

# Highest and Best Land Use Study Kingston Airport

June 13<sup>th</sup>, 2016



# What is “Highest and Best Use”?

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## *Standard Definition for Land Appraisal Purposes*

“The reasonably probable and legal use of vacant land or an improved property, which is physically possible, appropriately supported, financially feasible, and that results in the highest value”.

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**In the case of Kingston, the underlying objective is to achieve community development that simultaneously:**

- Contributes to the City’s economic resiliency;
- Maximizes the use of existing infrastructure;
- Enhances the quality of life for residents and visitors;
- Protects the environment.

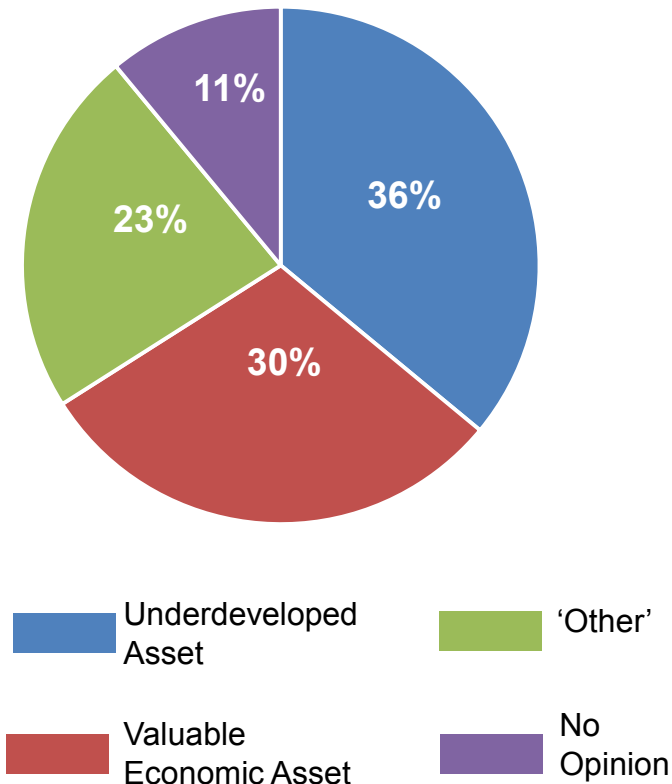
# Public Consultations Results



# Public Consultations — October 2015 survey results

## What is your perception of the airport?

320 Respondents

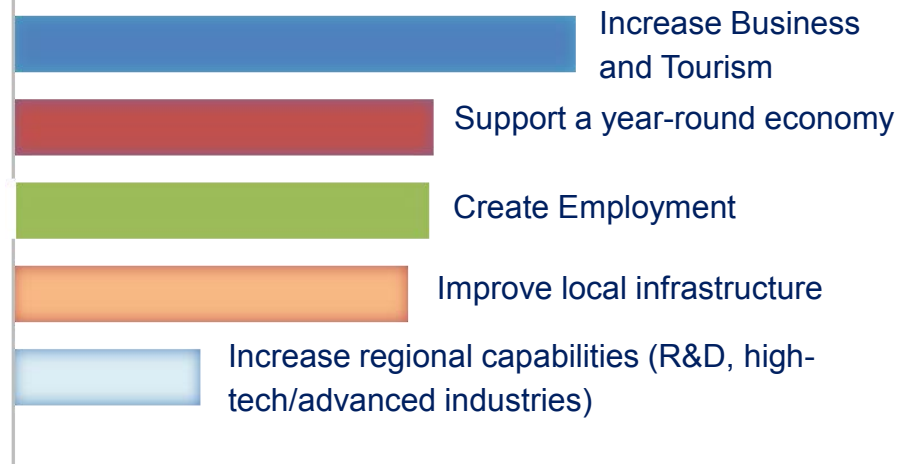


**64%** attributed some level of importance to developing the study parcels for Kingston's overall economic development.

289 Respondents

## What importance do you attach to the project's following potential outcome?

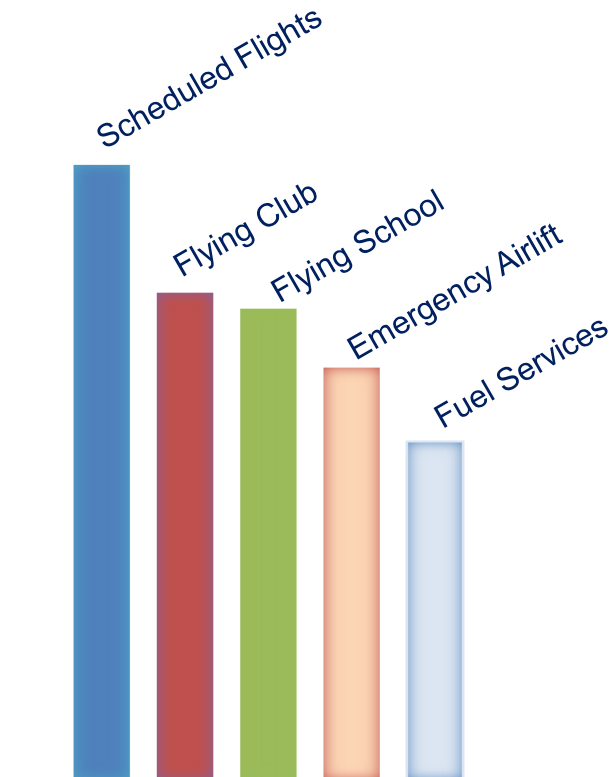
289 Respondents



# Public Consultations — October 2015 survey results

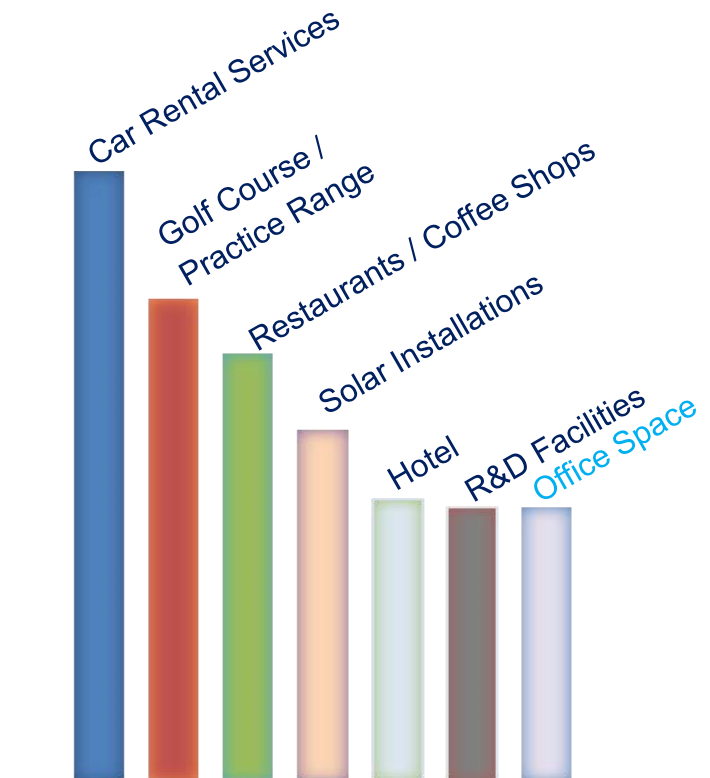
## Top Aviation-Related Preferred Uses

Average Respondents per question: 180



## Top Non Aviation-Related Preferred Uses

Average Respondents per question: 149



# Public Consultations

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**The following concerns and objections were expressed throughout the consultation process:**

- Fear that development on Parcel 5 and Parcel 4 would interfere with residential areas.
- Strong preference for keeping the golf course on Parcel 3.
- Concerns that land development will generate noise pollution
- Strong opposition to any heavy industrial development on the airport property

**All these issues have been taken into consideration with this study.**

# Research Methodology



# Research Methodology

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## Industry Consultation



### 2 focus group sessions

- August 31<sup>st</sup> & Sept. 1<sup>st</sup> 2015
- 15 attendees in total



### One-on-One Meetings

- More than 30 meetings held
- August and September 2015

Representatives from local Colleges, Economic development & tourism officials, Airport tenants and staff, Technology-related manufacturers, City and municipal elected officials, etc. were met to discuss opportunities, market trends and ideas.

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### Ideas raised during the focus groups include:

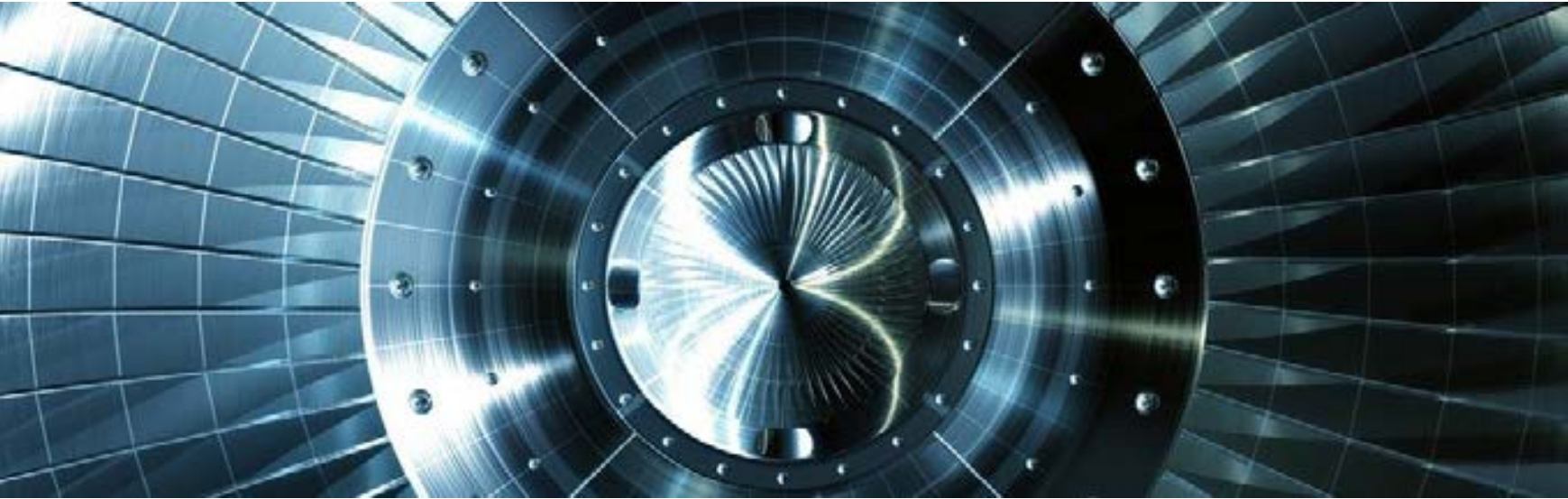
- Reduce the cost of airfare;
- Build a large hotel and conference centre;
- Develop a business incubator/accelerator;
- Build an office park with a high-end restaurant;
- Establish an industrial park;
- Dedicate some land to more sustainable initiatives.

### Ideas/comments raised during the one on ones:

- Ensure minimal environmental impacts;
- Build general aviation hangars and supporting facilities;
- Create an eco-system for green technologies;
- Showed interest in 3D printing and additive manufacturing;
- Develop a light-industrial business park;
- Create a general aviation zone.







## Additive Manufacturing Cluster



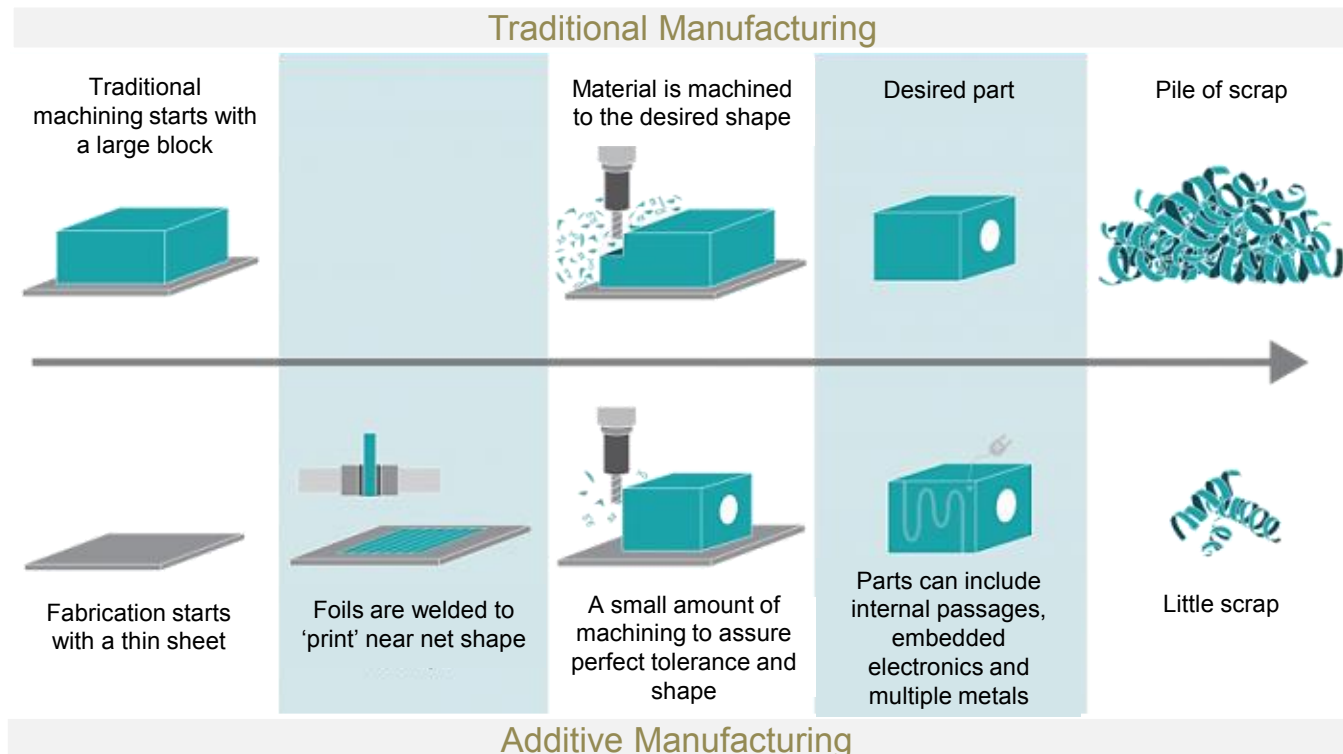
# Evolution



# Evolution (Additive Manufacturing centre of Excellence)

## What is Additive Manufacturing

**Additive manufacturing (AM)** – often referred to as 3D printing – consists of making a three-dimensional object of almost any shape from an electronic data source through additive processes in which successive layers of material are laid down under computer control.



# Evolution

## The Concept

- A unique environment for developing, testing and improving the technologies in order to meet the regulations and specific challenges within the industry.
- A variety of engineering, contract and consulting services to:
  - Advance the technology
  - Ensure regional companies have access to innovative technology and skills training opportunities to successfully position themselves for the future.



## Strategic benefits of AM for aerospace industry



### Increase Design Freedom

*Ability to produce optimally-designed components that would be difficult to make with traditional manufacturing.*



### Reduce Assembly Risk and Costs

*Ability to produce complex assemblies in a single process, thereby reducing assembly risk and costs.*



### Reduce Weight

*Ability to reduce weight of components through more efficient geometries and elimination of unnecessary material.*

## Positioning

Brand the region of Kingston and the airport as the premier location for aerospace additive manufacturing solutions and become a Canadian leader in R&D and applied additive manufacturing technology for the aerospace industry.

# Evolution (Additive Manufacturing centre of Excellence)

## Kingston Based Organizations with AM capabilities

All of the following companies could play an active role in this initiative and show that Kingston has a strong economic framework to support the successful development of an AM cluster at Kingston Airport.



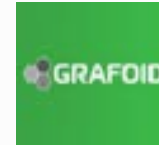
### Alcereco Inc.

Advanced Materials development company



### SparQ Studios

Makerspace equipped with 3D Printers



### Grafoid

MesoGraf™ graphene-based powders and filaments for 3D printing.



### Queen's Innovation Park

Technology hub and incubator with focus on advanced technologies



### KPM

AM capabilities in process development and optimization



### Royal Military College

3D technology used across several programs

# Evolution

## Proposed Location at the Airport: Parcel 2



### Physical Characteristics & Rationale

#### 7.5 hectares (17.2 acres)

- Strategically located in front of the Airport Terminal, and close to utilities.
- Convenient access for future employees.
- Zoning permits a business park.
- Evolution will not interfere with nearby aviation activities.

### Current Tenants

- Landings Golf Course (driving range, putting green and parking)
- Equipment Garage (owned by the airport)

### Special Considerations

We recommend maintaining a direct line of sight from the terminal to Lake Ontario, using the space necessary for surface parking and landscaping in support of the Evolution Concept.



**Innovative Solutions  
for Green, Sustainable  
Airports**



# GreenPort



# GreenPort

## Favourable Market Conditions



### Environmental Regulations

An ever increasing array of environmental regulations from local, regional and national bodies are putting pressures on airports to adopt greener practices and reduce their carbon footprint.



### Industry Initiatives\*

IATA's "Carbon-Neutral Growth by 2020" commitment and ACI's Airport Carbon Accreditation are leading the path towards the adoption of greener practices and technologies at airports.



### Proactive Response from Airports

Increased priority on climate change leads airports to proactively go beyond requirements and results in numerous green initiatives and commitments that are driving the demand for sustainable and greener technologies.

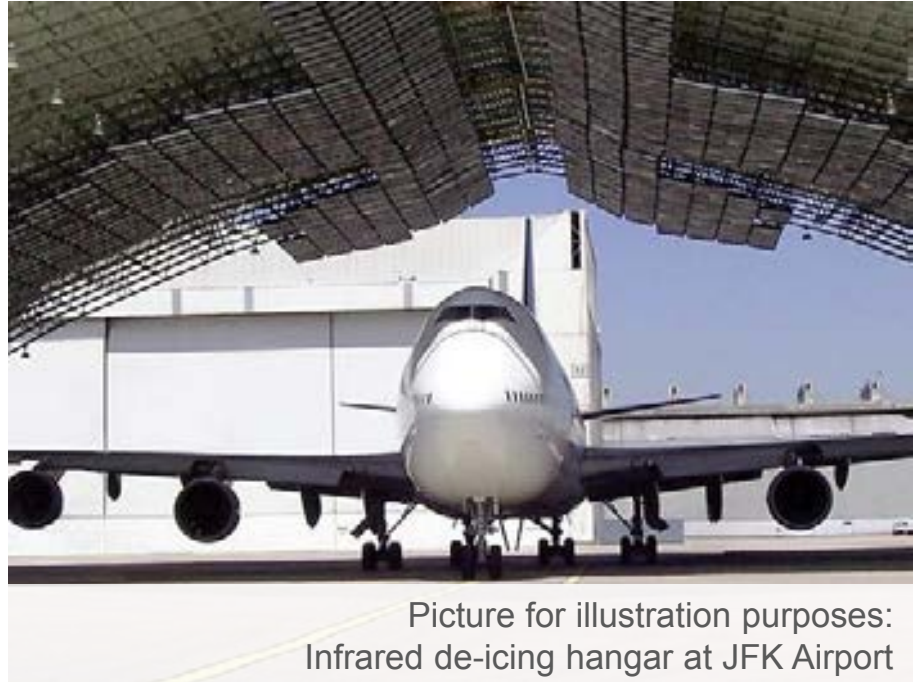
\*IATA: International Air Transport Association; ACI: Airports Council International



# GreenPort

## The Concept

- A unique environment for the research, development, testing, evaluation and deployment of new, sustainable and more efficient airport technologies and processes.
- GreenPort will act as a driving force, an incubator, a test bed and home to light manufacturing activities dedicated to airport-specific green technologies and practices.
- The airport will also host a solar power station to reduce overall energy consumption.



Picture for illustration purposes:  
Infrared de-icing hangar at JFK Airport

## Positioning

The GreenPort project aims to brand the entire Kingston Airport facility as a sustainable airport cluster. GreenPort's infrastructure will aim to become the one central place where airport operators pursuing sustainability find the latest green technologies and their developers.

# GreenPort

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## Why Kingston



### Target Industry Sector

GreenPort is completely aligned with City's vision to be Canada's most sustainable City and council's strategic priorities.



### Strong Expertise

A number of additional Kingston-based institutions and companies are evolving in the sustainable and emerging sectors, and involved in initiatives that may be suitable for airports/



### Funding Opportunities

Government commitment – at both provincial and federal levels – to sustainable technologies translates in a number of funding opportunities from which a project like GreenPort could benefit (ex: FIT Program).



### Benefits to the Community

A creative and entrepreneurial hub project  
Employment growth in the green technology sector that can be found in the region.

# GreenPort

## Proposed Location : Parcel 2 (main installations) and Parcel 6 (solar power station)



### Parcel 2 – Physical Characteristics and Rationale

#### 7.5 hectares (18.5 acres)

- Zoning permits a business park.
- Land situation will allow for companies to showcase their technology on airport grounds and develop synergies with the nearby airport installations.
- Proximity to utilities and arterial roads that will facilitate the development of the Greenport business park.

### Parcel 6 – Characteristics and Rationale

#### 7 hectares (17.3 acres)

- Land is adjacent to the Lemoine Point Conservation area.
- Renewable energy development meets CRCA environmental considerations.

# GreenPort/Evolution Phasing

**Proposed Phasing –**  
**Parcel 2 (main installations)**  
**Parcel 6 (solar power station)**



## Parcel 2

**Phase I**  
(1-10 yrs.)

Business office/light  
industrial zone Dev.

**Phase II**  
(11-20 yrs.)

Adding capacity to  
business park as per  
Demand.

## Parcel 6

**Phase I**  
(1-10 yrs.)

Solar power station  
covering 17.3 acres





**Integrated  
Maintenance Services  
for Turboprop Aircraft**



# Kingston Turbo

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# Kingston Turbo

## Definition

Turboprops (short for turbo propeller) aircraft utilize a gas turbine engine to drive a propeller rather than relying on jet thrust to move the aircraft forward. Such engines are powerful enough to propel business/private aircraft, but also military, agricultural and regional airliner aircraft.



**Fixed-Gear,  
Utility-Class Singles**



**High Speed,  
Single Engine Cruisers**



**Multi-Engines  
Turboprops**

Unstable fuel prices, along with ever increasing pressure on airline costs and footprint, position these fuel-efficient aircraft as an attractive option for regional travel up to 1,000 miles: they accounted for 24.5% of GA worldwide aircraft deliveries in 2014.

# Kingston Turbo

**Maintenance, Repair and Overhaul (MRO) Activities can be divided into 3 main segments**

## Engine Maintenance

- Routine maintenance
- Hot section inspections
- Nacelle inspections
- APU maintenance
- Repair and Overhaul
- Replacement of Life Limited Parts

## Component & Avionics Maintenance

- Avionics installation and repair
- Flight Controls Systems
- Navigation & Instruments
- Hydraulics, Pneumatics, Electrics, Landing Gear

## Inspections, Airframe Repair & Modifications

- C Checks – detailed inspections
- Heavy maintenance visits (HMVs) – Major reconditioning
- Painting
- Interior Refurbishments
- Conversions
- Completion & Modifications

# Kingston Turbo

## Why Kingston



### Airport Infrastructure

Kingston airport has land available with airside access to support expansion and new investment. In addition, the 5,000-ft. runway is long enough to accommodate most turboprops, from the Beech 1900 models that connect Kingston to Toronto every day, to the larger DH-8-Q400 series turboprop aircraft. Ongoing efforts to extend the runway might further increase the capacity of the airport in the near future.



### Qualified Workforce

Kingston hosts the Canadian Forces School of Communications and Electronics, which offers Avionics Systems Technicians training. Kingston is also less than three (3) hours drive from Toronto-based Centennial College, a highly rated college that offers Aviation Technician - Aircraft Maintenance programs.



### Market Access

- With 215 units, Ontario is the Canadian province that has the highest concentration of turboprop aircraft from the targeted aircraft types.
- In addition to providing access to this local market, Kingston's strategic location opens up access to a market that totals more than 800 targeted aircraft.



# Kingston Turbo

## Proposed Location at the Airport: Parcel 1



### Physical Characteristics & Rationale

#### 9 hectares (22.2 acres)

- Direct airside access
- Prime location with easy access to airport's apron
- Parcel 1 dedicated to aviation activities

### Current Uses/Tenants

- Landings Golf Course (main parking & Club House)
- Central Airways Building
- Airport Terminal
- Nav Canada Flight Service Station
- Brian Reid Building
- RCAFA Building
- AOG Helicopter Facility

## Special Considerations

Aging hangars and a portion of the ramp needs renovation/rehabilitation

Project will require the relocation of some of Parcel 1's actual tenants (see next slide)

# Kingston Turbo

## Parcel 1's Development Phasing - Year 1 to 10



Phase I A (1-5 yrs.)

Phase I B (6-10 yrs.)

### Hangar 3 (3)

Current tenant: Vacant Land

**Future building use: Commercial aviation hangar**

### Hangar 4 (4)

Current tenant: Fly Kingston

**Future building use: Commercial aviation hangar**

### Hangar 5 (5)

Current tenant: Kingston Flying Club

**Future building use: Commercial aviation hangar**

### Building 10 (10)

Current tenant: Royal Canadian Air Force Association

**Future building use: Aviation support facility**

Note: The vision of establishing Kingston Turbo on the parcel might require the relocation of Fly Kingston, the Kingston Flying Club and the RCAFA



**Work, Play and Live in an  
Aviation Community**

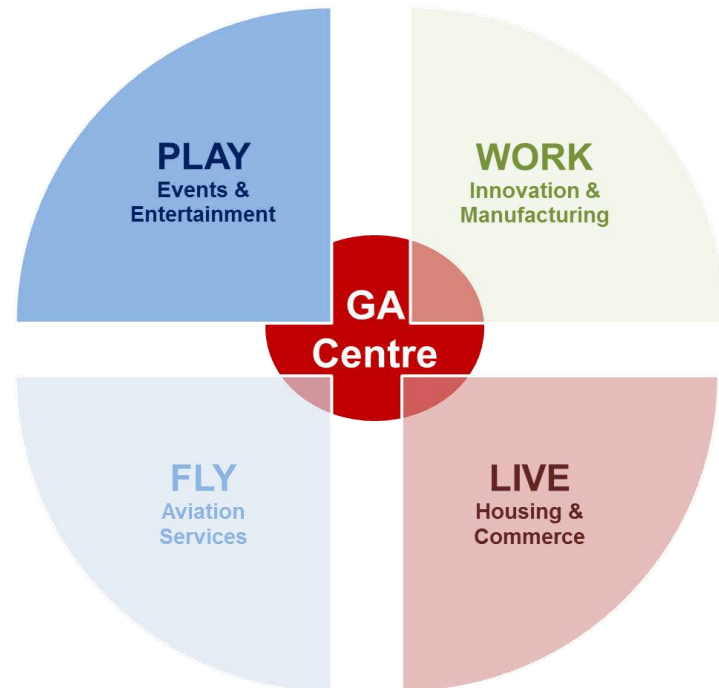
**G.A. Centre**



# G.A. Centre (General Aviation Lifestyle Centre)

## The Concept

- General Aviation (G.A.) Centre is a multi-component and long term concept that supports a positioning centred on general aviation.
- This suggested development builds on a strong GA presence in Ontario and a positive perception from the Kingston population who, according to the online survey, ranks GA activities such as flying clubs and flying schools among the preferred aviation-related land uses.
- Structured around aviation services, events and activities, G.A.. Centre has the potential to differentiate the Kingston Airport from the competition by offering an integrated concept to the aviation marketplace.



## Positioning

G.A.. Centre will position Kingston Airport as a family orientated, full-service G.A. airport and centre.

# G.A. Centre

## Why Kingston

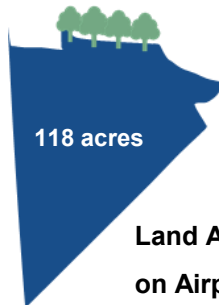


### GA Market Opportunity

Ontario is the province with the most registered aircraft in Canada. The province has about 25% more registered GA aircraft than Quebec or British Columbia, and almost as many aircraft as the prairie provinces combined. According to the Canadian Civil Aircraft Register, there are 8,458 private GA aircraft in Ontario, which represents 28.9% of all Canadian registered aircraft.

### Local Assets and Resources aligned with Opportunity

The regional tourism resources and overall attractiveness are key assets in the growth and success of a concept like GA Centre. In addition, the project's potential to increase tourism and business in the region is aligned with the desired outcomes expressed by the public.



**Land Availability  
on Airport Land  
(parcel 5)** ✓



#### Tourism Assets

20 museums/historic sites  
Unique sightseeing  
Events all year long



**Quality of Life** ✓

# G.A. Centre

## Expansion of Parcel 5 – Moving Aviation Activities Further South

Initial boundaries



Extended boundaries



- Southern and western boundaries have been extended to include cleared land at the south side of Parcel 5, close to the airport runways and taxiways, that could be developed for aviation needs in the near term.
- The expansion of the Parcel 5 is in response to concerns identified during 1<sup>st</sup> information centre.

# G.A. Centre

## Proposed Location at the Airport: Parcel 5



### Key Characteristics / Rationale

#### 48 hectares (118 acres)

- Parcel 5 can provide both neighbourhood and aviation services.
- Direct access to the Airport's runway system.
- The parcel is currently vacant.
- Most of the envisioned development will occur into the expanded area.

### Special Considerations

- Parcel 5 is significantly large and the vast majority is not projected to be needed for development for decades
- Proposed development ensures that the treed area remains intact and continues to act as buffer to existing residential area.

# G.A. Centre

## Proposed Phasing – Parcel 5

### ▪ Neighbourhood Commercial (a)

#### Phase I (1-10 yrs.)

- Bring neighbourhood commercial services to parcel 5 to support businesses and employees at the airport and the surrounding population.

### ▪ Relocation of Parcel 1 tenants to create a GA dedicated hub (b)

#### Phase I B (6-10 yrs.)

- Relocation of RCAFA, Fly Kingston and Kingston Flying Club's on the parcel

### ▪ Continue GA Hangar Development (c)

#### Phase II (10-20 yrs.)

- Variety of hangar sizes and shapes, from basic T-hangars to smaller and larger stand-alone box hangars.
- Efforts to attract GA tenants and services providers





# At a Glance...

## Short Term and Long Term Proposed Development



# Your input is very valuable to us.

Please visit the 4 theme stations for more information, discussion and questions:

**Evolution**

**GreenPort**

**Kingston Turbo**

**G.A. Centre**

*Please fill out the surveys!*

## What's next

