** closer key destinations
- **Active Transpo:** closer destinations
- **Transit:** cost effective
- **Active Transpo & Transit:** aesthetic places increase active transpo and transit

# SUSTAINABLE DESIGN



Source: (Grist, 17 June 2010)



# SUMMARY

## Option A

- Green Grid street network
- Network of tree-lined streets, boulevards and linear open spaces
- The Green Grid provides east-west linkages between the Arboretum and Eramosa River
- Urban village fronted on three sides by mixed-use development while overlooking Eramosa River
- Higher lot densities around periphery and adjacent to arterial roads
- College Avenue forms primary spine
- Transit will form a key component of the grid primarily along the main arterials and along the rail corridor

## Option B

- Preservation of existing topography
- All road routings in Option B follow the natural slope of the site
- Curvilinear street pattern
- Minimizes cut and fill and grading requirements
- Block and parcel fabric maximizes accommodation of solar-oriented block patterns
- Green perimeter of green space and stormwater management facilities
- The centre is located at the intersection of the College Avenue extension and Ridge Road
- Distribution of density caters to topography
- Main high road corridor serves as a central spine within the site
- College Avenue becomes more of a pedestrian-oriented local main street

# BREAK-OUT GROUP QUESTIONS

## **Open Space**

How well does Option A/B create an open space network?

Any thoughts on linear green linkages between the arboretum and the Eramosa River valley? Any thoughts on a perimeter band of green space?

What types of future activities would the two types of green space support (Active vs Passive)?

What of the relationship of open space to the Natural Heritage System?

## **Circulation**

Any thoughts on the number and purpose of intersections along Victoria Rd., the access provided to and from the site and movement along Victoria Road? Can the intersections prioritize non-motorized modes of transportation?

What are your thoughts on the location of the arterial roads in the site ie., College Ave or High Road?



# BREAK-OUT GROUP QUESTIONS

## **Land Use**

How well does Option A/B integrate a fine mix of uses and create meaningful places to live, work, shop, play and learn?

Any thoughts on the importance and location of a community gathering place? Should such a place be central to the site, adjacent to the natural heritage system, or distributed within the site in smaller areas?

Does the land use mix and density within Option A/B achieve pedestrian-scale, transit supportive design?  
What is your preference for the location of higher density?

Where should higher density be located in relation to open space?

What is an appropriate height parameter for low, medium and high density?

What are your thoughts on the block pattern contained within Option A/B?

## **Other**

Do you have any other thoughts on the Options – What you like, what you don't like, what we haven't addressed and need to consider further?

# NEXT STEPS

