



Gananoque, Township of Leeds and the Thousand Islands

Smith Business Consulting

Transit Feasibility Study

Smith Business Consulting

Ryan Pinto, David Bobyn, Matthew McLean, Adam Li

GANANOQUE

TOWNSHIP OF

LEEDS AND THE
THOUSAND ISLANDS

Our Team

SBC Consultants



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Eng '20



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Matthew McLean
Comm '21

Project Background

Situational Analysis

Demand Analysis

Supply Analysis

Recommendation

Implementation

Feasibility Study Overview

Brief overview on what topics will be covered

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Project Background

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► Project Methodology

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► Case Study

► Micro Trends

► Case Studies

► Key Stakeholders

► Testimonials

► Challenges and Opportunities

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04

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► Supply Methodology

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► Express Bus

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Recommendation

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► Recommendation

► Opportunities

► Risks

06

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Project Background

Situational Analysis

Demand Analysis

Supply Analysis

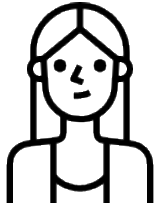
Recommendation

Implementation

01 | Project Background

A Need for Public Transit in Gananoque and TLTI

Introducing the Smith Family

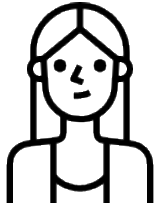


Kim
Has a full-time job at KGH
Does not own a car

“I take a ride from my brother to Kingston General Hospital each week for my administration job”

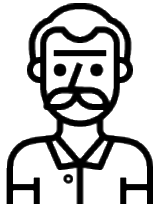
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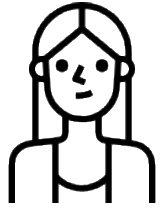
Tony
Retired
Does not own a car

“My wife and I reside in the Caraveth retirement center, we travel to Kingston at least once every week for an appointment.”

Quotes received in 2020 Smith Business Consultant
Transit Survey

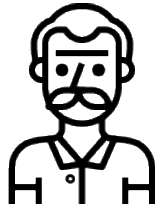
A Need for Public Transit in Gananoque and TLTI

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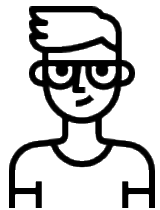
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Tony
Retired
Does not own a car

“My wife and I reside in the Caraveth retirement center, we travel to Kingston at least once every week for an appointment.”



Josh
High school student
Does not own a car

“I wait in Kingston after 3:30 on school days for my mom to finish work and take a ride from my parents on weekends to meet my friends.”

Quotes received in 2020 Smith Business Consultant
Transit Survey

A Need for Public Transit in Gananoque and TLTI

Problem and objective

Underlying Problem

The transit options available for Gananoque and TLTI residents to travel to Kingston are **limited and expensive.**



Our Objective

Test the **feasibility** of transit options to connect Gananoque and TLTI to Kingston with a focus on **financial sustainability.**

Project Methodology

Segmenting our analysis into four comprehensive parts

01

Situational Analysis

To understand trends, case studies on rural transit and the specific challenges in the communities of Gananoque and TLTl.

02

Demand Analysis

To understand the specific needs of future users, forecast ridership and assess willingness to pay.

03

Transit Supply Analysis

To quantitatively and qualitatively understand the cost and fit of transit options based on the region's needs.

04

Implementation Considerations

To direct the future of this project to mitigate risks and manage operational execution.



02 | Situational Analysis

Situational Analysis Methodology

Our approach to conducting a situational analysis



Macro Trend

Four trends

Four key trends from an economic, social, environmental and technological point of view



Micro Case Study

Desoronto Study

Identify the best practice for rural transit development in Eastern Ontario



Township Research

Expert Interview

Observe and discover the key challenges and opportunities for rural area transit program

Situational Analysis – Trends in Developing Rural Transit

Understanding developments and trends in Canadian rural transit at a macro level

Rural Development

Workforce mobility and rural infrastructure development are critical factors in conserving Eastern Ontario's rural population.

Climate Change

Initiatives promoting gas conservation and public transit are supported by provincial and federal grants and programs.



Aging Population

The Gananoque & TLTI region holds a high percentage of elderly people. This demographic has increasing public service and health care needs.

Optimization Software

Technology such as location tracking or shared use (on-demand) transit services are being more widely adopted, especially in areas with lower population density.

Case Study: Desoronto – Belleville Transit System

The project needs, solution and success criteria make Desoronto an important case study

TARGET CUSTOMER

Napanee, Belleville, Picton,
Bloomfield, Tyendinaga
& Desoronto.

BUS TYPE

- Two Community Busses (11 seats and 16 seats)
- Two minivans

ROUTE

Two routes, four service runs each
from 5am – 5pm

FARE PRICE

\$6.50 to \$12.00
Generating \$110,00 Revenue in
2013.

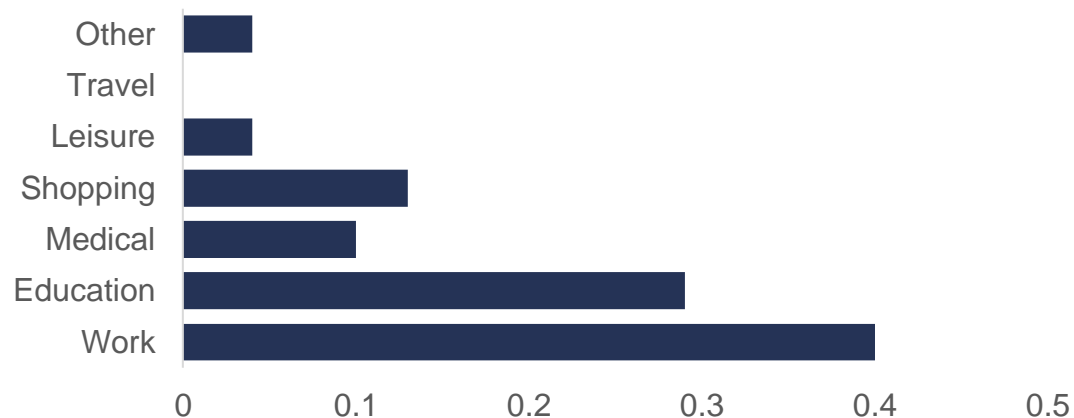
FUNDING

Employment Innovation Fund (\$225k),
Local Business and Foundation Grants
(\$85k), Federal Homelessness Grant (\$2k),
Gas Tax (\$17k in 2011 to \$105k in 2012),
2013 Operating Budget: \$330k

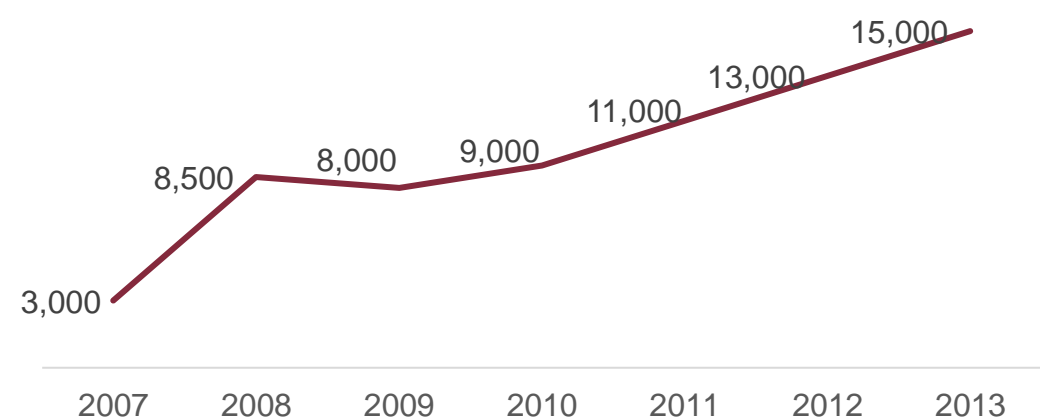
OPERATOR

Desoronto owns and operates the
buses.

Desoronto Reasons for riding 2013 (% total)



Desoronto Ridership 2007-2013



Situational Analysis – Transit in Gananoque & TLTl

The region is comprised of a high-skill commuting workforce and demands more low-skill employees

Population Demographics

Population: **14,625** people (**62%**: workforce, **24%**: retirement)



Highly Educated Workforce

60% post-secondary educated, **2500** from College and **1180** from University.



Existing Labour Gap

1035 people enter Gananoque daily for work. The need for employees is higher, especially in the summer season in hospitality and retail.



Commuting Workforce

2765 people from Gananoque commute to work daily (**52%**). **1980** of them (**72%**) commute to Kingston.



Situational Analysis – Stakeholder Interviews

Key Community Stakeholders

Employment



Contractors



Transit Systems



Software Providers



Situational Analysis – Stakeholder Interviews

Key Community Stakeholders

Employment



“The Casino is in full support of this project and the economic development of Gananoque.”

- Adam Hawkins and Dale Deane (Casino Managers)



“Transportation is vital for workforce development success in our area and for students wanting to attend college.”

- Trish McNamara

Transit Systems



“We have a contract in place with Kingston transit facilitating our transit, they recoup about 20% of their costs in fare revenue.”

- Jesse Gawley

Contractors



“We offered Loyalist county a contract which increased service hours 30% and cut costs by 25%.”

- Shawn Geary (Owner)

Software Providers



“Not everywhere is as dense as Manhattan. In lower density areas transit needs to balance coverage, ridership and frequency. Our system enables Belleville’s on demand nighttime transit system.”

- Luke Mellor

Challenges and Opportunities

How can the region overcome these complex challenges to benefit from increased mobility?

Challenges

Population Density

“There was a transit system in place a number of years ago however it was underused and therefore **financially a burden.**”

High Cost

“Can this service be implemented without **costing the taxpayer?** Our taxes are very high and keep going up, up , up..”

Diversity of Needs

“Shoppers are **going for a couple of hours only**, those needing transit for employment often work shift work or non-conventional hours.”



Opportunities

Access to Social Services and Leisure

“It would mean our family **could stay in Gananoque** and continue to access necessary services in Kingston. We are seriously considering moving to Kingston. “

Filling Labour Gaps

“I find it **difficult to find student or employees** for my business. A bus might help to attract some from Kingston.”

Economic Development

“It would be good for Gananoque residents and the **economy of our town**. We will likely gain more **tourists** from Kingston.”

02 | Demand Side Analysis

Demand Side Research and Analysis Methodology

Gap and behavior analysis based on data collected from our primary survey

Our survey covers over 1,100 residents with a diversified age and geographic distribution



Segmentation

Distinct Groups

Based on our survey, we segmented the residents in Gananoque and TLTI into multiple groups with distinct needs



Gap Analysis

Indirect Access

We conducted an in-depth analysis by applying programming language to determine the number of residents with indirect car access from Gananoque and TLTI to Kingston – the gap.



Behavior Assessment

Travel Pattern

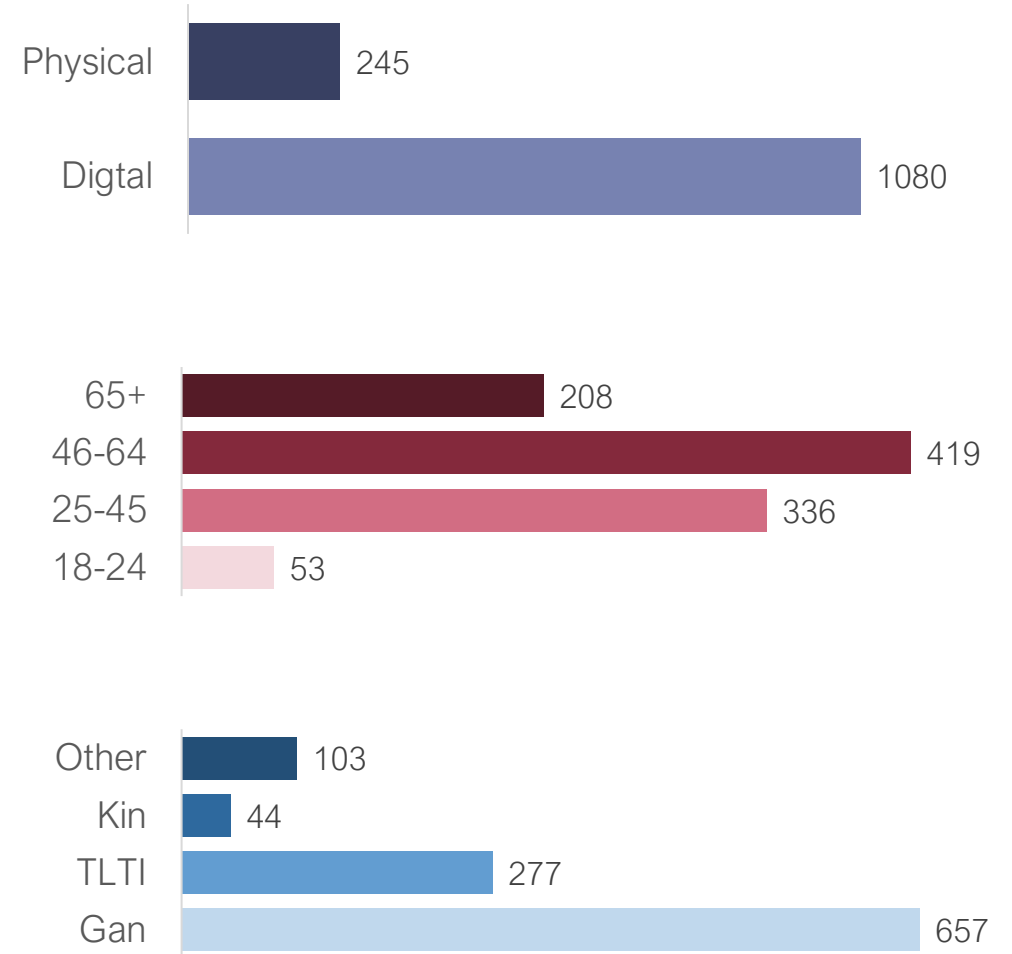
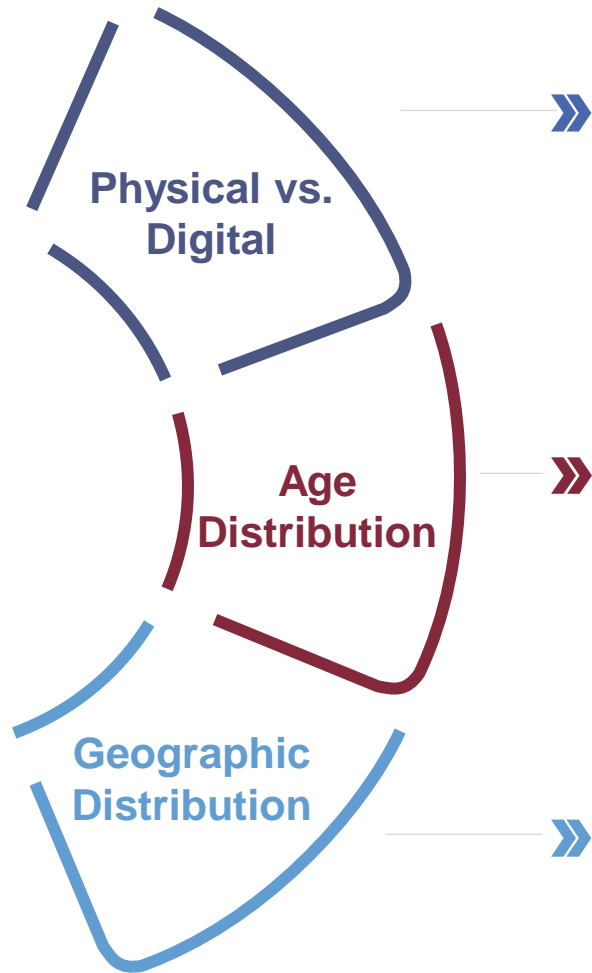
By further leveraging our survey findings, we understood the needs and travel pattern of each segmented group, such as pick-up location, time, price preference, etc.

Primary Survey Credibility

Why is our survey credible?

Survey Credibility

To ensure data quality, three key considerations were utilized.



What do people think?

Most residents in Gananoque and TLTI say “Yes” to a public transit system to Kingston

Out of **1191 respondents** that we covered during the survey

78% of the residents in Gananoque responded **“Yes”** to having a transit system

67% of the residents in TLTI responded **“Yes”** to having a transit system

Qualitative Feedback

Feedback from respondents was categorized and high frequency comments were summarized below

Yes



“Right now a cab is \$50 to downtown Kingston”

“As **senior** I'm getting more and more uncomfortable driving”

“**Parking** in Kingston costs \$20.00 a day for me”

“Lots of people **work in Kingston** and others cannot drive”

Not sure



“I do not need it but **others might**”

“I like my **family to take me** but would relieve the pressures on them”

“It would **depend on cost**”

“**Is there enough demand** at specific times to warrant it?”

No



“**Financial feasibility**, run times, general interest”

“Because most of **everyone in Gan has a car.**”

“Very **expensive operating costs**”

“This has been tried before and has failed due to **lack of riders**”

Demographic Segmentation

The numbers are estimated based on our sample pool of survey respondents



Workforce

Who are they?

All age	Full-time job in Kingston	Gananoque and TLT
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How many?



6,554



Med Patients

Over 25	For Medical treatment	Gananoque and TLT
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9,292



Social Group

All age	Social, shopping, events	Gananoque and TLT
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12,268



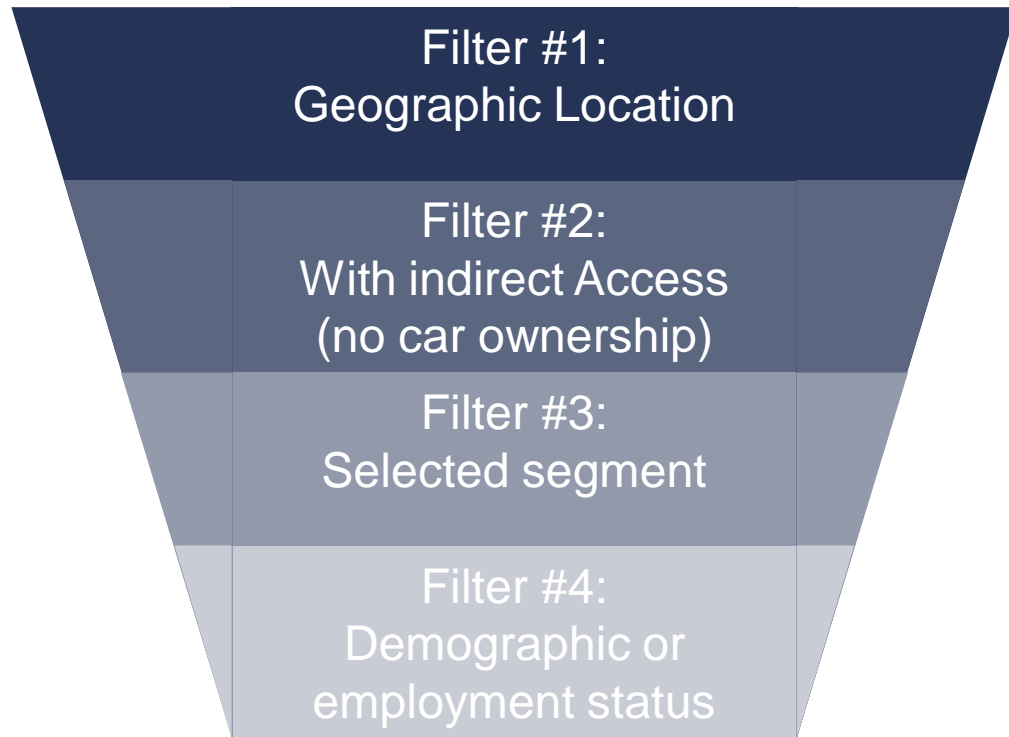
Broader Group

All age	All other purposes	Surrounding area
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Estimated to have over 15,000

Gap Analysis Methodology

We coded a python program to perform the following gap analysis to better predict ridership



of residents with indirect access



For each resident in the pool



Corresponding Frequency of travel

Never	Once a week	2-3 times a week	4-6 times a week	Daily
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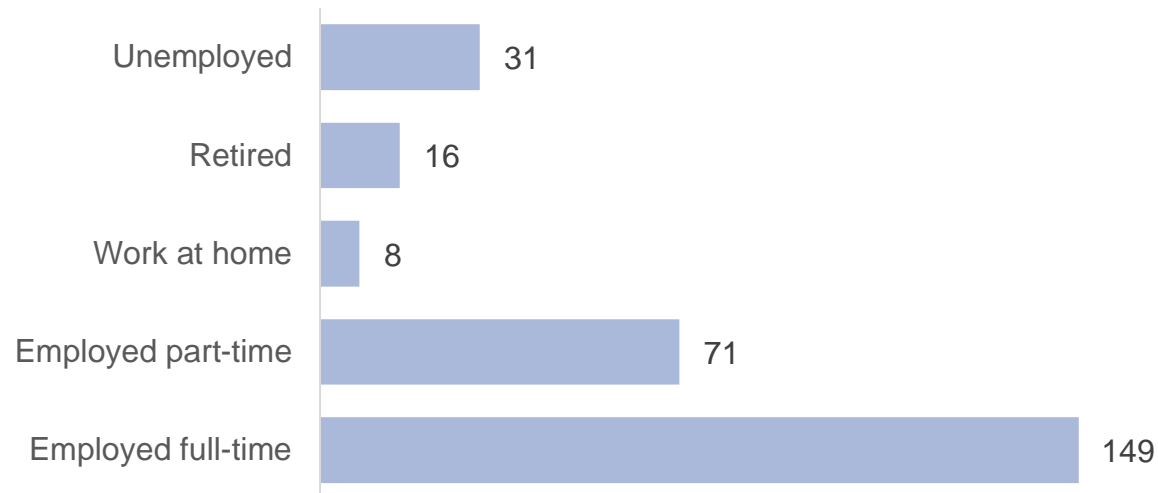


of travels per week with indirect access

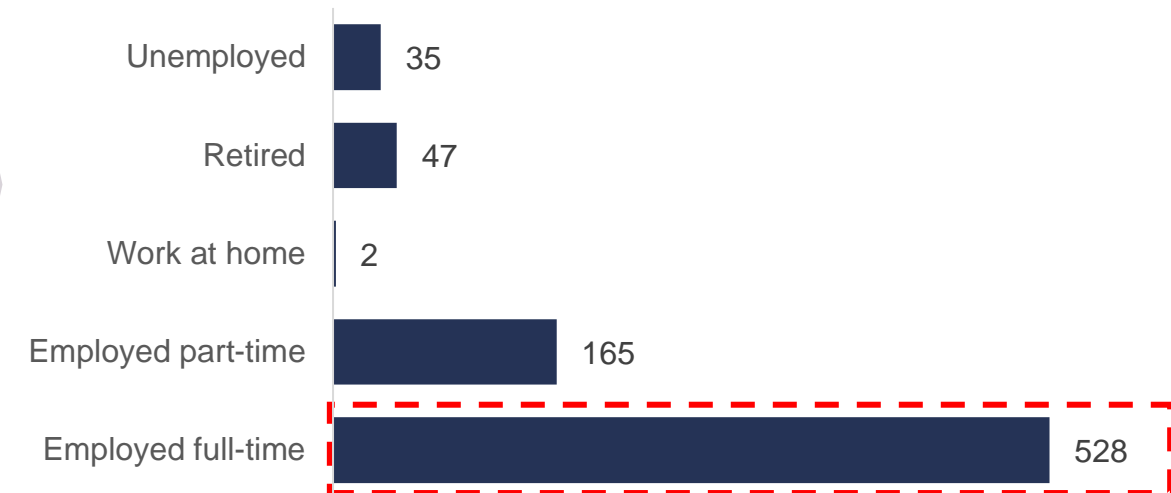
Gap Analysis – Workforce in Gananoque

We estimated that there are 149 residents who have full-time job but no direct car access

of residents without direct access to car that travel to Kingston (More than rarely)



Number of travels per week without direct access to car



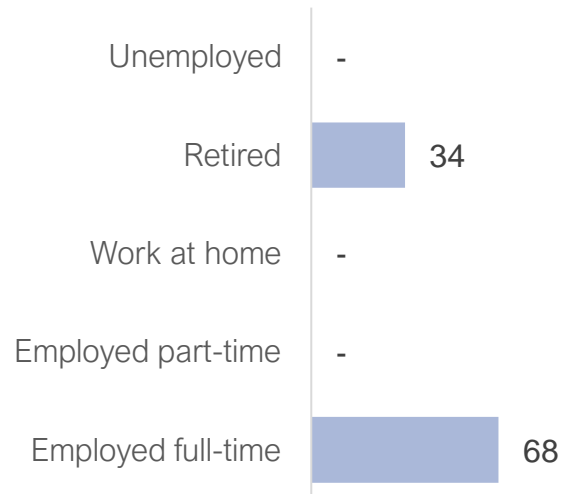
Workforce

As there are estimated **149 residents** who hold a full-time job in Kingston, we believe that there will be **528 indirect travels** (potential ridership) from Gananoque to Kingston per week

Gap Analysis – Workforce in TLTI

We estimated that there are 68 residents who have full-time job but no direct car access

Number of residents without direct access who travel to Kingston (More than Rarely)



Number of travels per week without direct access



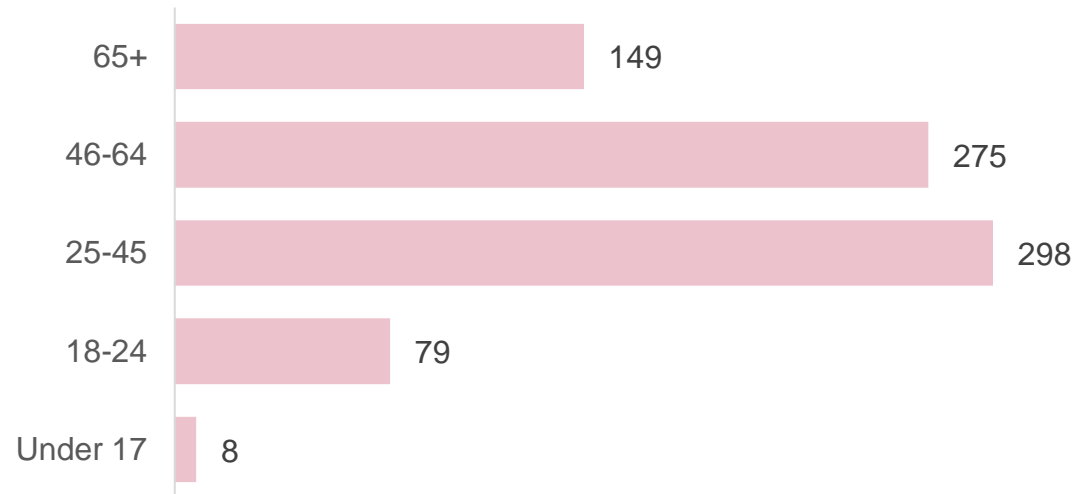
Workforce

As there are estimated **68 residents** who hold a full-time job in Kingston, we believe that there will be **273 indirect travels** (potential ridership) from TLTI to Kingston per week

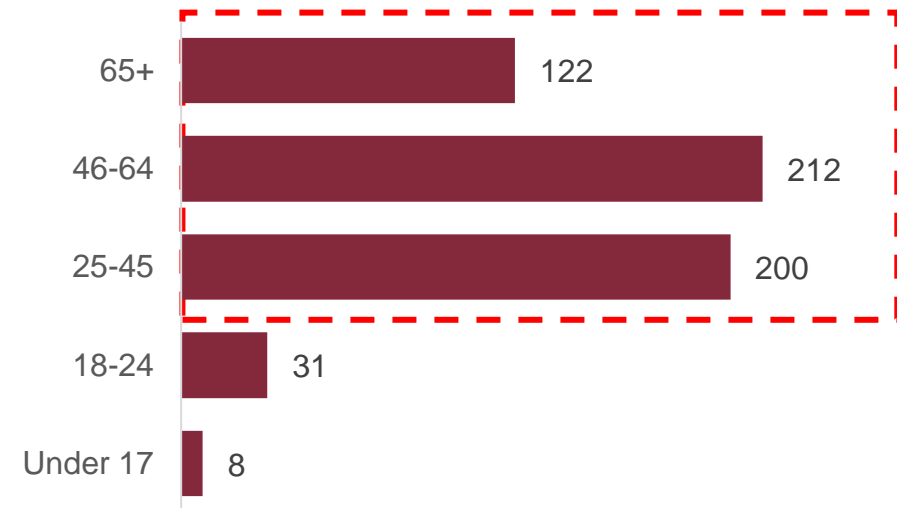
Gap Analysis – Med Patients in Gananoque

We estimated that there are 684 residents who travel for med treatment but no direct car access

Number of residents without direct access who travel to Kingston (More than Rarely)



Number of travels per week without direct access



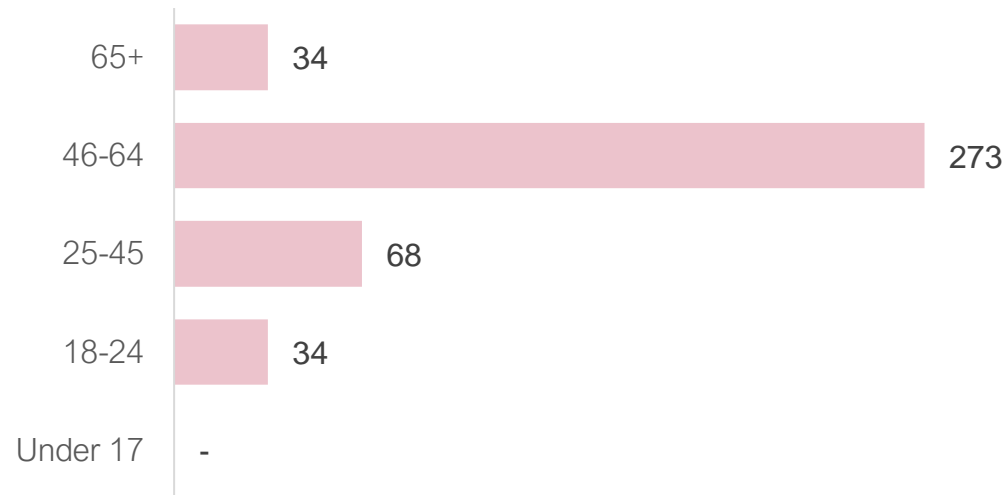
Med Patients

As there are estimated **722 residents** travel to Kingston for medical treatment , we believe that there will be **534 indirect travels** (potential ridership) from Gananoque to Kingston per week

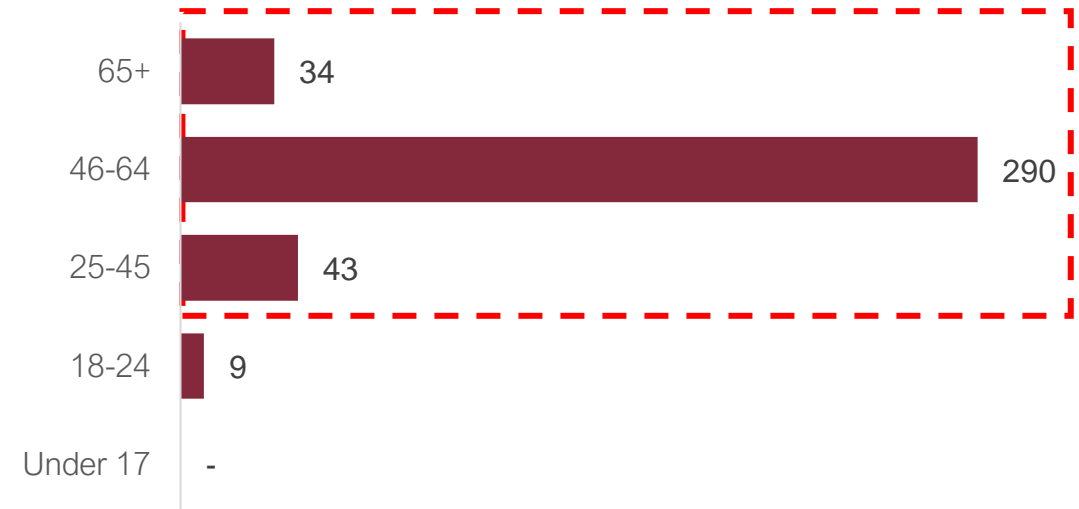
Gap Analysis – Med Patients in TLTI

We estimated that there are 341 residents who travel for med treatment but no direct car access

Number of residents without direct access who travel to Kingston (More than Rarely)



Number of travels per week without direct access



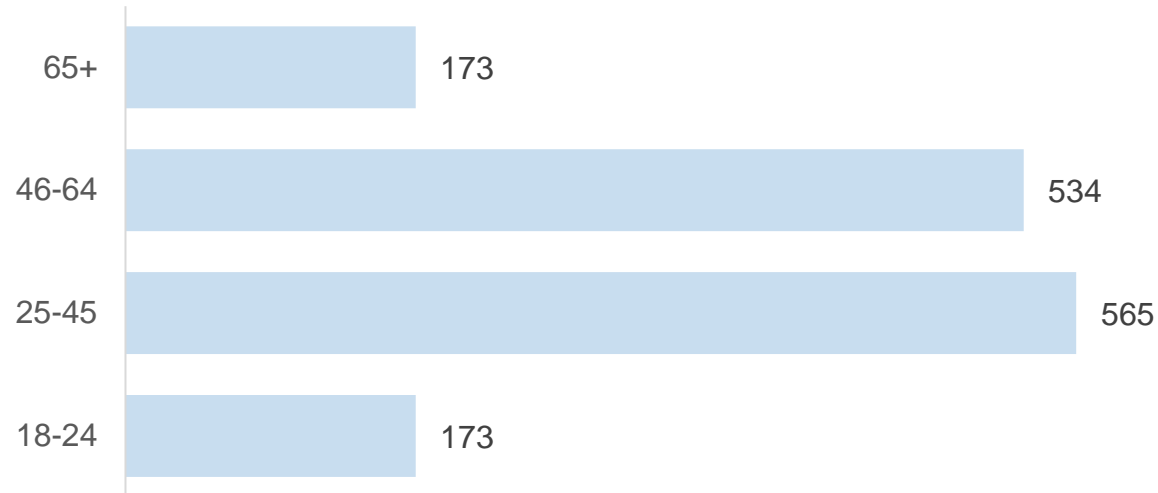
Med Patients

As there are estimated **409 residents** travel to Kingston for medical treatment , we believe that there will be **367 indirect travels** (potential ridership) from TLTI to Kingston per week

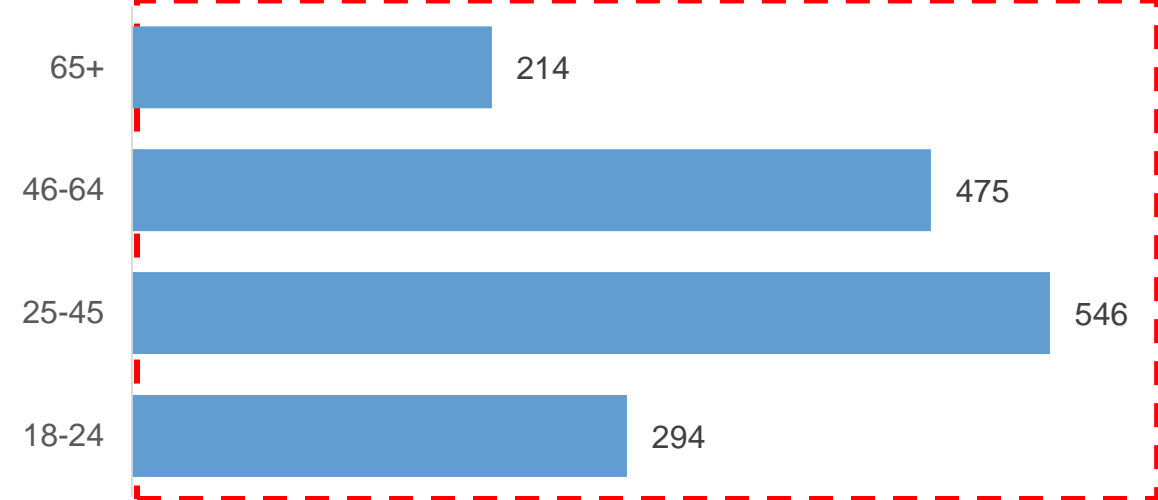
Gap Analysis – Social Group in Gananoque

We estimated that there are 1445 who come to Kingston for social but no direct car access

Number of residents without direct access who travel to Kingston (More than Rarely)



Number of travels per week without direct access



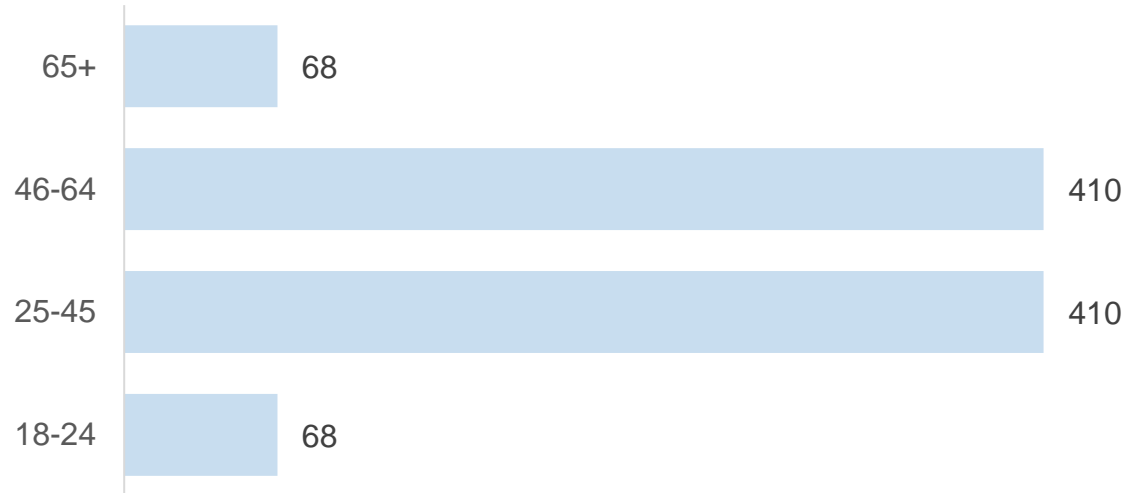
Social Group

As there are estimated **1445 residents** travel to Kingston for medical treatment , we believe that there will be **1529 indirect travels** (potential ridership) from Gananoque to Kingston per week

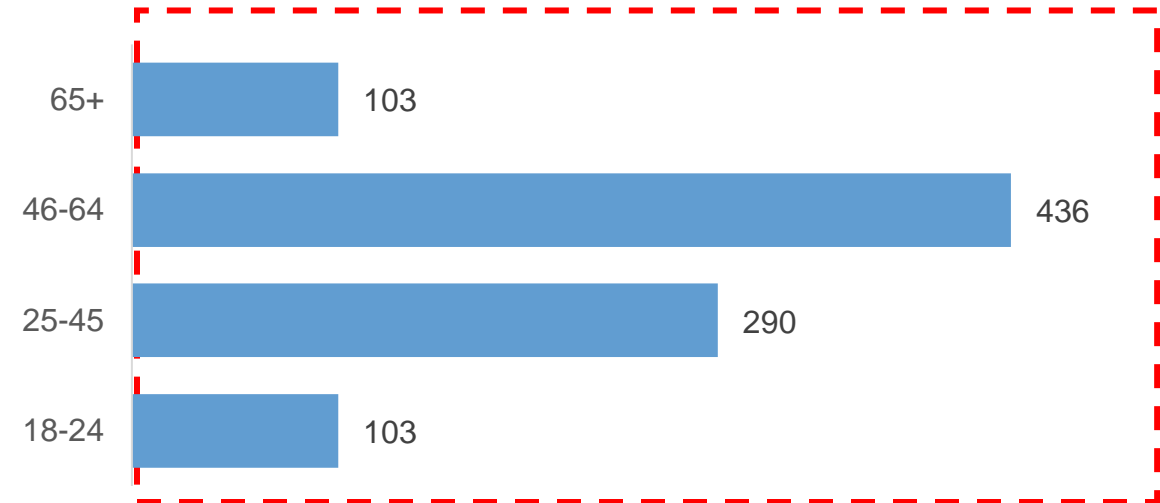
Gap Analysis – Social Group in TLTI

We estimated that there are 820 residents who come to Kingston for social but no direct car access

Number of residents without direct access who travel to Kingston (More than Rarely)



Number of travels per week without direct access



Social Group

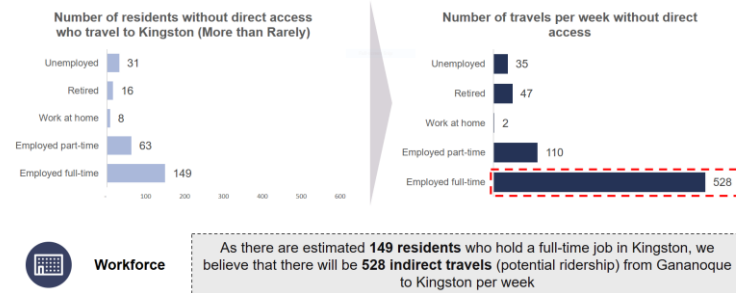
As there are estimated **956 residents** travel to Kingston for medical treatment , we believe that there will be **932 indirect travels** (potential ridership) from TLTI to Kingston per week

Gap Analysis Key Takeaways

Gap analysis helps us to identify:

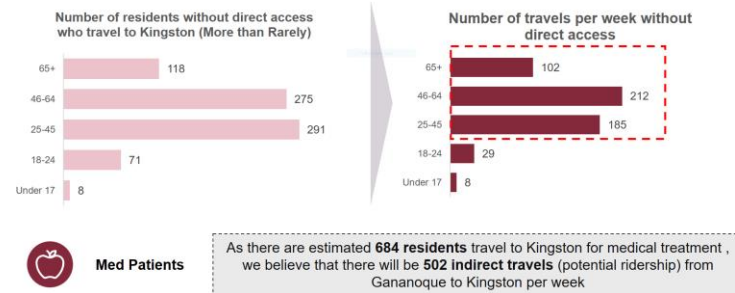
Gap analysis – Workforce in Gananoque

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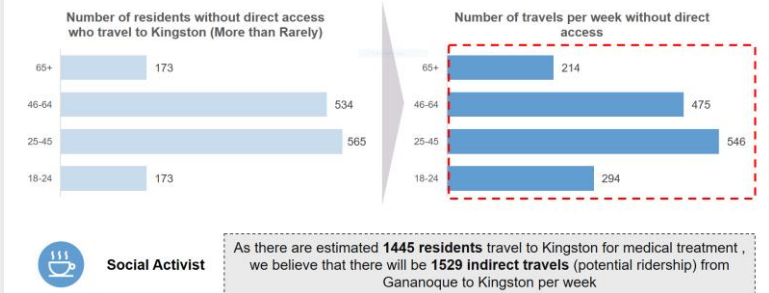
Gap analysis – Senior Treatment in Gananoque

We estimated that there are 684 residents who travel for med treatment but no direct car access



Gap analysis – Social Activist in Gananoque

We estimated that there are 1445 who come to Kingston for social but no direct car access



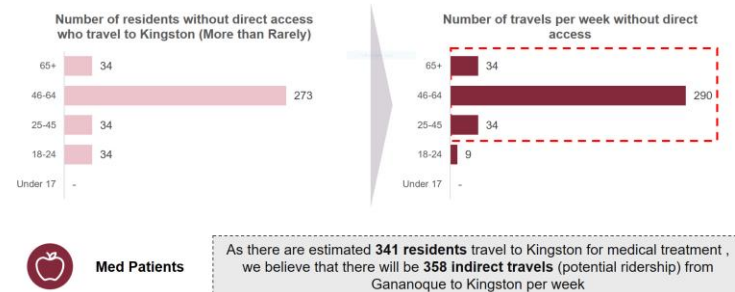
Gap analysis – Workforce in TLTl

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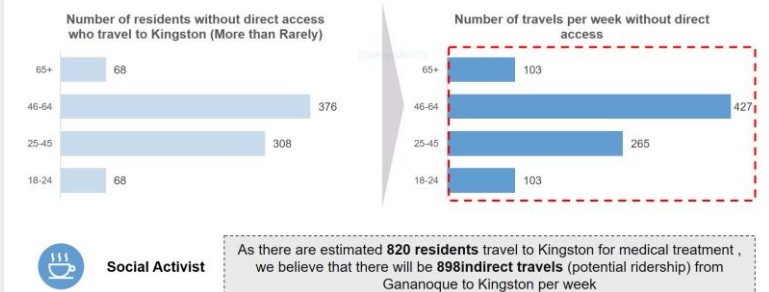
Gap analysis – Senior Treatment in TLTl

We estimated that there are 341 residents who travel for med treatment but no direct car access



Gap analysis – Social Activist in TLTl

We estimated that there are 820 residents who come to Kingston for social but no direct car access



Gap Analysis Key Takeaways

Gap analysis helps us to identify:

01 Existence of Demand

There is a demand for public transit system from a quantitative data driven approach.

02 Prioritization of Segments

Social group segment has the largest gap (ie. the greatest demand and highest potential), followed by Medical Patients segment and Workforce segment.

03 Financial Modelling

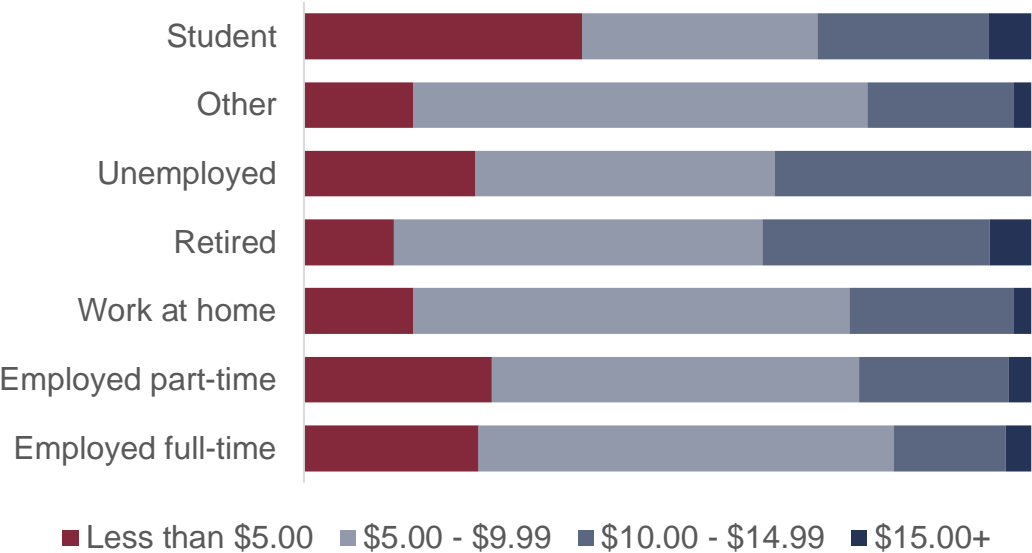
We will build our estimated number of residents with indirect access into financial model ridership growth forecast

Travel Behavior Assessment – Price Preference

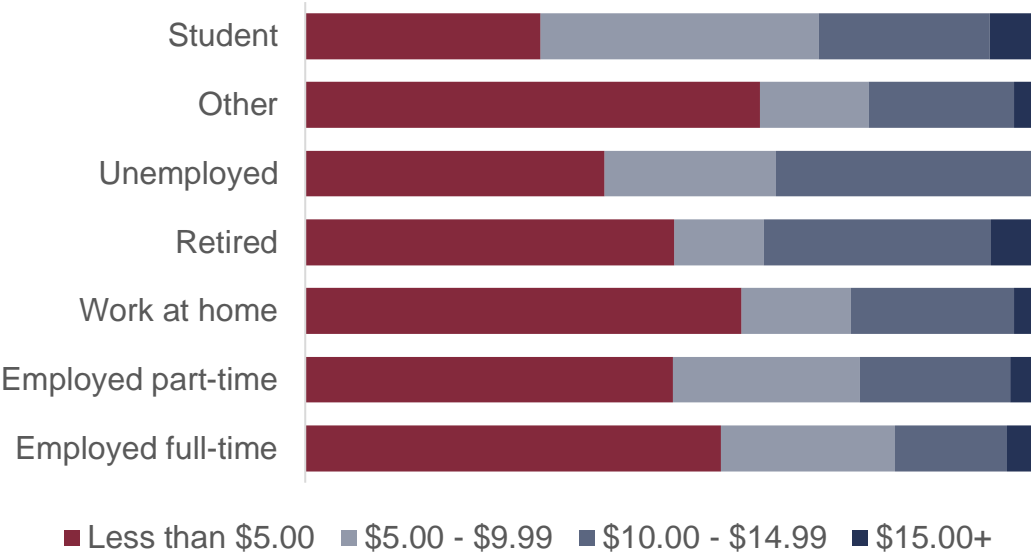
Price preference based on employment status in Gananoque and TLTI

By Employment Status

GANANOQUE



TOWNSHIP OF LEEDS AND THE THOUSAND ISLANDS

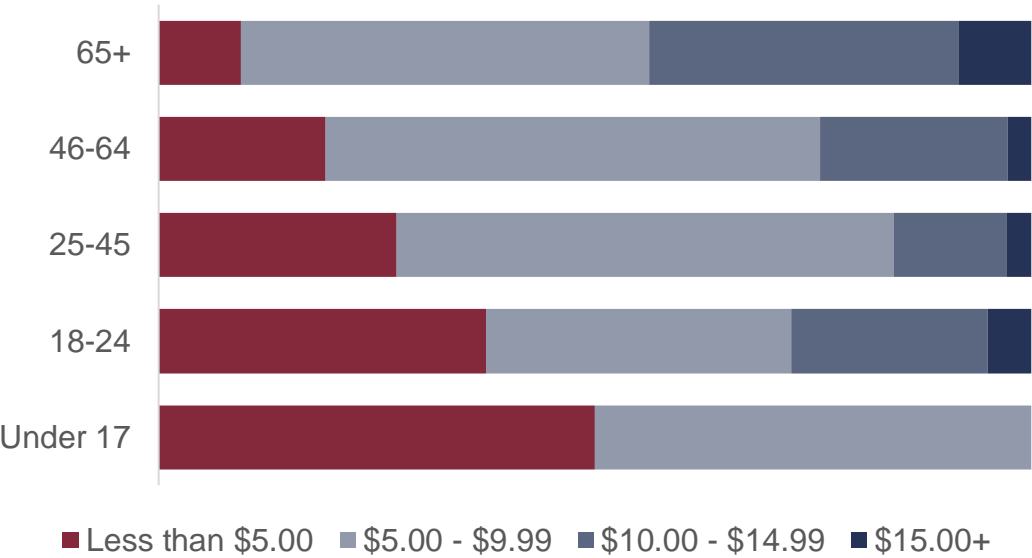


Travel Behavior Assessment – Price Preference

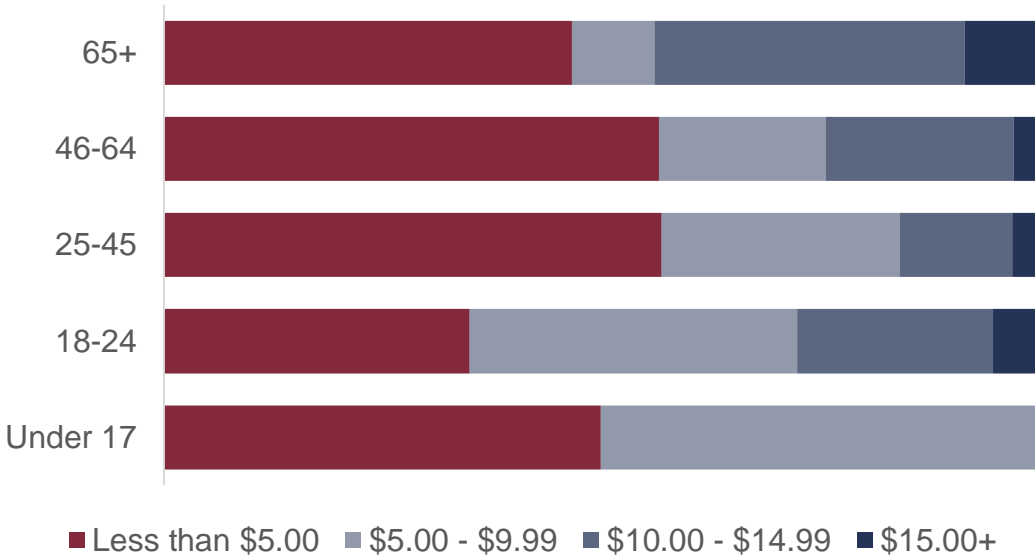
Price preference based on age in Gananoque and TLTI

By Age Group

GANANOQUE

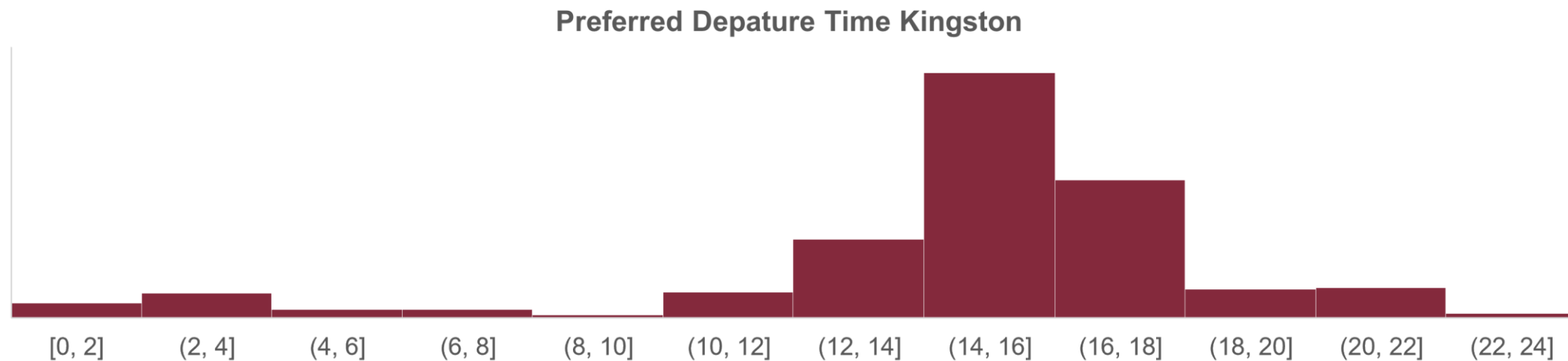
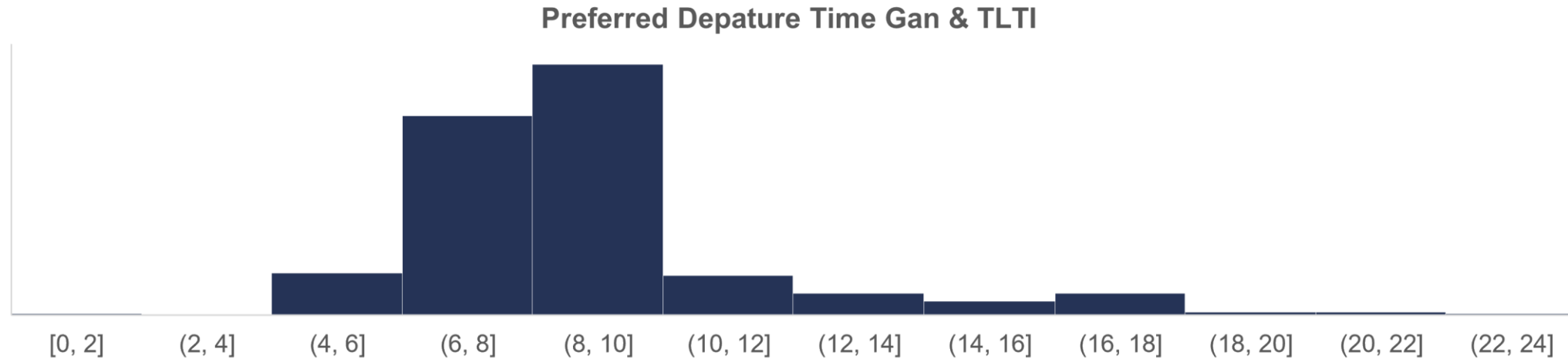


TOWNSHIP OF LEEDS AND THE THOUSAND ISLANDS



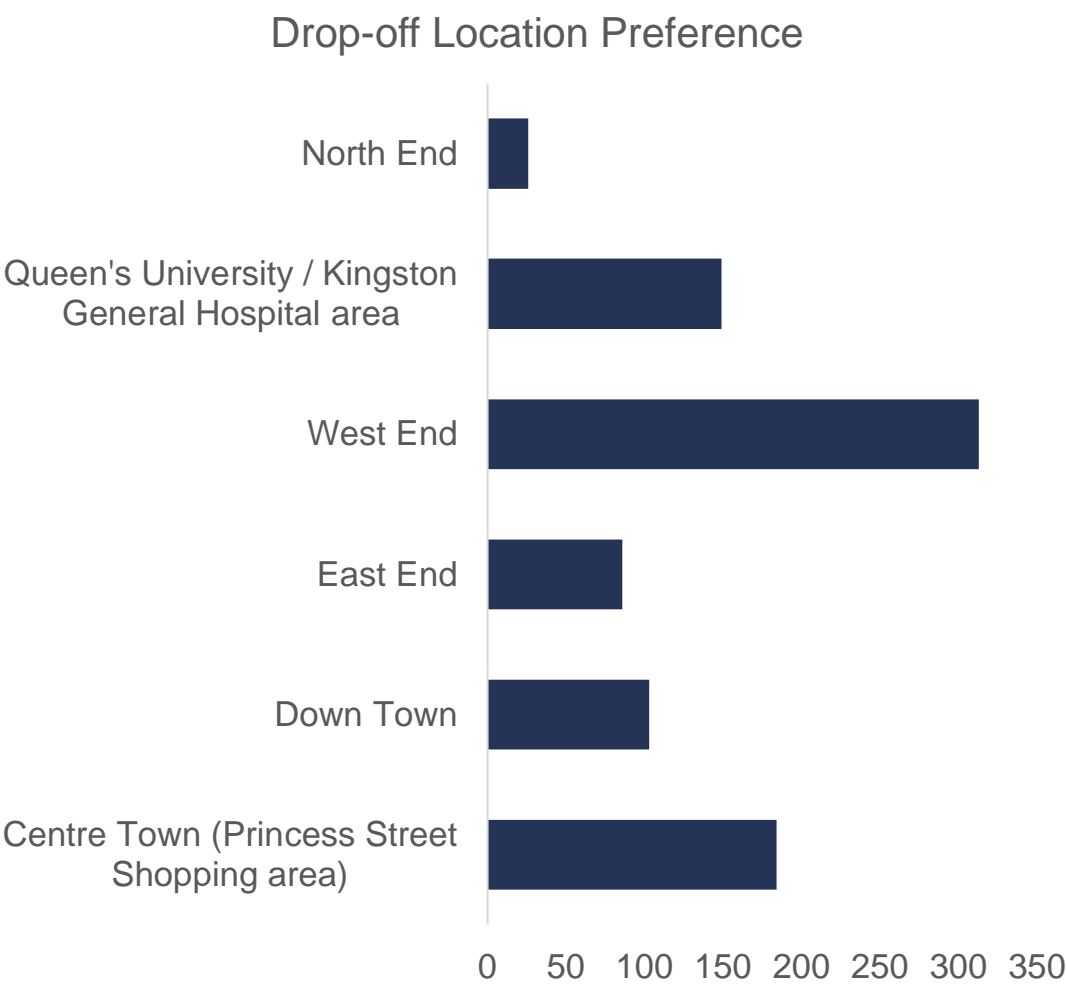
Travel Behavior Assessment – Time Preference

Departure time preference was as expected to match the typical commuter timing



Travel Behavior Assessment –Location Preference

Kingston Downtown Transfer Point is preferred to be the best drop-off location



We observed that there is a diversified need for drop-off location.

In addition, considering ease of operation, Kingston Downtown Transfer Point is the ideal drop-off location

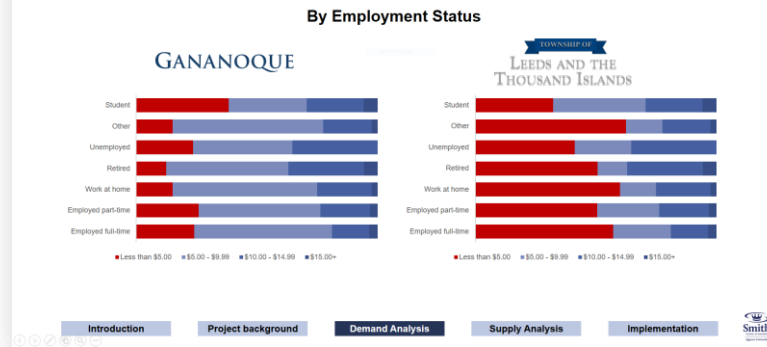


Gap Analysis Key Takeaways

Gap analysis helps us to identify:

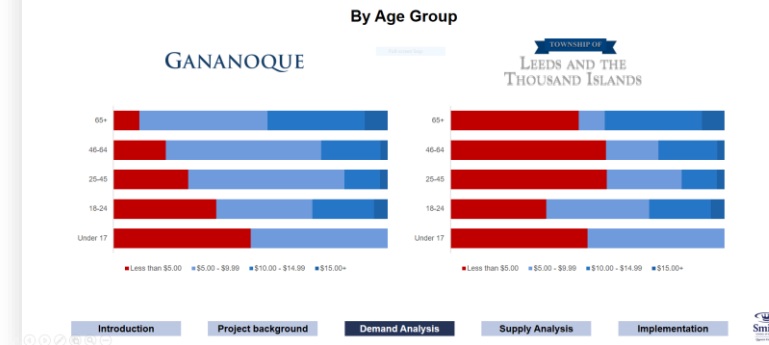
Travel Behavior Assessment – Price Preference

Price preference based on employment status in Gananoque and TLT



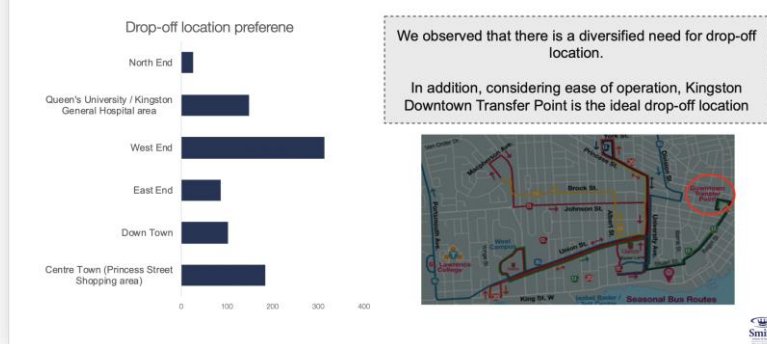
Travel Behavior Assessment – Price Preference

Price preference based on age in Gananoque and TLT



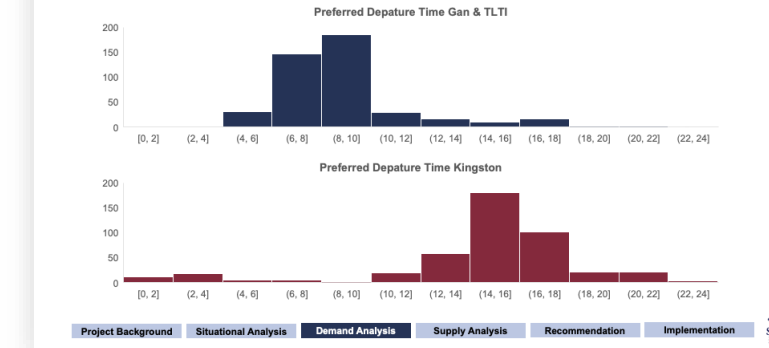
Travel Behavioral Assessment - Location

Kingston Downtown Transfer Point is preferred to be the best drop-off location



Travel Behavior Assessment – Time Preference

Departure time preference in Gananoque and Kingston



Gap Analysis Key Takeaways

Gap analysis helps us to identify:

01 Price Preference

\$5 - \$10 is a reasonable and acceptable price range for most passengers

02 Time Consideration

From hours the time preference perspective, peak time matches well with working

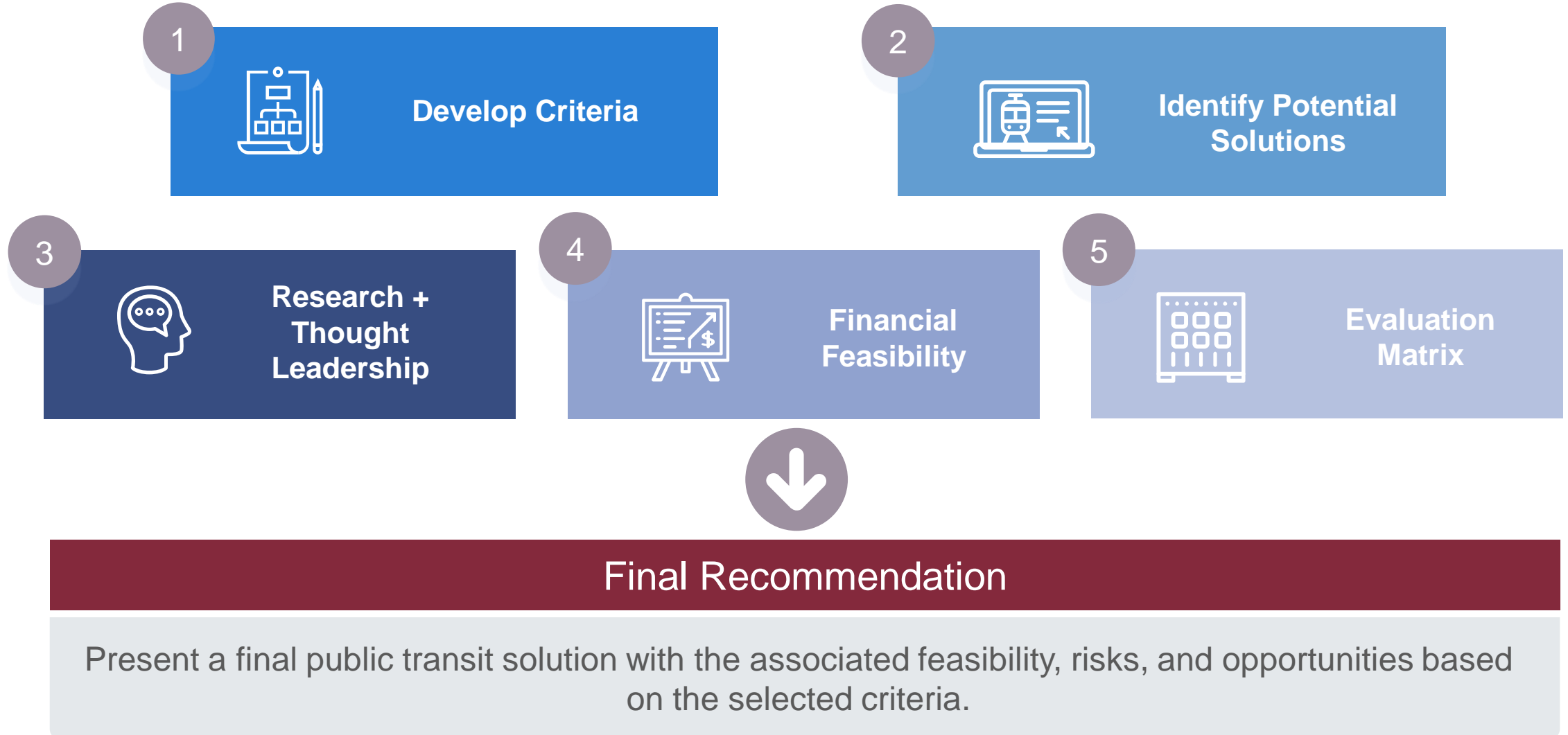
03 Location Consideration

Kingston Downtown Transfer point is considered to be the best drop off location

03 | Supply Analysis

Methodology of Assessing Transit Systems

A five-step system was used to assess the feasibility of each transit solution.



Criteria for Assessing Transit Systems

Four criteria were developed to assess the feasibility according to the clients and publics needs.

Financial Feasibility

This includes both the financial sustainability and feasibility of implementation of the recommended transit system.



Satisfaction of Needs

Does the transit system satisfy the defined needs understood during the demand side survey.



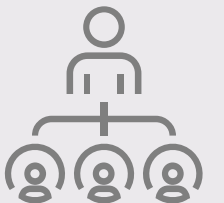
Ease of Operations

Assess the ease of operation and implementation when looking to act on the recommendation.



Aligns with Stakeholders

Ensuring that the transit system aligns with the goals outlined by stakeholders in the project.



Potential Public Transit Systems

Five potential transit solutions have been considered including various operating models.



Gananoque Operated System

The town purchases a bus and operates the system internally, hiring the necessary staff.



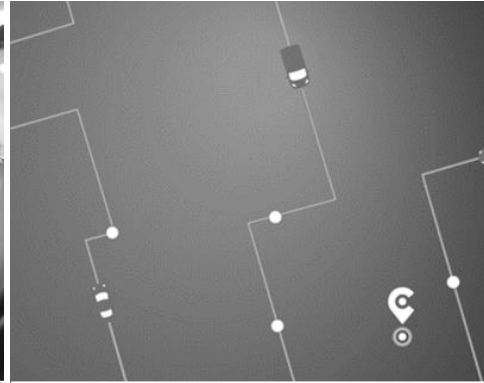
Kingston Transit Operated System

A contract is created between Kingston Transit and Town of Gananoque to run an express bus.



Private Contractor Express Bus

The operations of the bus are outsourced to a local busing company to run an express shuttle bus.



Private Contractor On Demand Bus

The operations of the bus are outsourced to a local busing company and paired with software to operate on demand transit.



Carpooling Online Application

A pre-existing application can be used to connect drivers to those in need of a ride.



Potential Public Transit Systems

Five potential transit solutions have been considered including various operating models.

Operational Risk and Implementation Challenges

Operating the system internally, hiring the necessary staff.



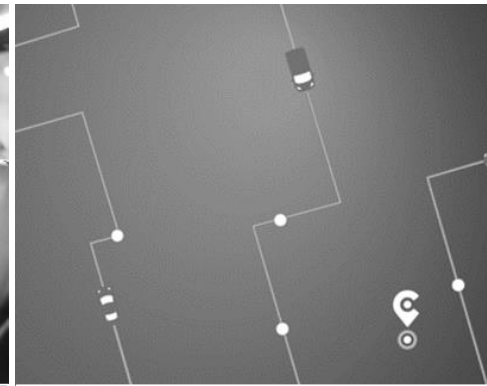
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A contract is created between Kingston Transit and Town of Gananoque to run an express bus.



Private Contractor Express Bus

The operations of the bus are outsourced to a local busing company to run an express shuttle bus.



Private Contractor On Demand Bus

The operations of the bus are outsourced to a local busing company and paired with software to operate on demand transit.



Carpooling Online Application

A pre-existing application can be used to connect drivers to those in need of a ride.



Potential Public Transit Systems

Five potential transit solutions have been considered including various operating models.



Operational Risk and Implementation Challenges

and operates the system internally, hiring the necessary staff.



Financial Feasibility

and Town of Gananoque to run an express bus.



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Option 1: Essential Parties in Operations

Summary of operations with four parties: the town, contractors, key stakeholders, and the customer.

Town of Gananoque

Front facing operators of the bus service, own the bus and pay for the operations.



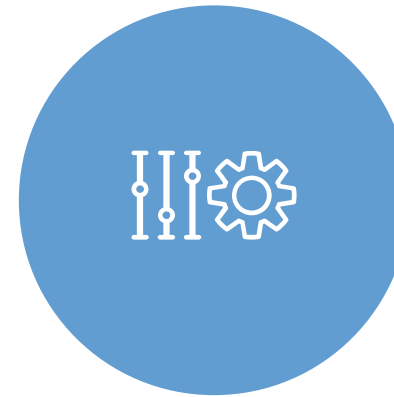
Key Stakeholders

Provide funding to the town in return for key bus stops and service that will support their businesses and employees.



Private Contractors

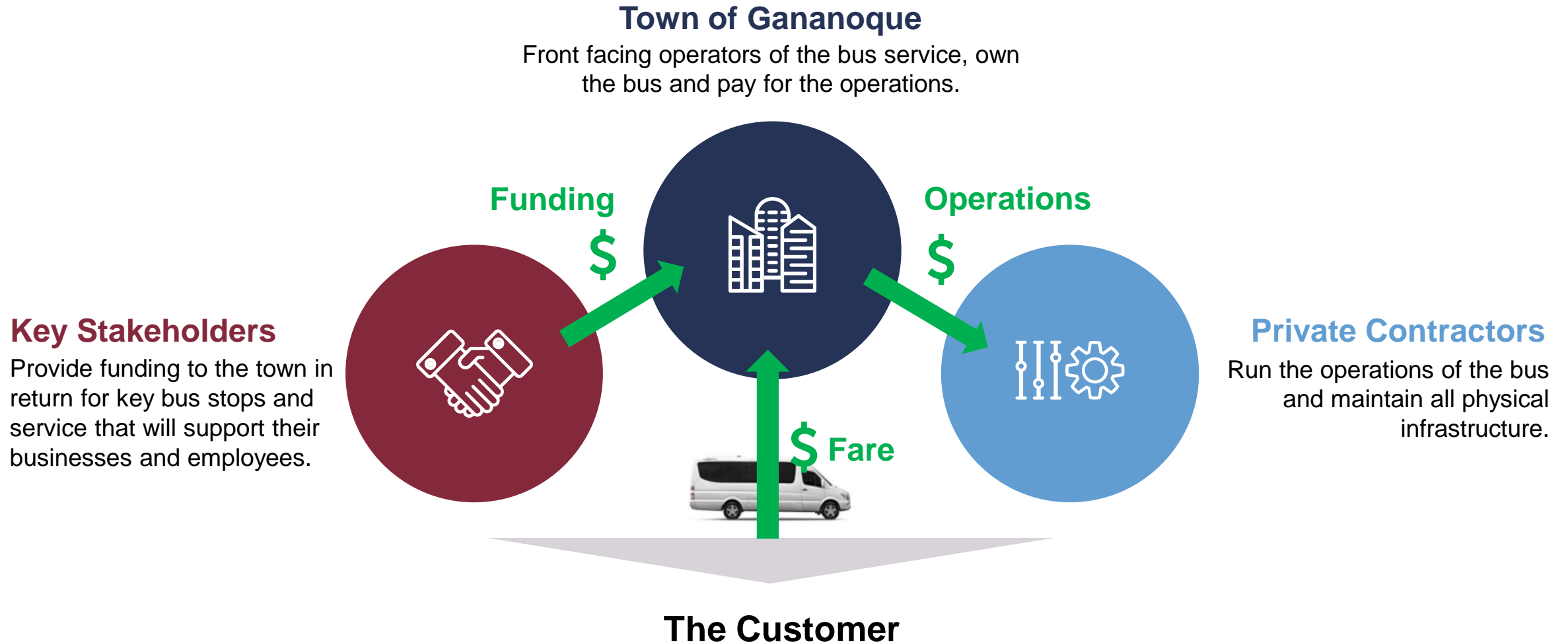
Run the operations of the bus and maintain all physical infrastructure.



The Customer

Option 1: Essential Parties in Operations

Summary of operations with four parties: the town, contractors, key stakeholders, and the customer.



Option 1: Routes Option A

The first route option includes stops at the casino, the town hall, and the downtown transfer point.

Stop 1: Shorelines Casino

Leg 1: 3 km, 7 minutes

Stop 2: Gananoque Town Hall

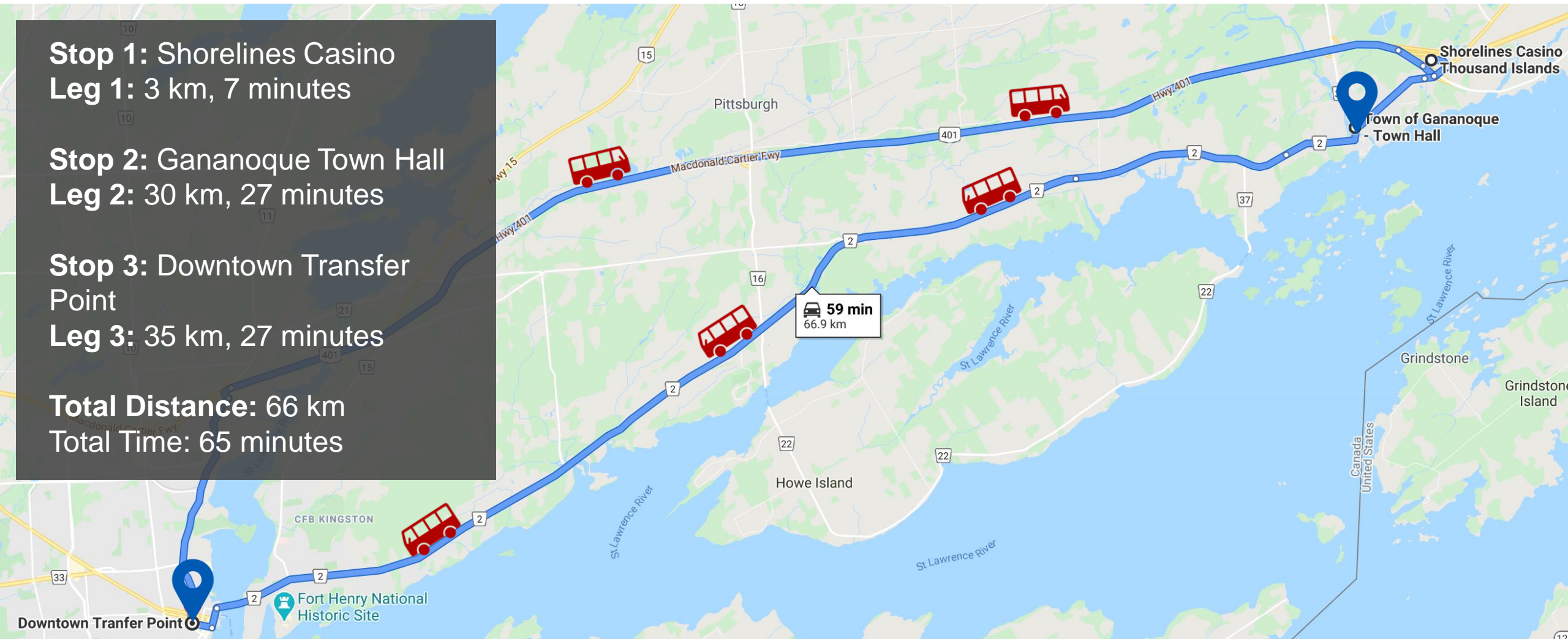
Leg 2: 30 km, 27 minutes

Stop 3: Downtown Transfer Point

Leg 3: 35 km, 27 minutes

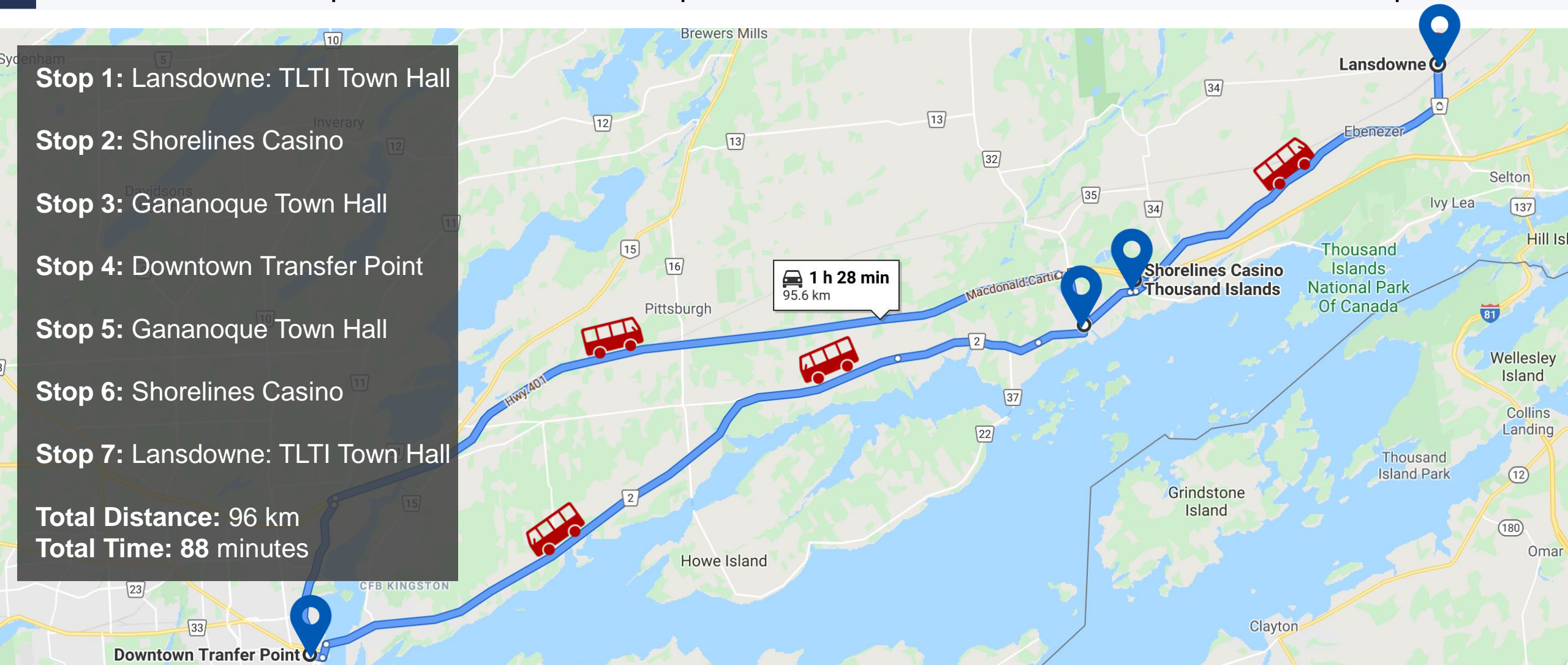
Total Distance: 66 km

Total Time: 65 minutes



Option 1: Routes Option B

The second route option also includes a stop in Lansdowne which adds 30 minutes to the loop.

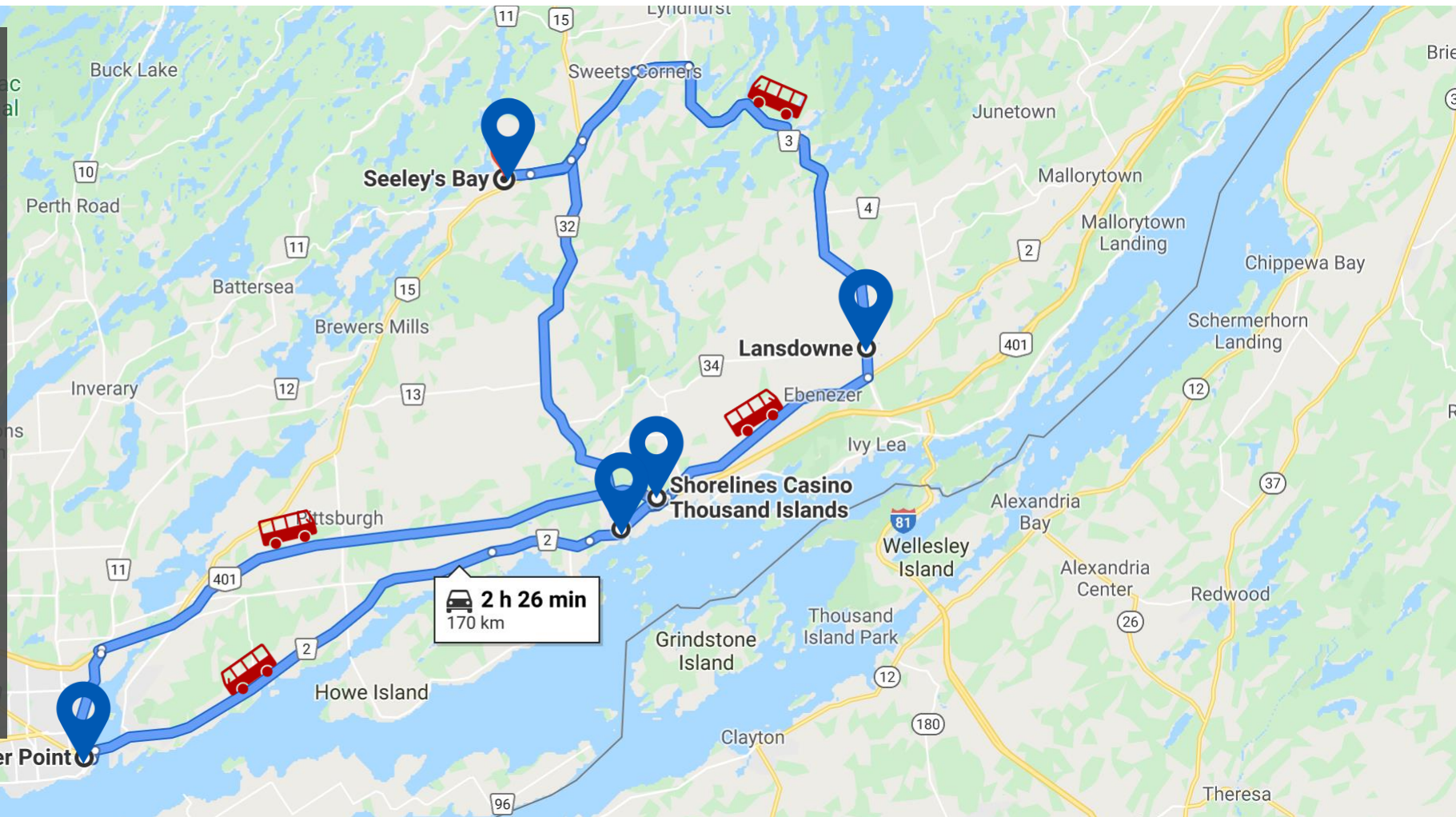


Option 1: Routes Option C

Includes Seely's Bay which broadens the service area but adds 1.5 hours to route one.

Stop 1: Lansdowne: TLTI Town Hall
Stop 2: Seely's Bay
Stop 3: Shorelines Casino
Stop 4: Gananoque Town Hall
Stop 5: Downtown Transfer Point
Stop 6: Gananoque Town Hall
Stop 7: Shorelines Casino
Stop 8: Lansdowne: TLTI Town Hall
Stop 9: Seely's Bay

Total Distance: 170 km
Total Time: 146 minutes

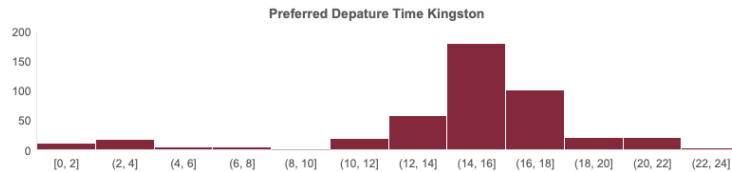
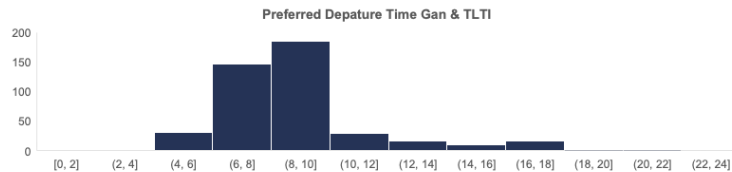


Option 1: Bus Schedule

The schedule will change according to peak demands found to be aligned with commuter times.

Travel Behavior Assessment –Time Preference

Departure time preference in Gananoque and Kingston



Project Background Situational Analysis Demand Analysis Supply Analysis Recommendation Implementation



Departure
Time



Peak demand from **7 am – 10 am**. The bus should run every hour during this period.

Return
Time



Peak demand from **3 pm – 6 pm**. The bus should run every hour during this period.

The bus will run every hour during peak hours in accordance to commuters schedules and every 3 hours during low periods.

Project Background

Situational Analysis

Demand Analysis

Supply Analysis

Recommendation

Implementation

Option 1: Other non-financial criteria

Option 1 is favorable despite not entirely satisfying needs and having a high reliance on stakeholders.

Satisfaction of Needs



Aligns with Commuters

Addresses the peak demands due to commuters travel times.



Does Not Cover Accessibility

Proposed shuttle buses cannot accommodate all accessible needs.



Reasonably Priced

The fare rate of 10\$ is much cheaper than the current alternative of a taxi.



Ease of Operations



Aligns with Stakeholders



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Ease of Operations



Low Responsibility

Town has little to no responsibility in operations requiring little resources.



Easy Implementation Trial

Idea can be trialled easily to assess the demand for such a service.



Scalable

More buses can be simply purchased and added with extended routes.



Aligns with Stakeholders



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Scalable

More buses can be simply purchased and added with extended routes.



Aligns with Stakeholders



Stops at Casino Regularly

To attract the casino as a key stakeholder the bus will stop there.



No Annihilation of Wheels of Care

The service can run alongside Wheels of Care.



Reliant on Stakeholders

Implementation is reliant on funding of key stakeholders.



Option 1: Financial Methodology Breakdown

The financial methodology identifies the gap between revenues and costs which must be filled.

01

Derive Costs

There are two costs:

1. **Operating expenditure**
2. **Upfront investment capital expenditure**

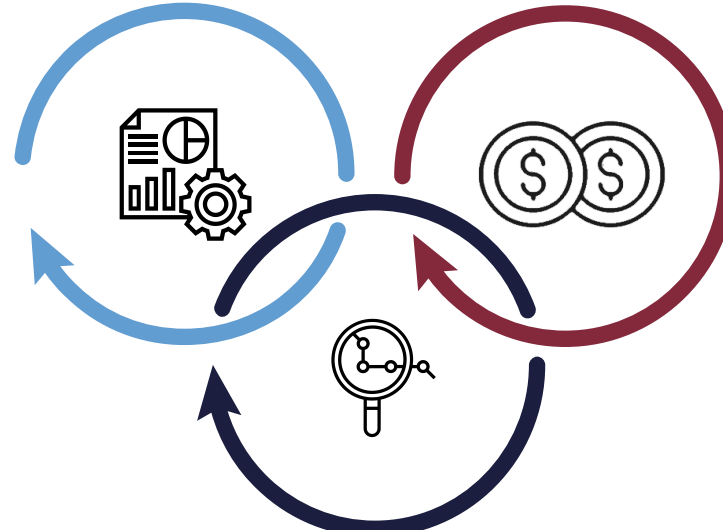
To obtain these, we interviewed multiple thought leaders, service providers, and industry experts.

02

Derive Fare Revenue

Fare revenue is calculated by multiplying

1. A percentage of **total potential ridership**
2. **Estimated fare price**, based on survey result and benchmarking



03

Determine the Gap

Combining the **cost and revenue**, we identified the financial gap that needs to be filled.

Multiple funding options were investigated to close this financial gap.

Option 1: Expense Schedule

Summary of expenses from stakeholders.

Key Facts and Assumptions

01 Assume 350 days a year, 10 hours of operation a day

02 No price fluctuation from the third-party service provider

03 Fixed expenditure is a function of maintenance and depreciation

04 Variable expenditure includes gas and service fee

**Third-Party
Owns Bus**

**Gananoque
Buys Bus**

Variable Expenses

**\$206K /
Year**

**\$189K /
Year**

Fixed Expenses

**\$0K
/ Year**

**\$42K
/ Year**

Option 1: Weekly Rides Projection

Summary of projected ridership.

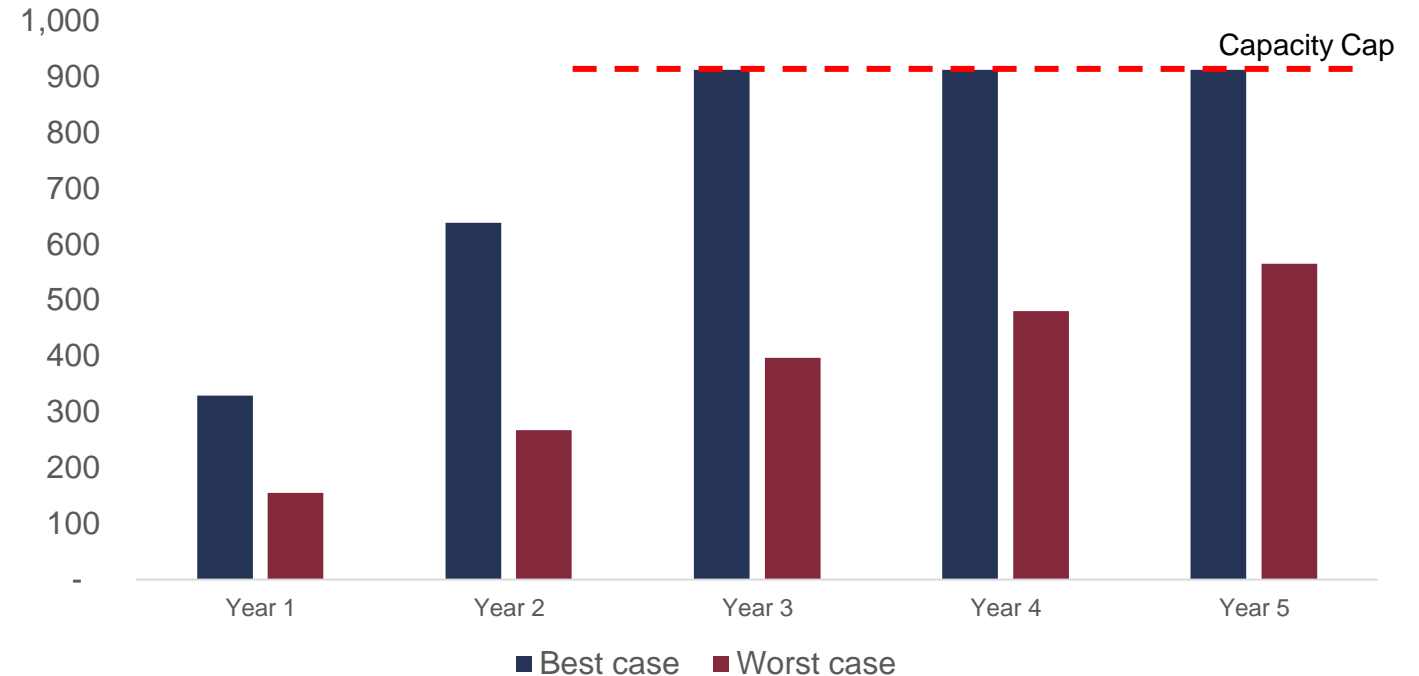
Forecasting Methodology

01 Observe total potential ridership from demand side analysis

02 Estimate penetration rate (% capture) based on Loyalist, Desoronto and Shoreline shuttle benchmarking

03 Set maximum cap at 921 rides per week based on seat capacity

Ridership Forecast



The Plateau in year 3 is based on capacity limits for one bus, leading to recommended phase two based on success.

Option 1: Fare Feasibility

Currently Kim has two options for independent travel, buy a car or take an uber/taxi.



Taxi or Uber
\$100 / day
\$2200 / month



Bus
\$20 / day
\$246 / month



Car
\$33 / day
\$710 / month

Our Suggested Fare Rate

79.17% of Survey Respondents chose \$5 – \$10 or a **higher** price range as affordable.
We chose \$10 based on its benefit to financial sustainability.

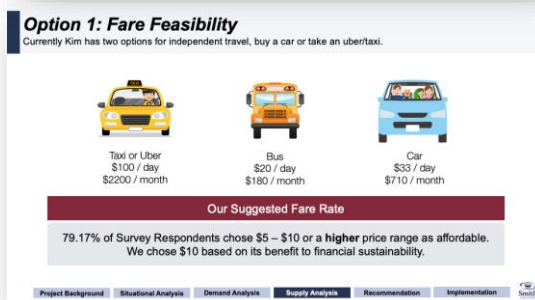
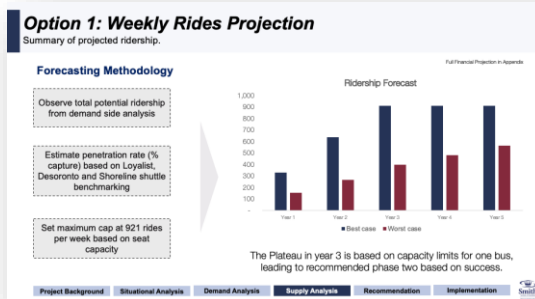
Option 1: Proposed Fare Structure

Proposed fare structured based on Kingston Transit's fare structure

Category	Child	Youth	Adult	Senior
Ages:	0-14	15-24	25-64	65+
Cash	Free	\$10	\$10	\$10
<u>Monthly Pass</u> Unlimited rides per calendar month	Free	\$183.00	\$246.25	\$183.00
<u>Affordable Monthly Pass</u> Eligibility based on income Unlimited rides per calendar month	Free	\$91.50	\$123.00	\$91.50
<u>Weekly Pass</u> Unlimited rides on 7 consecutive days	Free	\$211.50	\$211.50	\$211.50
<u>Commuter 5 Pass</u> Unlimited rides on 5 consecutive weekdays	Free	\$69.50	\$69.50	\$69.50
<u>Multi-ride Pass</u> Sold in multiples of 6	Free	\$41.50	\$50.75	\$41.50
<u>Day Pass</u> Unlimited rides for the day	Free	\$17.50	\$17.50	\$17.50

Option 1: Revenue Schedule

Summary of revenues from stakeholders.



Option 1: Proposed Fare structure
Proposed fare structured based on Kingston's fare structure

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Day Pass	Free	\$17.50	\$17.50	\$17.50
Unlimited rides for the day				

Project Background | Situational Analysis | Demand Analysis | **Supply Analysis** | Recommendation | Implementation

1st Year Revenue

5th Year Revenue

Best Case
Scenario

\$78K /
Year

\$215K
/ Year

Worst Case
Scenario

\$37K /
Year

\$134K
/ Year

Project Background

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Option 1: Financial Gap

Identification of the gap, difference between revenues and costs that must be filled.

Worst Case	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue	36,671	63,233	94,114	114,121	133,971
Expense	231,175	231,175	231,175	231,175	231,175
Gap	(194,504)	(167,942)	(136,903)	(117,054)	(97,204)

Best Case	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue	77,817	150,435	214,919	214,919	214,919
Expense	206,500	206,500	206,500	206,500	206,500
Gap	(128,683)	(56,065)	8,419	8,419	8,419

In the worst-case scenario, this is the gap that needs to be fill with grants, key stakeholder contribution

Option 1: Grants and Partnerships

Critical stakeholders in the system's financial sustainability.

Grant Funding



Ontario
Trillium Foundation



Township of
Leeds and the
Thousand Islands

Local Business



Schools



**ROYAL MILITARY
COLLEGE OF CANADA**

Project Background

Situational Analysis

Demand Analysis

Supply Analysis

Recommendation

Implementation

Option 1: Grants and Partnerships

Critical Partnership based on the Casino's existing shuttle service.

Grant Funding



Ontario
Trillium Foundation



Township of
Leeds and the
Thousand Islands

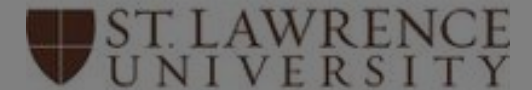
Local Business



CardinalHealth
Essential to care™



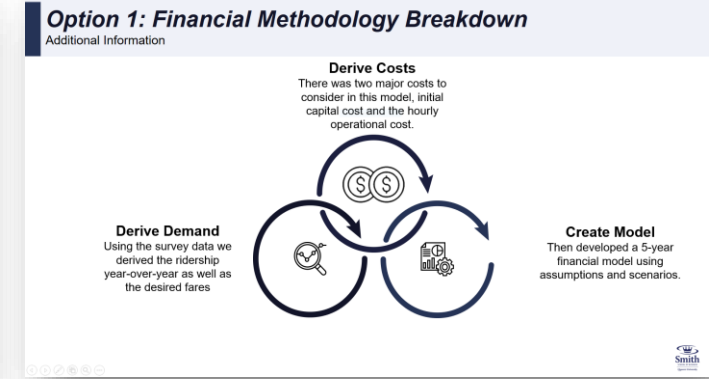
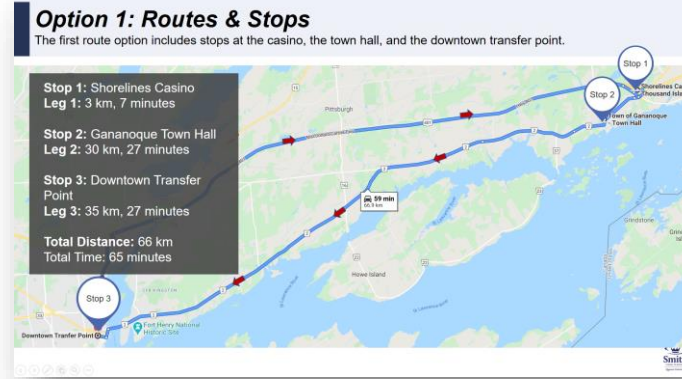
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**ROYAL MILITARY
COLLEGE OF CANADA**

Option 1: Express Bus Summary

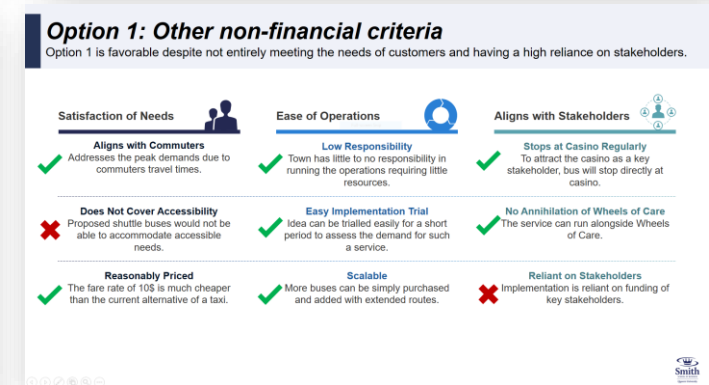
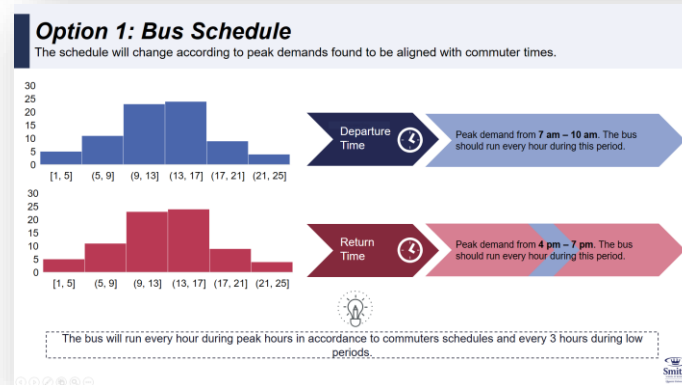
Summary of Key Findings



Option 1: Fare structure

Slide summary

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		Free	\$17.50	\$17.50	\$17.50



Option 1: Express Bus Summary

Summary of Key Findings

01 Financially Feasible

When factoring in appropriate fare levels, grant funding, and stakeholder support this is financially feasible.

02 Operational and Scalable

This can be tested and implemented with ease, leaving the opportunity for future scaling according to demand.

03 Reliant on Contractor

The partnership between a third-party contractor relies on their capabilities to create a successful service.

Potential Public Transit Systems

Five potential transit solutions have been considered including various operating models.

Operational Risk and Implementation Challenges

Bus and operating the system internally, hiring the necessary staff.



Financial Feasibility

and Town of Gananoque to run an express bus.



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A pre-existing application can be used to connect drivers to those in need of a ride.



Option 2: What is On-Demand Transit?

On-Demand Transit is a flexible transport system that utilizes technology to enhance the efficiency.

Flexible Public Transport

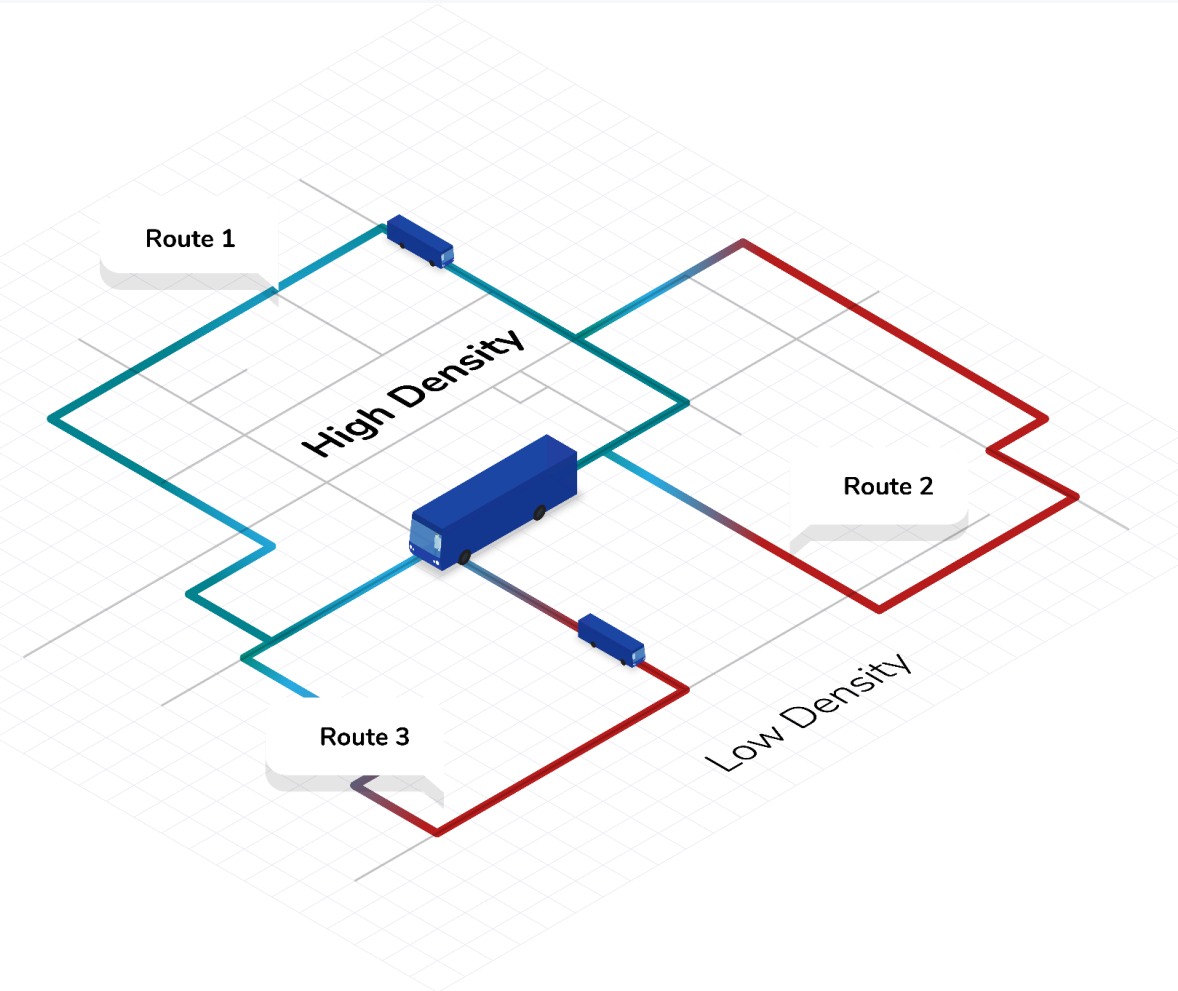
A form of shared public transport where vehicles alter their routes based on particular transport demand in that moment rather than using a fixed route or timetable.

Highly Efficient

Passengers can hail an on-demand bus in to their desired stop real-time through an app, or phone call, which will allow more efficient use of buses.

Applicable to Rural Areas

One of the most widespread uses of on-demand transit is in areas of low passenger density and demand where a regular bus service is not considered to be financially viable.



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Option 2: How Does On-Demand Transit Work?

On-Demand Transit utilizes technology to optimize a route that meets demand as it fluctuates.

01

Request

Riders request rides **via phone call or app**, to and from any transit stop in their area.

02

Optimize

The system continuously optimizes **entire fleet**, in real-time.

03

Guide

Drivers are guided through optimal routes one stop at a time.

04

Adjust

The software **continuously re-optimizes** routes on the fly.



Option 2: Who Provides the Software?

This is a sample of available software providers that can partner with the third-party contractor.

Software as a Service (SAAS)



Operator side to organize stops and monitor buses. Ensures maximum capacity of ridership.



Rider side website and app for customers to book rides through. Riders can track vehicle locations and ETA.



Driver side guiding their day with turn-by-turn navigation with standard smart phones and tablets.

Available Software Providers



On-Demand software will cost \$30,000 - \$50,000 annually to license and utilize it. This higher cost comes with a higher ridership, bus route efficiency, and satisfaction of needs.

Option 2: Who uses On-Demand Transit?

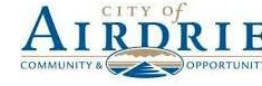
Several municipalities across Canada have begun using On-Demand Transit as a viable alternative.



Province	Ontario	Ontario	Ontario	Ontario	Ontario	Alberta	Alberta	Alberta
Population	14,625 (+TLTI)	50,720	73,368	145,662	1,774	68,091	25,853	28,881
Population Density (/sq.km)	734	818	1,250	687	706	728	867	1,471
Approach	-	Night buses + specific routes	Night bus pilot	On-Demand access to transit hub	Paired with fixed route system	Entire transit system	Entire transit system	Entire transit system
Software Provider	-	Pantonium	Via	TapRide	Pantonium	RideCo	RideCo	RideCo

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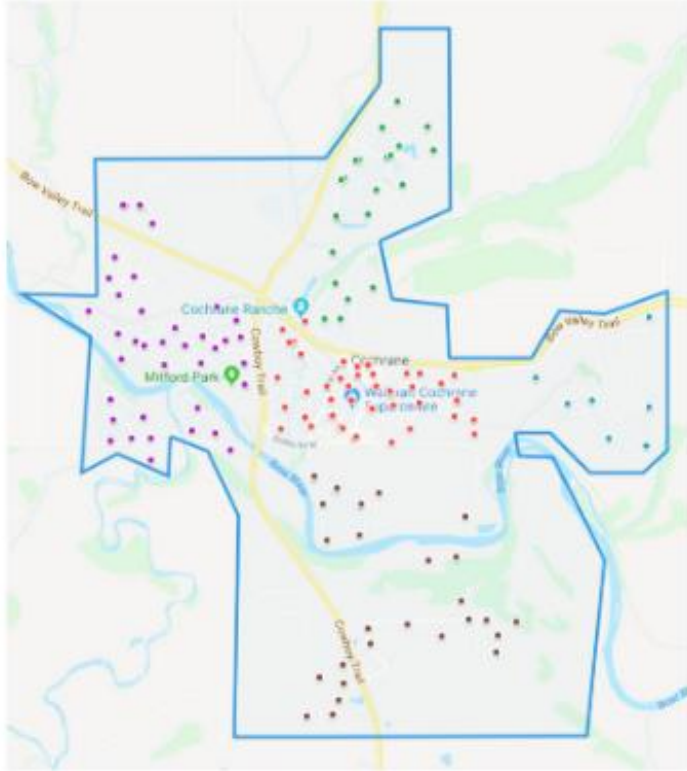
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Option 2: Case Study – Cochrane, AB

The Town of Cochrane partnered with RideCo and Southland Buses to deliver On-Demand Transit.



Problem

On the outskirts of Calgary, Cochrane has a low population density of 812 / sq.km with **no existing public transit system**.



Solution

- Awarded RFP to Southland Transit who brought on RideCo as the software provider.
- Purchased 4 x 21-passenger buses with a government grant, and cover operations with property taxes.
- Ran a 3-month pilot project and saw ~180 passengers per day.



Key Takeaways

1. **1/3 the cost** of running a fixed-route with the same coverage
2. **Adaptable to demand** (COVID-19 simply reduced bus numbers).
3. **Significant data** to better understand riders needs to improve the service.



Option 2: Why Gananoque and TLTl Should Use It

On-Demand transit offers a unique solution to the rural transit challenge of low population density.

01 Low Density → Opportunity

On-Demand is extremely effective in areas of low density where daily ridership is volatile.

02 Flexible and Scalable

Allows for a flexible transit system where buses can be adjusted and piloted in a brand new system.

03 Maximize Ridership

Optimizes the route so vehicles travel the least distance per trip to maximize riders per hour per vehicle.

Option 2: Essential Parties in Operations

Summary of operations: the town, contractors, stakeholders, software provider and the customer.



Town of Gananoque

Front facing operators of the bus service, own the bus and pay for the operations.



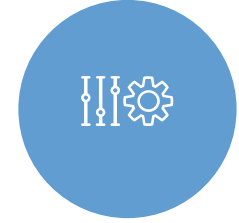
Key Stakeholders

Provide funding in return for key bus stops that will support their businesses.



Software Provider

Licenses their software to facilitate the mobilization of buses and virtual stops.



Private Contractors

Run the operations of the bus and maintain all physical infrastructure.



The Customer

Project Background

Situational Analysis

Demand Analysis

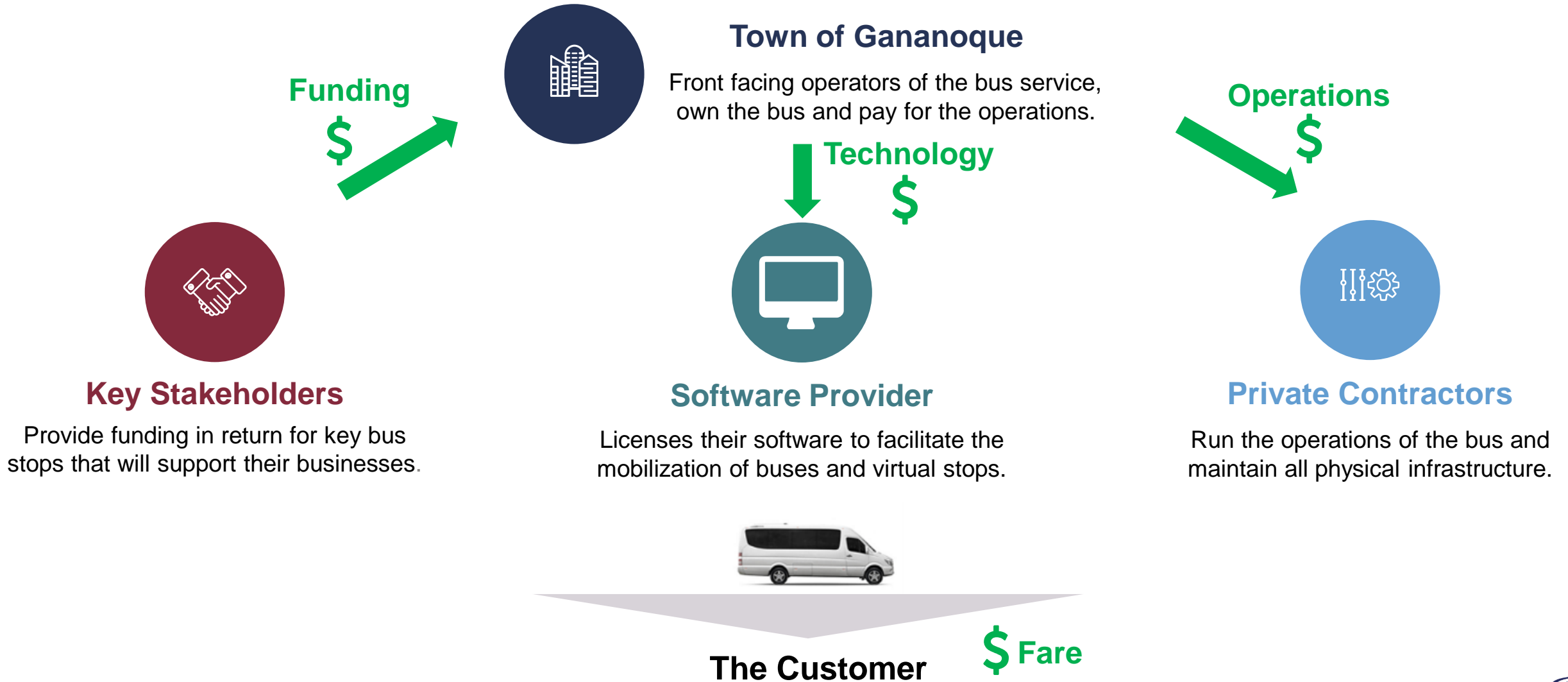
Supply Analysis

Recommendation

Implementation

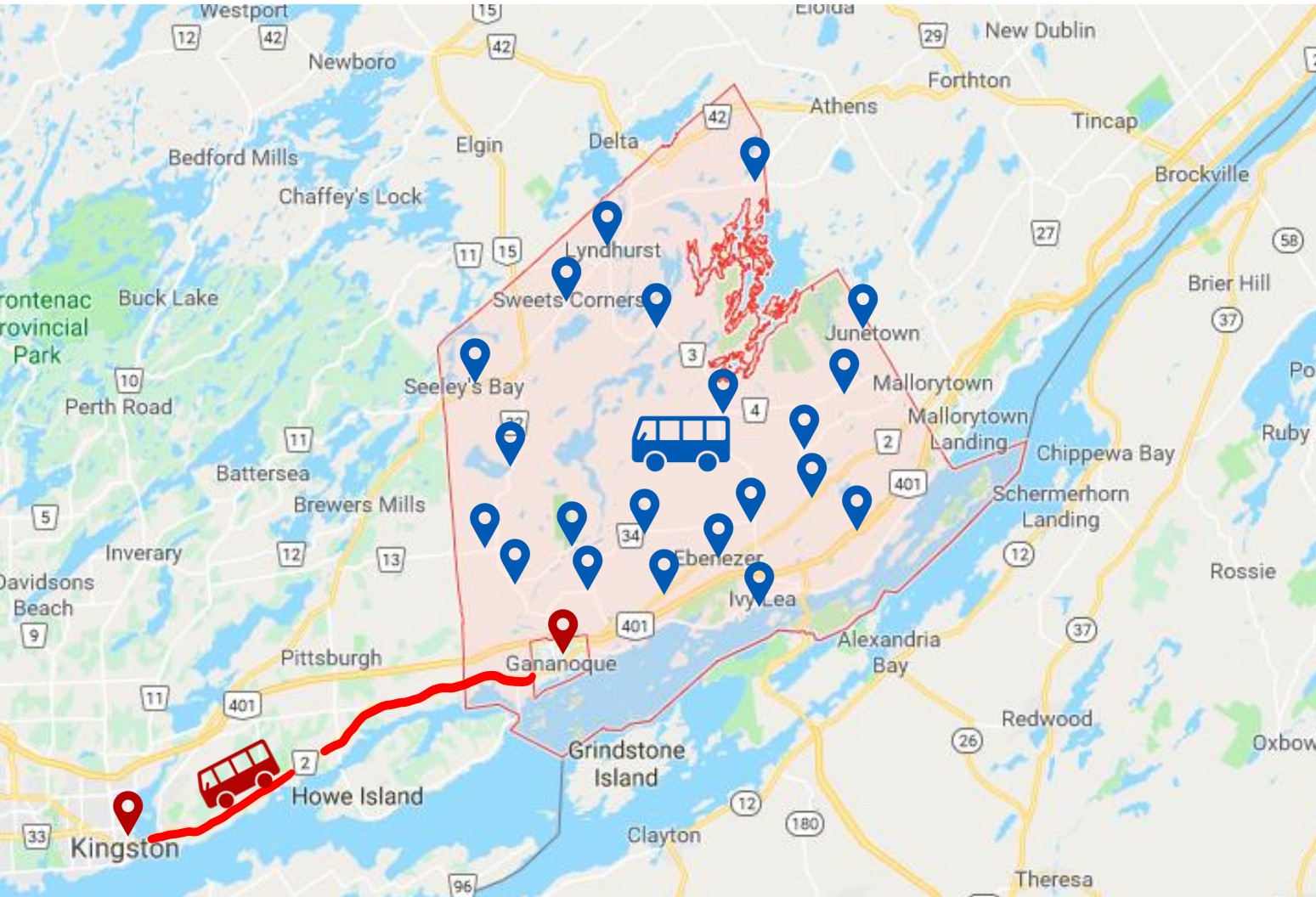
Option 2: Essential Parties in Operations

Summary of operations: the town, contractors, stakeholders, software provider and the customer.



Option 2: Routes & Stops

There would be two buses in operation, one On-Demand in TLTl and the other an Express Bus.



On Demand Service

Utilizes software to pick up passengers on demand during allotted hours of the day and funnels to Gananoque to catch express bus.

- Lansdowne – 15 min – 15 km
- Seeley's Bay – 20 min – 24 km
- Charleston – 35 min – 43 km



Express Bus Service

Runs directly between Gananoque (Town Hall + Casino) and Kingston Downtown Transfer Point on one hour loops, in alignment with the On Demand Bus.

Option 2: Non-financial criteria

Option 2 meets and surpasses many of the non-financial objectives set out by the client at the outset.

Satisfaction of Needs



Aligns with Commuters

Addresses the peak demands due to commuters travel times.



Ease of Operations



Aligns with Stakeholders



Onboarding Process

Customers will require an app or the phone number to book rides.



Services the TLTI Community

Serves a larger area of both Gananoque and TLTI.



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Ease of Operations



Adds Complexity

System becomes more complex for the contractor to operate.



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Software reduces operational costs and increases vehicle efficiencies.



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Onboarding Process

Customers will require an app or the phone number to book rides.



Optimized Operations

Software reduces operational costs and increases vehicle efficiencies.



Maximizes Ridership

Provides superior return on investment with a maximized ridership.



Services the TLTI Community

Services a larger area of both Gananoque and TLTI.



Flexible

More buses can be added as demand changes.



Reliant on Stakeholders

Implementation is reliant on funding of key stakeholders.



Option 2: On-Demand Summary

The key findings found through a supply analysis.

Option 2: What is On-Demand Transit?

On-Demand Transit is a flexible transport system that utilizes technology to enhance the efficiency.

Flexible Public Transport

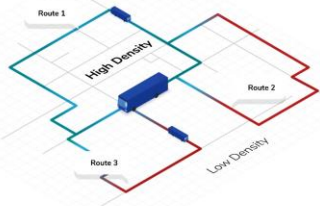
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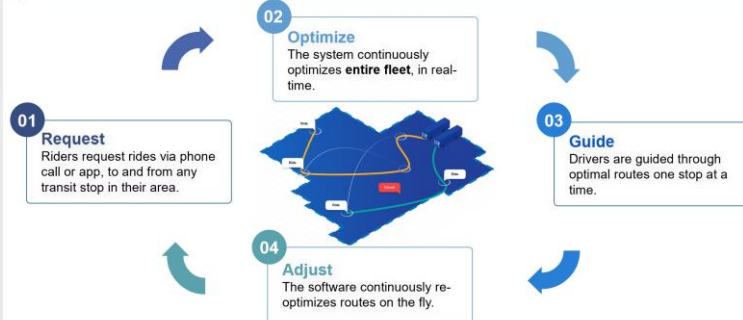


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Option 2: How Does On-Demand Transit Work?

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Project Background Situational Analysis Demand Analysis Supply Analysis Recommendation Implementation

Option 2: Who Provides the Software?

This is a sample of available software providers that can partner with the third-party contractor.

Software as a Service (SAAS)

Operator side to organize stops and monitor buses. Ensures maximum capacity of ridership.

Rider side website and app for customers to book rides through. Riders can track vehicle locations and ETA.

Driver side guiding their day with turn-by-turn navigation with standard smart phones and tablets.

Available Software Providers



Project Background Situational Analysis Demand Analysis Supply Analysis Recommendation Implementation

Option 2: Who uses On-Demand Transit?

Several municipalities across Canada have begun using On-Demand Transit as a viable alternative.

	GANANOQUE	SELEVILLE	SARULT STE MARIE	ROSE REGION TRANSIT	Deseronto	AIRDRIE	COLT	Okotoks
Province	Ontario	Ontario	Ontario	Ontario	Ontario	Alberta	Alberta	Alberta
Population	14,625 (+TLTI)	50,720	73,368	145,662	1,774	68,091	25,853	28,881
Population Density (/sq.km)	734	818	1,250	687	706	728	867	1,471
Approach	-	Night buses + specific routes	Night bus pilot	On-Demand access to transit hub	Paired with fixed route system	Entire transit system	Entire transit system	Entire transit system
Software Provider	-	Pantonium	Via	TapRide	Pantonium	RideCo	RideCo	RideCo

Option 2: Case Study – Cochrane, AB

The Town of Cochrane partnered with RideCo and Southland Buses to deliver On-Demand Transit.



Problem
On the outskirts of Calgary, Cochrane has a low population density of 812 / sq.km with **no existing public transit system**.



Solution

- Awarded RFP to Southland Transit who brought on RideCo as the software provider.
- Purchased 4 x 21-passenger buses with a government grant, and cover operations with property taxes.
- Ran a 3-month pilot project and saw ~180 passengers per day.



Key Takeaways

- 1/3 the cost of running a fixed-route with the same coverage
- Adaptable to demand (COVID-19 simply reduced bus numbers).
- Significant data to better understand riders needs to improve the service.

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Option 2: Routes & Stops

There would be two buses in operation, one On-Demand in TLT1 and the other an Express Bus.



On Demand Service
Utilizes software to pick up passengers on demand during allotted hours of the day and funnels to Gananoque to catch express bus.

- Lansdowne – 15 min – 15 km
- Seeley's Bay – 20 min – 24 km
- Charleston – 35 min – 43 km

Express Bus Service
Runs directly between Gananoque (Town Hall + Casino) and Kingston Downtown Transfer Point on one hour loops, in alignment with the On Demand Bus.

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Option 2: On-Demand Summary

The key findings found through a supply analysis.

01 Technology Optimization

Through the use of software can intelligently respond to variance in demand and allow for an optimized system.

02 Rural Applications

On-Demand is extremely effective in areas of low density where daily ridership is volatile.

03 Higher Cost and Complex

Includes a higher cost for software, and adds complexity to the initial deployment of a transit system

Potential Public Transit Systems

Five potential transit solutions have been considered including various operating models.



Operational Risk and Implementation Challenges

and operates the system internally, hiring the necessary staff.



Financial Feasibility

and Town of Gananoque to run an express bus.



Private Contractor Express Bus

The operations of the bus are outsourced to a local busing company to run an express shuttle bus.



Private Contractor On Demand Bus

The operations of the bus are outsourced to a local busing company and paired with software to operate on demand transit.



Carpooling Online Application

A pre-existing application can be used to connect drivers to those in need of a ride.



Option 3 – Formalize Community Carpooling

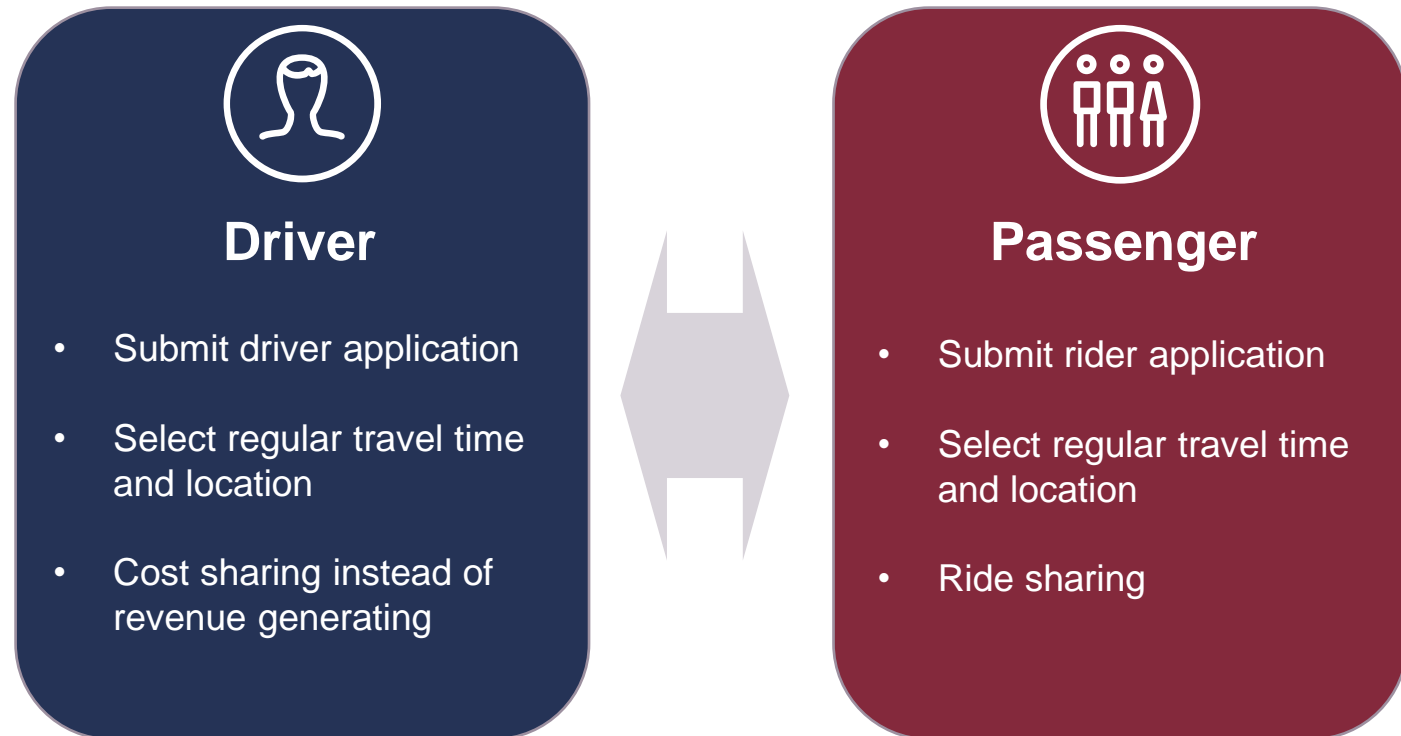
Ride-matching software that connects the people for routine travels

An alternative solution is to encourage the use of a carpooling application to **connect drivers to passengers in need of rides**. Instead of one-time use, ride-matching software establishes a long-term relationship between driver and passenger

On average, there are only

1.7 passengers

on each ride to Kingston



Option 3: Benefits and Challenges

Trade-off between expenditure and range of services

Benefits

Low cost

Very little investment required
(Software & Promotion)

Ease of operation

Limited implementation complexity

Needs of commuters

Link rider with passenger
(Estimated 1,600 riders)

Cost

Limited grant available

Several grants will not be
available for this option

Reliant on community involvement

Success of the project largely
depends on the community

Not on-demand

residents' social needs are not
met



Option 3: Who Provides the Software?

This is a sample of available software providers that can partner with the third-party contractor.

Software as a Service (SAAS)

- **Backward computing system** to match riders with passenger nearby.
- **User facing** website and app for customers to book rides through. Call center are currently not available.
- **Integrated Technology** with standard smart phones and tablets.
- **Upfront installment fee & Yearly subscription**

Available Software Providers

agilemile

twogo

rideamigos



CarpoolWorld



RideShark
Unified Mobility



Commute Ontario – Sustain Mobility is a provincial zero-cost ride-matching platform. However, the service is currently suspended due to Covid-19

Option 3: Other non-financial criteria

Although it is low cost and feasible, it does not satisfy many of the needs determined at the outset.

Satisfaction of Needs



Commuters

✓ Commuters' travel needs are met (roughly 6,500)

Medical Treatment

✗ There's possibility that people who travel for medical treatment not being able to access the ride (around 9,200)

Social Needs

✗ There's possibility that people who travel for social purpose not being able to access the ride (about 12,000)

Ease of Operations



Aligns with Stakeholders



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Ease of Operations



Ride Flexibility

✗ The ride is not on demand, riders have to contact driver in advance to secure riding

Promotion

✗ There will be additional marketing and promotion efforts needed

Easy Implementation on trial

✓ There are a number of services providers offer free-trial option

Aligns with Stakeholders



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Easy Implementation on trial



There are a number of services providers offer free-trial option

Aligns with Stakeholders



Employer support



Help key employers in Gananoque and TLTI & Kingston minimize commuter issue

No Annihilation of Wheels of Care



The service can run alongside Wheels of Care

Reliant on Stakeholders



Implementation is not reliant on funding of key stakeholders

Option 3: Carpooling Summary

The key findings found through a supply analysis.

Option 3 – Formalize Community Carpooling

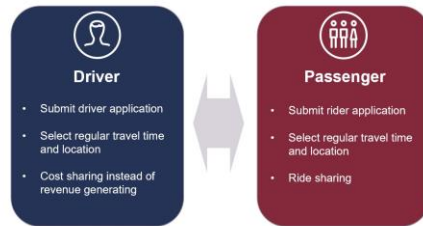
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Project Background Situational Analysis Demand Analysis **Supply Analysis** Recommendation Implementation Smith

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Ease of operation
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Link rider with passenger (Estimated 1,600 riders)

Cost

Limited grant available
Several grants will not be available for this option

Reliant on community involvement
Success of the project largely depends on the community

Not on-demand
residents' social needs are not met



Project Background Situational Analysis Demand Analysis **Supply Analysis** Recommendation Implementation Smith

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- **Upfront instalment fee & Yearly subscription**

Available Software Providers



Project Background Situational Analysis Demand Analysis **Supply Analysis** Recommendation Implementation Smith

Option 1: Other non-financial criteria

Option 1 is favorable despite not entirely meeting the needs of customers and having a high reliance on stakeholders.



Project Background Situational Analysis Demand Analysis **Supply Analysis** Recommendation Implementation Smith

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Option 3: Carpooling Key Takeaways

The key findings found through a supply analysis.

01 Cost-Free and Low Operations

Carpooling has little to no costs to run and implement, operationally it relies on the users.

02 Requires Community Buy-In

In order to be successful community members must buy-in to it and use it to help each other.

03 Low Satisfaction of Needs

This primarily targets the commuter and not other groups or reasons for travel.

Potential Public Transit Systems

Five potential transit solutions have been considered including various operating models.

Operational Risk and Implementation Challenges

Bus and operating the system internally, hiring the necessary staff.



Financial Feasibility

and Town of Gananoque to run an express bus.



01

Private Contractor Express Bus

The operations of the bus are outsourced to a local busing company to run an express shuttle bus.



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Private Contractor On Demand Bus

The operations of the bus are outsourced to a local busing company and paired with software to operate on demand transit.



03

Carpooling Online Application

A pre-existing application can be used to connect drivers to those in need of a ride.



Criteria for Assessing Transit Systems

Four criteria were developed to assess the feasibility according to the clients and publics needs.

Financial Feasibility

This includes both the financial sustainability and feasibility of implementation of the recommended transit system.



Satisfaction of Needs

Does the transit system satisfy the defined needs understood during the demand side survey.



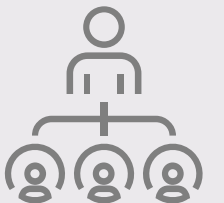
Ease of Operations

Assess the ease of operation and implementation when looking to act on the recommendation.



















Aligns with Stakeholders

Ensuring that the transit system aligns with the goals outlined by stakeholders in the project.



Comparison of Final Three Options

Three final options can be evaluated based on the initial criteria determined.

	Option 1 Express Bus	Option 2 On-Demand Bus	Option 3 Ridesharing
 Financial Feasibility	 Feasible with Support	 Additional Costs for Software	 Zero Cost
 Satisfaction of Needs	 Meets Standard Needs	 Surpasses Needs	 Limited Satisfaction
 Ease of Operations	 Simple Operationally	 Added Complexity	 Extremely Simple
 Aligns with Stakeholders	 Satisfies Needs	 Well Aligned with Stakeholders	 Requires Community Buy-in

05 | Recommendation

Final Recommendation

The SBC Consultants are confident in our final recommendation and implementable steps.

In summary, we believe that a public transit system is both feasible and realistic to implement.

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Final Recommendation: Phase 1

It is recommended that the client implements Option 1: Express Bus.

Implement a contracted fixed route express service between Gananoque, Lansdowne, and Kingston.

TARGET CUSTOMER

Commuters to Kingston and individuals with medical appointments.

BUS TYPE

Purchase one 24-seat bus with the aid of grants and loan to third party contractor.

ROUTE

Express Bus: Gananoque, Shorelines Casino, Lansdowne, and Downtown Kingston.

FARE PRICE

Standard fare price of \$10 per trip with associated discounts and monthly passes.

FUNDING

Partner with the casino and local business for funding and apply for grants.

OPERATOR

Place an RFP to attract a local third-party contractor to run the service.

Monitor for 3-4 years to assess ridership and flaws, then move on to phase two.

Final Recommendation: Phase 2

If Phase 1 is successful, the client should move into Phase 2 of delivery with Option 2: On-Demand.

Transition to an On-Demand service that maintains the express route but serves the greater TLTI area.

TARGET CUSTOMER

Commuters to Kingston and individuals with medical appointments.

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OPERATOR

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SOFTWARE

Work with software provider to optimize On-Demand system with third-party bus provider.

ADDED CAPACITY

Purchase an additional bus to operate the second purely On-Demand route.

LARGER TARGET

Expand marketing efforts to include socializing in Kingston, and local travel.

04 | Implementation

Implementation Methodology

Clarifying strategic actions to ensure implementation success

01 Risk Mitigation Strategy

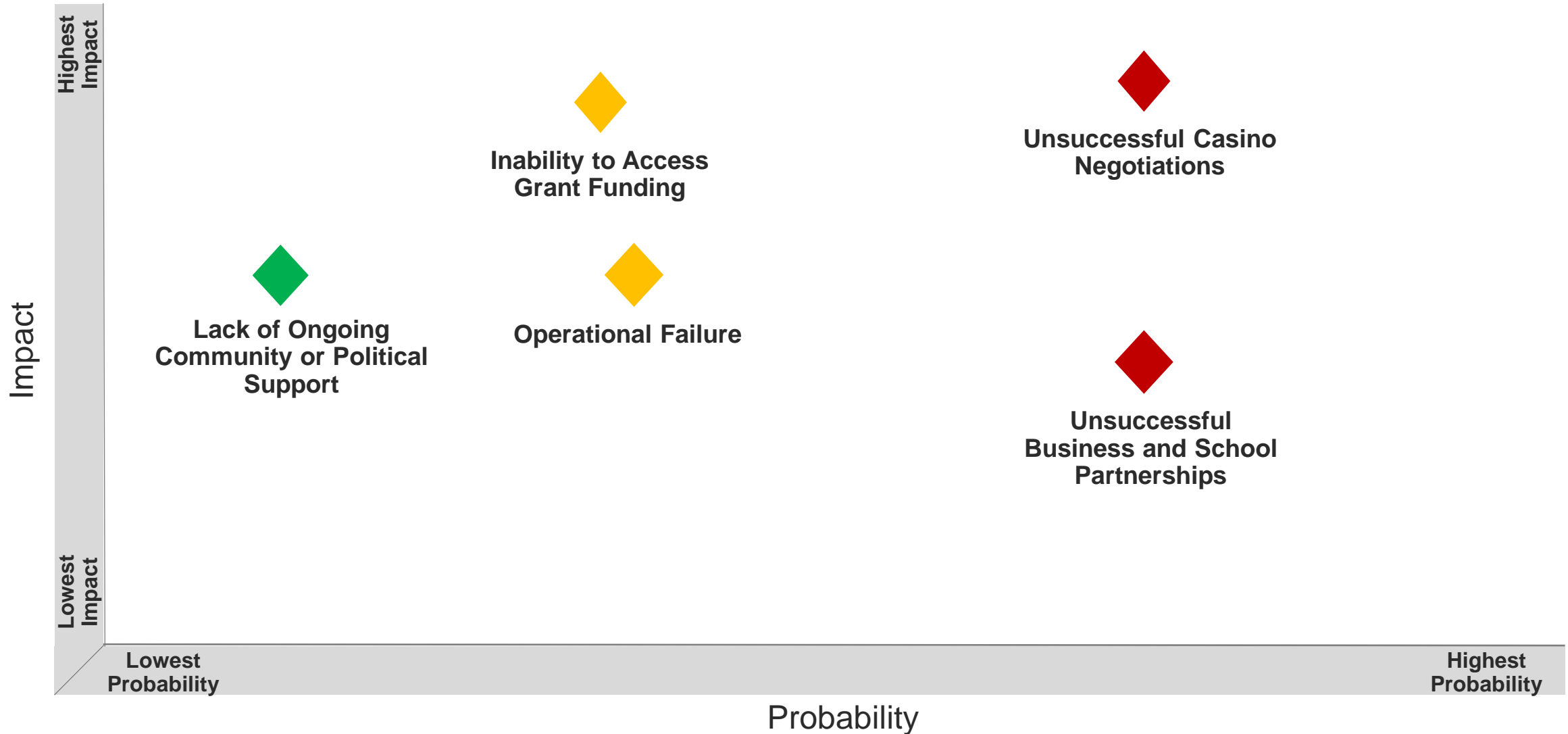
02 Next Steps: Funding

03 Next Steps: Operations

04 Evaluation Metrics: Social Benefits of Transit

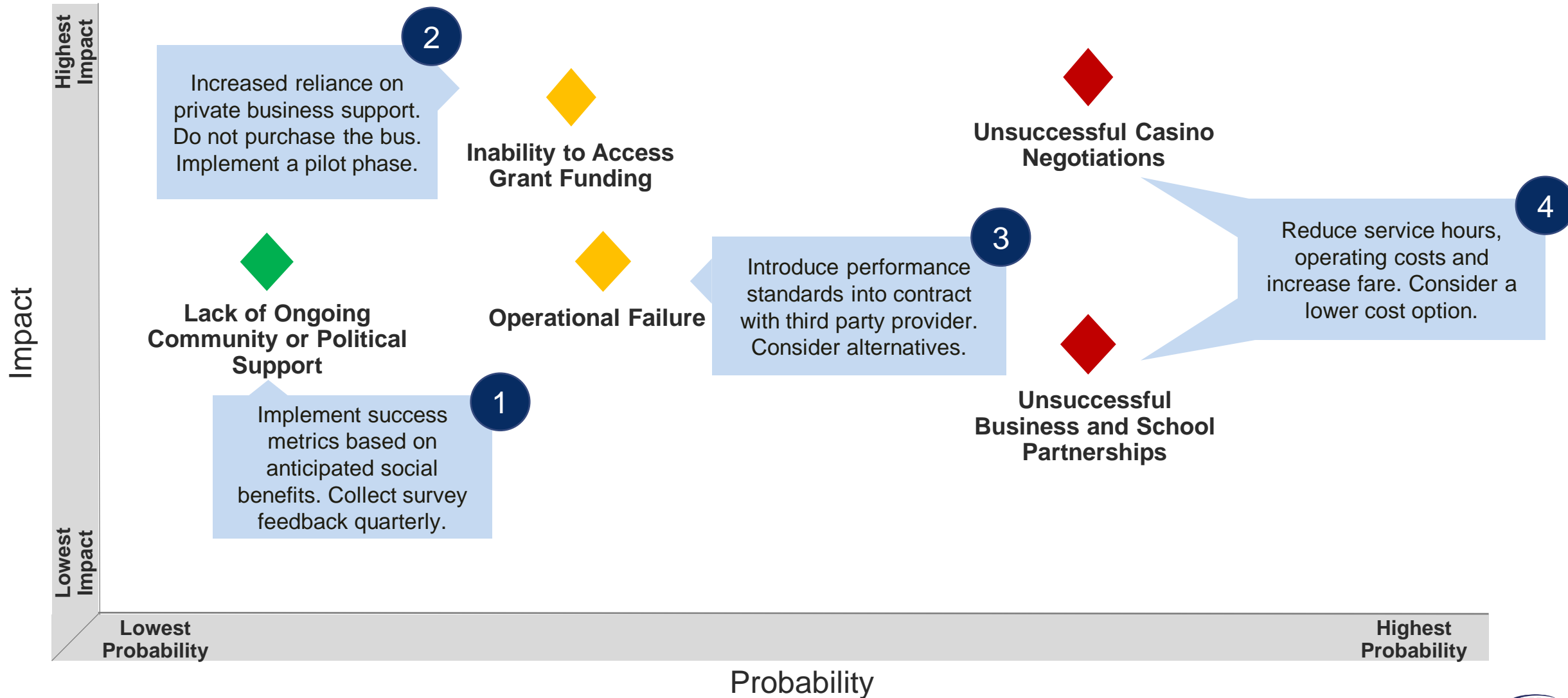
Risk Mitigation Strategy

Project risks can be managed effectively using mitigation strategies



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Project risks can be managed effectively using mitigation strategies



Funding: Grants and Partnerships

It is recommended that the client forms strategic partnerships and utilizes grants.

Grant Funding



Ontario
Trillium Foundation



Township of
Leeds and the
Thousand Islands

Local Business



Schools



**ROYAL MILITARY
COLLEGE OF CANADA**

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Funding: Grants

It is recommended that the client forms strategic partnerships and utilizes grants.

Grant Funding



Ontario
Trillium Foundation



Township of
Leeds and the
Thousand Islands

Ontario Community Transportation Grant Program (OCTGP)

Investment for rural and small communities that would not have been able to develop sustainable transit.

Ontario Community Infrastructure Fund (OCIF)

To be used in conjunction with the Gas Tax Program to facilitate the maintenance of roads and bridges for communities with less than 100K people.

Ontario Gas Tax Program

70% based on ridership, 30% based on population including all municipalities providing any funding.

Eastern Ontario Development Fund

Investment for rural and small communities that would not have been able to develop sustainable transit

Trillium Foundation Investments

Eligible based on population of 20K or less, high potential opportunity

Note: Other potential grants stem from benefits to seniors, economic development and increased tourism in Ontario

Project Background

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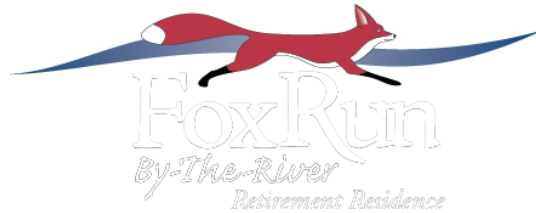
Recommendation

Implementation

Funding: Partnerships

It is recommended that the client forms strategic partnerships and utilizes grants.

Local Business



Schools



ROYAL MILITARY
COLLEGE OF CANADA

Developing
Partnerships to
generate recurring fare
revenue streams

Operations: 5 Step Plan

We recommend the client to implement the following 5 steps after securing funding

Provider selection



Request proposal from major bus provider

- McCoy
- Clark

Stop development



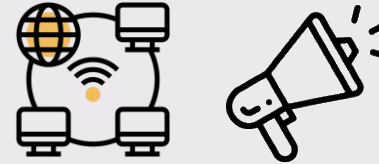
Discussion with Kingston Transit to integrate bus line stops

Key Partnership Development



Reach out to key employers to develop commuter subsidizing program

Marketing and Promotion



Mix of online and offline promotion to raise public awareness

Pilot Program

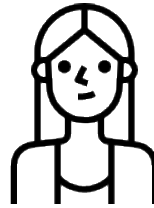


Launch pilot program to test out residents' reaction

Evaluation Metrics: Social Benefits of Public Transit

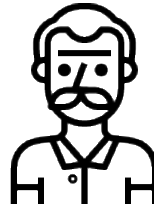
Desoronto Transit: Outcome Measurement Reporting

94% Improved access to vital services



89% Improved quality of life

81% Achieved more disposable Income



11% Obtained Employment

23% Retained their job



“Public transit plays an instrumental role in providing access to **education, employment and basic needs** such as health care.”

“By providing affordable and flexible public transportation, transit is maintaining **long-term employment and reducing poverty** for individuals and families in the region.”

Project Summary

Overview of Critical Project Learnings

Demand

Gap Analysis Key Takeaways

Gap analysis helps us to identify:

01 Existence of Demand

There is a demand for public transit system from a quantitative data driven approach.

02 Prioritization of Segments

Social group segment has the largest gap (ie. the greatest demand and highest potential), followed by Medical Patients segment and Workforce segment.

03 Financial Modelling

We will build our estimated number of residents with indirect access into financial model ridership growth forecast

Project Background Situational Analysis Demand Analysis Supply Analysis Recommendation Implementation

Gap Analysis Key Takeaways

Gap analysis helps us to identify:

01 Price Preference

\$5 - \$10 is a reasonable and acceptable price range for most passengers

02 Time Consideration

From hours the time preference perspective, peak time matches well with working

03 Location Consideration

Kingston Downtown Transfer point is considered to be the best drop off location

Project Background Situational Analysis Demand Analysis Supply Analysis Recommendation Implementation

Supply

Comparison of Final Three Options

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New technologies to optimize and increase the efficiencies of transit systems.

Project Background Situational Analysis Demand Analysis Supply Analysis Recommendation Implementation

Recommendation

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OPERATOR

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Monitor for 3-4 years to assess ridership and flaws, then move on to phase two.

Project Background Situational Analysis Demand Analysis Supply Analysis Recommendation Implementation

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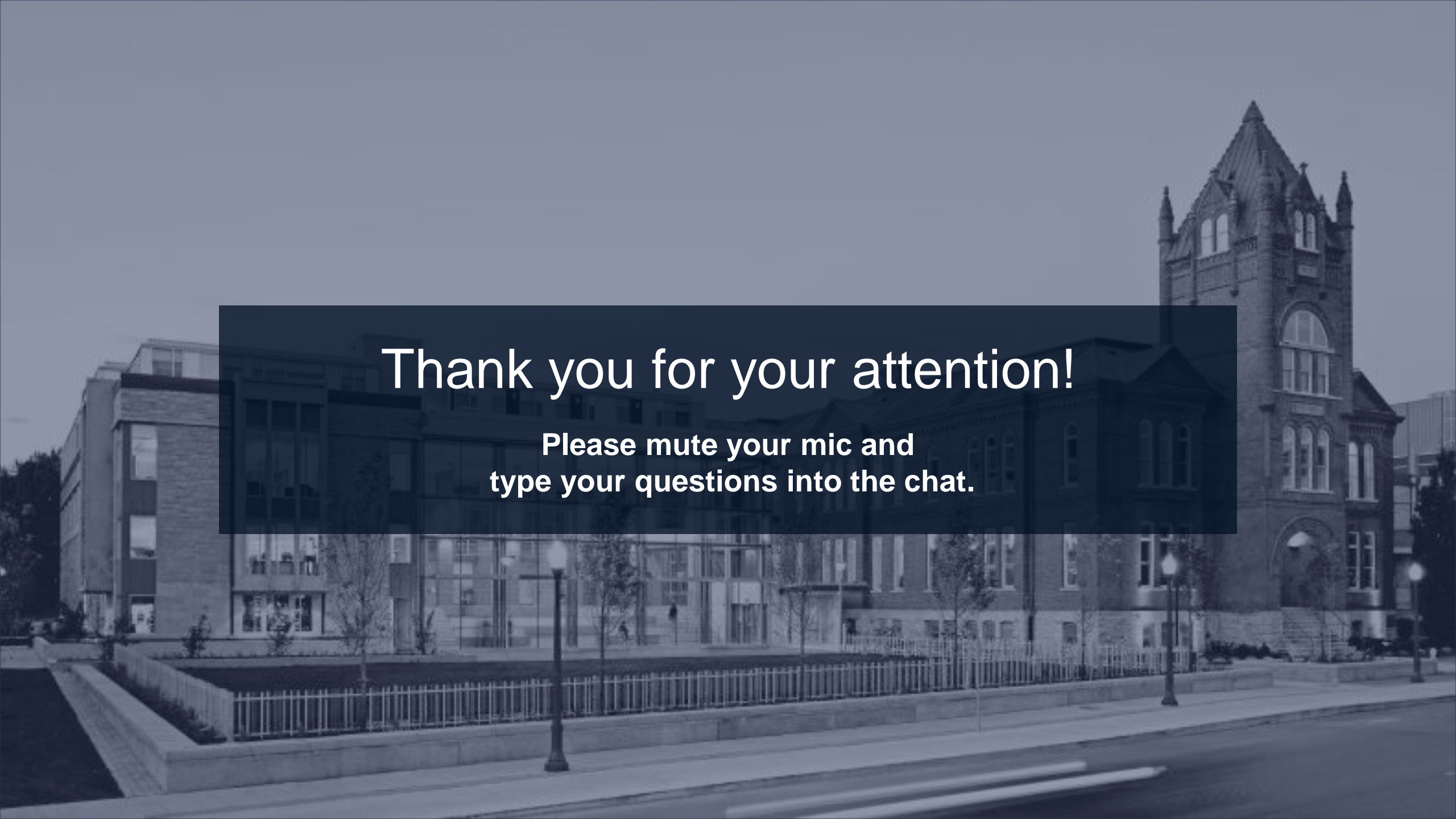
ADDED CAPACITY

Purchase an additional bus to operate the second purely On-Demand route.

LARGER TARGET

Expand marketing efforts to include socializing in Kingston, and local travel.

Project Background Situational Analysis Demand Analysis Supply Analysis Recommendation Implementation

The background image shows a university campus. On the left is a modern, multi-story building with large windows. On the right is a historic stone building with a prominent tower featuring arched windows and a pointed roof. In the foreground, there is a paved area, a low concrete wall, and a white picket fence. A few trees and street lamps are also visible.

Thank you for your attention!

Please mute your mic and
type your questions into the chat.

05 | Appendix

Appendix – Key Facts and Assumptions

Used to compute the total estimations

Factor						
	Never	Rarely	Once a week	2-3 times a week	4-6 times a week	Daily
	0	0.25	1	2	4	7

Sizing	# of applicants	Total Population	%
Gan	657	5159	12.7%
TLTI	277	9465	2.9%

Appendix – Workforce Data

Workforce data

Employment Status vs Work Frequency: Gap analysis for Gananoque and Indirect Car Access							
Employment Status vs Work Frequency: Gap analysis filtered for Gananoque and No Direct Car Access							
	Never	Rarely	Once a week	2-3 times a week	4-6 times a week	Daily	Total
Employed full-time	13	5	2	1	5	6	32
Employed part-time	14	-	4	3	1	-	22
Work at home	1	1	-	-	-	-	2
Retired	13	-	-	1	1	-	15
Unemployed	3	2	-	2	-	-	7
Other	6	2	1	2	-	-	11
Student	5	1	-	-	1	1	8
Total Count	55	11	7	9	8	7	97

Employment Status vs Work Frequency: Gap analysis filtered for TLTI and Indirect Car Access							
	Never	Rarely	Once a week	2-3 times a week	4-6 times a week	Daily	Total
Employed full-time	1	-	-	-	2	-	1
Employed part-time	2	-	-	-	-	-	2
Work at home	-	-	-	-	-	-	-
Retired	3	1	-	-	-	-	4
Unemployed	1	-	-	-	-	-	1
Other	1	-	-	-	-	-	1
Student	1	-	-	-	-	-	1
Total Count	9	1	-	-	2	-	10

Actual - # of travels per week for work without direct access		
	Gananoque	TLTI
Employed full-time	528	273
Employed part-time	110	-
Work at home	2	-
Retired	47	9
Unemployed	35	-
Other	43	-
Student	88	-
Total Count	854	282

Sample - # of travels per week for work without direct access		
	Gananoque	TLTI
Employed full-time	67	8
Employed part-time	14	-
Work at home	0	-
Retired	6	0
Unemployed	5	-
Other	6	-
Student	11	-
Total Count	109	8

Appendix – Medical Patient Data

Medical Patient Data

Age vs Med Frequency: Gap analysis filtered for Gananoque and No Direct Car Access							
	Never	Rarely	Once a week	2-3 times a week	4-6 times a week	Daily	Total
Under 17	-	-	-	1	-	-	1
18-24	1	7	2	-	-	-	10
25-45	1	22	12	3	-	-	38
46-64	2	20	12	1	2	-	37
65+	-	4	10	1	-	-	15
Total Count	4	53	37	5	2	-	101

Age vs Med Frequency: Gap analysis filtered for TLTI and No Direct Car Access							
	Never	Rarely	Once a week	2-3 times a week	4-6 times a week	Daily	Total
Under 17	-	-	-	-	-	-	-
18-24	-	1	-	-	-	-	1
25-45	2	-	1	-	-	-	3
46-64	-	2	4	2	-	-	8
65+	-	-	1	-	-	-	1
Total Count	2	3	6	2	-	-	13

Actual - # of travels per week for work without direct access		
	Gananoque	TLTI
Under 17	8	-
18-24	29	9
25-45	185	34
46-64	212	290
65+	102	34
Total Count	536	367

Sample - # of travels per week for med without direct access		
	Gananoque	TLTI
Under 17	1	-
18-24	4	0
25-45	24	1
46-64	27	9
65+	13	1
Total Count	68	11

Appendix – Social Group Data

Social Activist Data

Age vs All social Frequency: Gap analysis filtered for Gananoque and No Direct Car Access							
	Never	Rarely	Once a week	2-3 times a week	4-6 times a week	Daily	Total
Under 17	-	-	1	1	-	-	2
18-24	1	6	5	8	2	1	30
25-45	6	30	29	11	1	1	86
46-64	4	34	20	12	2	-	106
65+	3	5	10	6	1	-	44
Total Count	14	76	65	37	6	2	268

Age vs All social Frequency: Gap analysis filtered for TLTi and No Direct Car Access							
	Never	Rarely	Once a week	2-3 times a week	4-6 times a week	Daily	Total
Under 17	-	-	-	-	-	-	-
18-24	-	-	1	1	-	-	6
25-45	1	3	5	1	-	-	12
46-64	1	2	6	3	-	-	20
65+	-	-	1	1	-	-	2
Total Count	2	5	13	6	-	-	40

Sample - # of travels per week for all social without direct access		
	Gananoque	TLTi
Under 17	1	-
18-24	38	3
25-45	70	8
46-64	61	13
65+	27	3
Total Count	196	26

Actual - # of travels per week for work without direct access		
	Gananoque	TLTi
Under 17	10	-
18-24	294	103
25-45	546	265
46-64	475	427
65+	214	103
Total Count	1,539	897

Appendix – Survey

Survey questions

Question 1 – Postal Code

Question 2 – Age:

Question 3 – How many people live in your household and what are their ages?

Question 4 – What is your employment status?

Question 5 – If student, where do you study?

Question 6 – If employed, what is your occupation type?

Question 7 – Do you have a valid drivers license?

Question 8 – What mode of transportation do you currently use to travel to Kingston?

Question 9 –If driver, on average, how many people, including yourself, are in your car for this trip?

Question 10 – If passenger, what is your relationship with the driver?

Question 11 – How frequently do you travel to Kingston for the following purposes? Work, Shopping, Medical Appointments, Social, School, Other:

Question 12 – Where in Kingston do you travel to specifically?

Appendix – Survey continued

Survey questions

Question 12 – What would be your preferred pickup location?

Question 13 – On average, what time would you depart from Gananoque to Kingston?

Question 14 – On average, what time would you depart from Kingston to return to Gananoque?

Question 15 – Do you think that there is a need for a public transportation system in the Town of Gananoque and the Township of Leeds and the Thousand Islands to access Kingston? Why?

Question 16 – How often would you use a transit system per week if one was available?

Question 17 – What would be a reasonable transit fare from the Town of Gananoque to Kingston if your travel needs previously cited were met?

Question 18 – Upon arrival in Kingston, would it be sufficient if it dropped off at one location at the Downtown Transfer Point?

Question 19 – Do you have any additional general comments about the potential public transit system connecting Gananoque to Kingston?

Question 20 – Can Smith Business Consultants follow up with you on your responses, if required for clarification?

Question 21 – If yes, what is your name?

Question 22 – If yes, how do you prefer to be contacted?

Question 23 – If yes, what is your phone number / email?

Appendix – Financials Summary

Revenue and expense projection

**Fare price at \$5*

*** Monthly pass at 120 for youth and senior, 159 for adults*

Financial Sustainability	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue					
Up case	77,817	150,435	214,919	214,919	214,919
Worst case	36,671	63,233	94,272	114,121	133,971
Total Expenditure					
Up case	206,500	206,500	206,500	206,500	206,500
Worst case	231,175	231,175	231,175	231,175	231,175
Worst-up gap profile	(194,504)	(167,942)	(136,903)	(117,054)	(97,204)
Best - worst gap profile	(128,683)	(56,065)	8,419	8,419	8,419

**Fare price at \$10*

*** Monthly pass at 183 for youth and senior, 246 for adults*

Financial Sustainability	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue					
Up case	143,138	275,894	394,156	394,156	394,156
Worst case	67,151	116,851	175,386	211,833	248,280
Total Expenditure					
Up case	206,500	206,500	206,500	206,500	206,500
Worst case	231,175	231,175	231,175	231,175	231,175
Worst-up gap profile	(164,024)	(114,324)	(55,789)	(19,342)	17,105
Best - worst gap profile	(63,362)	69,394	187,656	187,656	187,656

Appendix - Key Assumptions for Ridership

Target Residents Percentage Capture

Target Residents % Capture - Up case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Best case							
Gananoque							
Employment commuter	10%	20%	30%	40%	50%	60%	70%
Medical rider	5%	8%	10%	10%	10%	10%	10%
Social passenger	2%	5%	7%	7%	7%	7%	7%
TLTI							
Employment commuter	10%	20%	30%	40%	50%	60%	70%
Medical rider	5%	8%	10%	10%	10%	10%	10%
Social passenger	2%	5%	7%	7%	7%	7%	7%
Worst case							
Gananoque							
Employment commuter	5%	8%	10%	13%	15%	18%	20%
Medical rider	2%	4%	6%	6%	6%	6%	6%
Social passenger	1%	2%	3%	4%	5%	5%	5%
TLTI							
Employment commuter	5%	8%	10%	13%	15%	18%	20%
Medical rider	2%	4%	6%	6%	6%	6%	6%
Social passenger	1%	2%	3%	4%	5%	5%	5%

Appendix – Ridership and Revenue Projection

Ridership and Revenue Projection

Average Ridership Per Week	Year 1	Year 2	Year 3	Year 4	Year 5
Employment Travelers					
Weekly pass purchaser ride	118.30	236.60	354.90	473.20	591.50
Pop purchaser ride	23.50	47.00	70.50	94.00	117.50
Medical Riders					
Weekly pass purchaser ride	6.30	9.45	12.60	12.60	12.60
Pop purchaser ride	84.05	126.08	168.10	168.10	168.10
Social Riders					
Weekly pass purchaser ride	11.94	26.87	41.79	41.79	41.79
Pop purchaser ride	85.50	192.38	299.25	299.25	299.25
	329.59	638.37	947.14	1,088.94	1,230.74
Total Rides per week	330	638	912	912	912
Under cap?	Yes	Yes	No	No	No
By how much	0.0%	0.0%	3.9%	19.4%	34.9%

Average Revenue Per week	Year 1	Year 2	Year 3	Year 4	Year 5
Employment Travelers					
Weekly pass purchaser ride	512	1,024			
Pop purchaser ride	118	235			
Medical Riders					
Weekly pass purchaser ride	27	41			
Pop purchaser ride	420	630			
Social Riders					
Weekly pass purchaser ride	52	116			
Pop purchaser ride	428	962			
Total	1,556	3,009	4,298	4,298	4,298

Projected Revenue per year	Year 1	Year 2	Year 3	Year 4	Year 5
** Assume the bus operate 50 weeks a year					
Revenue	77,817	150,435	214,919	214,919	214,919

Average Ridership Per Week	Year 1	Year 2	Year 3	Year 4	Year 5
Employment Travelers					
Weekly pass purchaser ride	59.15	88.73	118.30	147.88	177.45
Pop purchaser ride	11.75	17.63	23.50	29.38	35.25
Medical Riders					
Weekly pass purchaser ride	2.52	4.41	7.56	7.56	7.56
Pop purchaser ride	33.62	58.84	100.86	100.86	100.86
Social Riders					
Weekly pass purchaser ride	5.97	11.94	17.91	23.88	29.85
Pop purchaser ride	42.75	85.50	128.25	171.00	213.75
	155.76	267.04	396.38	480.55	564.72
Total Rides per week	156	267	396	481	565
Under cap?	Yes	Yes	Yes	Yes	Yes
By how much	0.0%	0.0%	0.0%	0.0%	0.0%

Average Revenue Per week	Year 1	Year 2	Year 3	Year 4	Year 5
Employment Travelers					
Weekly pass purchaser ride	256	384	512	640	768
Pop purchaser ride	59	88	118	147	176
Medical Riders					
Weekly pass purchaser ride	11	19	33	33	33
Pop purchaser ride	168	294	504	504	504
Social Riders					
Weekly pass purchaser ride	26	52	78	103	129
Pop purchaser ride	214	428	641	855	1,069
Total	733	1,265	1,885	2,282	2,679

Projected Revenue per year	Year 1	Year 2	Year 3	Year 4	Year 5
** Assume the bus operate 50 weeks a year					
Revenue	36,671	63,233	94,272	114,121	133,971

Appendix – Ridership Maximum Cap

Ridership Cap based on seat capacity and benchmarking

Ridership Maximum Cap	
Seat Capacity	24
Peak hour	
# of hours	4
seat capacity	80%
Non-peak hour	
# of hours	6
seat capacity	10%
Daily ridership cap	182
Weekly ridership cap	912

Benchmarking

Loyalist Township	2013	2014	2015	2016	2017	2018	2019
Monthly Average ridership	8,061	6,505	7,585	7,306	6,727	6,817	7,280
Weekly average ridership	2,015	1,626	1,896	1,827	1,682	1,704	1,820
Weekly ridership as % Population	12%	10%	11%	11%	10%	10%	11%

Desoronto	2007	2008	2009	2010	2011	2012	2013
Annual ridership	3,157	8,500	8,000	9,000	11,000	13,000	15,288
Monthly average ridership	63.14	170.00	160.00	180.00	220.00	260.00	305.76

Mature Stage Ridership for Gananoque (Max Cap)
1547

Appendix – Expenditure Projection

Key Cost Facts and Assumptions Input

Key Cost Facts and Assumptions		Sources
1st year Upfront Investment		
CapEx - new bus for 10 year	350,000	Kin Transit
CapEx - used bus for 5 year	150,000	McCoy
Development of stops	12,500	
Development of stops - Partnership	-	
Marketing	5,000	
Recurring Fixed Cost		
Maintenance	12,000	McCoy
Variable Cost Input		
Hourly Rate - purchase own bus	42.75	McCoy
- Gas Bill (10L per hour)	11.3	McCoy
Hourly Rate - use provider's bus	59	McCoy

Appendix - Expenditure Projection

Expense Projection

Average Ridership Per Week	Year 1	Year 2	Year 3	Year 4	Year 5
Operating Cost					
Scenario #1 - Use McCoy Bus	206,500	206,500	206,500	206,500	206,500
Scenario #2 - Buy a bus	189,175	189,175	189,175	189,175	189,175
Other Fixed Cost					
Maintenance	12,000	12,000	12,000	12,000	12,000
Depreciation - old	30,000	30,000	30,000	30,000	30,000
Total Expenditure					
Scenario #1 - Use McCoy Bus	206,500	206,500	206,500	206,500	206,500
Scenario #2 - Buy a bus	231,175	231,175	231,175	231,175	231,175
Casino existing cost	192,000				

Summary Report

**Gananoque, Township of Leeds
and the Thousand Islands**
Smith Business Consulting

Transit Feasibility Study

Smith Business Consulting

Ryan Pinto, David Bobyn, Matthew McLean, Adam Li

GANANOQUE

TOWNSHIP OF

**LEEDS AND THE
THOUSAND ISLANDS**



1 Project Background

1.1 Problem Statement

Transit options for Gananoque and TLTI residents to travel to Kingston are limited and expensive. The lack of transit to the region's main urban center creates three major problems. First, a lack of mobility in the workforce, especially for low income residents who do not own a car, limits employment opportunities and the viability of living in this region long term. Second, the population has limited access to Kingston's hospitals, health care facilities and public services. This is especially important given the large elderly population in the region. Third, the lack of mobility limits tourism, regional development, student mobility and opportunities for leisure and shopping.

Our objective is to test the feasibility of transit options to connect Gananoque and TLTI to Kingston with a focus on financial sustainability.

1.2 Project Methodology

The project was segmented into four phases of analysis. First, a situational analysis was conducted to understand key trends and case studies in rural transit development. These macro factors were connected to the specific challenges in the Gananoque & TLTI communities. Second, a demand analysis was conducted to understand the specific needs of users, forecast ridership and assess willingness to pay. Third, a transit supply analysis was conducted to quantitatively and qualitatively understand the cost and fit of transit options. Fourth, key implementation steps were described to mitigate project risks and manage the project execution.

2 Situational Analysis

2.1 Methodology

Three areas were examined to understand the situational challenges and opportunities. First, macro trends were identified. Second, Canadian rural transit case studies were examined for best practices. Third, interviews were conducted with businesses, organizations, transit managers and industry experts.

2.2 Macro Trends

1. Rural Transit Development - research indicates that workforce mobility and infrastructure development are critical factors in conserving Eastern Ontario's rural population.
2. Aging Population - Gananoque & TLTI hold a large proportion of elderly people with increasing public service and health care needs.
3. Climate Change Initiatives - Federal and provincial branches of government have developed grant programs to support gas conservation in public transit.
4. Optimization Software - New location tracking and shared use transit software are being more widely adopted. There are a few rural Canadian transit systems with low population density using on demand (shared use) software.

2.3 Case Study: Desoronto - Belleville Transit System

The project needs, solution and success criteria make Desoronto an important case study.

Target Customer - Townships of Napanee, Belleville, Picton, Bloomfield, Tyendinaga & Desoronto

(By involving multiple townships, they were able to increase population and ridership to access larger grant funding)

Bus Type - Two 24 seat community busses (converted to 11 and 16 seats plus wheelchair access room) and two minivans

Route - Two routes with four service runs daily from 5am - 5pm

Fare Price - \$6.50 to \$12.00 Generating \$110,000 of revenue in 2013

Funding - Employment Innovation Fund (\$225k), Local Business and Foundation Grants (\$85k), Federal Homelessness Grant (\$2k), Gas Tax (\$17k in 2011 to \$105k in 2012), 2013 Operating Budget: \$330k

Operator - Desoronto owns and operates busses

Ridership - It is important to note that ridership across numerous rural development case studies takes time to develop and can be varied in early years. Desoronto's system required numerous grants, donations and business partnerships before becoming sustainable.



2.4 Regional Demographics

The Gananoque TLTI region is comprised of a high-skill commuting workforce and demands more low-skill employees for retail and hospitality, especially in the summer months.

- Population 14,624 (62% workforce, 24% Retirement)
- 60% Post-Secondary Education
- 1035 people enter Gananoque daily for work, demand for workers is closer to 2100 people

- 2765 people from Gananoque commute to work daily (52%) with 1980 (72%) to Kingston

2.5 Stakeholder Interviews *(See Presentation for stakeholder comments)*

Employers

- Cardinal Health
- Shorelines Casino
- Keys Employment Centre

Contractors

- McCoy Bus Service
- Clark Bus Lines

Transit Systems

- Kingston Transit
- Loyalist Town Transit
- Prince Edward County Transit

Software Providers

- RideCo
- Pantonium

3 Demand Analysis

3.1 Methodology

There are two key objectives in the demand analysis: 1) Identify if there's a need for transit system from Gananoque and TLTI to Kingston, if there is, what's the total potential ridership 2) Determine residents' travel behavior and preference (time, price and location). To achieve these two objectives, we first conducted a primary survey with over 1,000 participants, and then came up with a 3-step methodology to further examine these surveys to derive insights:

- Step 1: Grouping and Segmentation: Given residents' various travel purposes, we segmented residents into several groups, to better understand their distinct needs and relative size.
- Step 2: Gap Analysis: Based on survey result, we estimated the number of residents with indirect-car-access in Gananoque and TLTI that travels to Kingston.
- Step 3: Behavioral Assessment: According to survey responses, we derived an ideal time, location, and price preference for the potential transit system.

3.2 Survey Credibility

To ensure data quality and survey credibility, we distributed the survey both physically and digitally. This allowed us to cover over 1,000 residents in Gananoque and TLTI, across various age group and geographic locations.

Through a quick glance, over 78% of the residents in Gananoque responded “Yes” to a public transit system to Kingston, while over 67% of the residents in TLTI responded “Yes”. As for those who responded, “Not sure” and “No”, there are primary two reasons: 1) Transit system’s financial sustainability and potential tax burden, and 2) Lack of riders. In the demand analysis, we will focus on the second concern, lack of riders. (Financial sustainability issue will be addressed in the supply side analysis.)

3.3 Grouping and Segmentation

Given residents’ various travel purposes, we segmented residents into several groups as shown below. After deriving the number of residents in each group, we divided it by our survey coverage percentage (# of respondents in each group / % coverage) to derive estimated number of people in each group. (Note that different groups are not mutually exclusive, for example, people who go to Kingston for medical treatments may also travel to Kingston for social events. The social group may encompass many workforce and medical riders)

1. Workforce – People who currently have a full-time job in Kingston, and therefore needs to travel at least 5 times a week. There are estimated 6,500 people in this group in Gananoque and TLTI.
2. Medical Patients – People aged over 25 who travel to Kingston for medical reasons several times a month. There are estimated 9,300 people in this group in Gananoque and TLTI.
3. Social Group – People who travel to Kingston for social events several times a month. (such as shopping, leisure activities, etc.) There are estimated 12,300 people in this group in Gananoque and TLTI.
4. Broader Group – People who are not necessarily from the region but travel to Kingston for all kinds of reason (such as tourists during the summer). There are estimated over 15,000 people in this group. (This is the proxy population in the region)

3.4 Gap Analysis

The purpose of the gap analysis is to identify the potential ridership from Gananoque and TLTI to Kingston. For all the participants, we applied four filters: geographic location, no car ownership, selected segment and demographic or employment status. These filters were used to derive a group of residents with indirect access to Kingston (no car ownership). This group was extrapolated across the population and summed to arrive at the number of people in the region with indirect access. These are the people who we predict to be in the greatest need of public transit. This is a conservative estimate of total potential ridership.

	# of residents with indirect access	Weekly # of travels with indirect access (potential ridership)
Workforce - Gan	149	528
Workforce - TLTI	68	273
Med Patients - Gan	722	534
Med Patients - TLTI	409	367
Social Group - Gan	1445	1529
Social Group - TLTI	956	932

*Again, as it was a point of confusion in the presentation, these groups are not mutually exclusive and it is likely that residents who fall into the workforce or medical segments may also fall into the social segment.

3.5 Travel Pattern Analysis

In the survey, we asked participants a few questions about their opinion on fare price, location preference and time preference, here are quick summary of key takeaways of our findings:

- Fare price:
 - o Most people believe that the fare price should not be less than \$5
 - o \$5 - \$10 is the most popular price range
 - o Residents living in Gananoque is likely to pay a bit more on fare price than residents living in TLTI
- Time preference:
 - o Most preferred departure from Gananoque and Kingston are 6-10 am and 2-6 pm respectively
 - o This preferred departure time (peak time) matches with working hours
- Location preference:
 - o There is a diversified need for drop-off location
 - o Considering ease of operation, Kingston Downtown Transfer Point is the ideal drop-off spot
 - o This will allow residents to use Kingston transit, which is inexpensive, to travel to their final destination, free transfer passes between the two services is worth investigating with Kingston transit

Supply Analysis

4.1 Methodology

In identifying potential transit solutions to meet the demand as mentioned above, the team followed five steps in assessing the feasibility of each. First, the criteria were developed to compare and assess each option. Second, five potential transit solutions were identified and explored. Third, the team conducted research and held interviews with thought leaders to better understand each transit option. Fourth, a financial model was built to ensure that the

recommended solution is financially sustainable. Finally, all remaining options were compared based on the relevant criteria to develop a final recommendation.

4.2 Selection Criteria

First and foremost, the criteria of financial feasibility was considered the most important due to the nature of it being a public service that must be sustainable. The remaining three criteria were selected following a discovery meeting with the client. This included the level to which the solution satisfied citizens' needs, which were identified in the survey. Second, the ease of operations for the Town when looking to implement the recommendation. Finally, the alignment of the solution with stakeholders that are interested in contributing to the project. With these criteria established, the team moved forward on identifying and evaluating potential transit solutions.

4.3 Transit Supply Options

1. **Gananoque Operated System** – the Town of Gananoque purchases a bus and hires the required staff to operate the system internally. This was quickly identified to be an unfeasible option to be recommended based on its high costs and risk. Operationally there are significant risks in purchasing an asset and hiring staff without the certainty of the system being successful. Additionally, the Town does not have the infrastructure to repair and maintain the fleet nor replace drivers who fall ill. This culminated in eliminating it from further research.
2. **Kingston Transit Operated System** – a contract is created between the Town of Gananoque and Kingston Transit to run an express bus between the two town centers. This would look quite similar to that of the contract between Loyalist County and Kingston Transit. After conducting meetings with the Director of Kingston Transit and Loyalist County, we quickly learned of the high cost of such a contract. The cost surpassed \$600,000 annually. Additionally, there was little interest from Kingston Transit in expanding services so far beyond the Kingston city limits. With financial feasibility as critical consideration, this option was also eliminated from consideration early on.

Options with more significant consideration

3. **Private Contractor Express Bus** – the operations of the bus are outsourced to a local busing company that acts as a third-party contractor. They would run an express shuttle bus between key fixed locations.
4. **Private Contractor On-Demand Bus** – the operations of the bus are outsourced to a local busing company and paired with a software provider to operate on-demand transit.
5. **Carpooling Online Application** – The Ontario government has developed a pre-existing application which can be used to connect drivers to those in need of a ride. This is a capital-light alternative to implementing a transit system. However, after assessing the demand for a transit system, it appears not to meet the needs identified. Therefore, it is not incorporated in our final recommendation. However, should the intended solution be met with insufficient demand or if major project risks take place,

this may act as a low cost fall back solution which meets some of the populations needs.

5 Final Recommendation

In summary, we believe that a public transit system is both feasible and realistic to implement. Demand for transit has been proven to be significant based on a well-responded survey. There are unique stakeholders that have expressed interest in supporting the project, which presents excellent opportunities. The area has capable contractors that are willing to bid on operating such a project. Finally, new technologies are available to optimize and increase the efficiencies of the proposed transit system.

It is recommended that the client implements a transit system in two separate phases. The first phase includes implementing a contracted fixed-route express service between Gananoque, Lansdowne, and Kingston or between Gananoque and Kingston (more detailed service route depictions can be found below and visualized in the presentation). If this phase is successful over a couple of years, the second phase includes an On-Demand service that serves the greater TLTI area. The details of these two phases will be described in detail below.

5.1 Phase 1 Express Bus

5.1.1 Essential Parties

The following essential parties would collaborate in delivering and implementing the Express Bus:

- **Town of Gananoque:** They receive fare revenue from ridership (the customer), funding from key stakeholders, and use this to pay a private contractor to operate the service. They have the option to purchase the bus or rent from the contractor. It was agreed that renting is a more feasible option as the contractor will have multiple buses that can replace any that require maintenance.
- **Key Stakeholders:** they provide funding to the Town in return for crucial bus stops and services that will support their businesses and employees. They would also be likely to purchase monthly passes in advance for their employees to provide key recurring revenues. An example is Shorelines Casino, who has expressed interest in terminating their current shuttle service to support a public system that stops at the Casino. More detail on this key stakeholder can be found later in this report.
- **Private Contractors:** they run the operations of the bus and maintain the physical infrastructure. This would include fielding calls from customers and ensuring a consistent and reliable transit system with service level agreements in place.

These parties would work together to deliver an express bus service to the citizens of the Town of Gananoque and TLTI.

5.1.2 Route Options

There are multiple options for the routing of the express bus. This depends on the desired number of stops, the distance of travel, and the number of buses in service. Three recommended route options include:

- **Route Option A:** the first option would stop at the Casino, the Gananoque Town Hall, and Kingston's Downtown Transfer Point. It has a total distance of 66 km, with an estimated travel time of 65 minutes. Currently we recommend a loop leaving Gananoque down Highway 2 into Kingston and returning on Highway 401 to stop quickly at the Casino. However, this can be easily adjusted according to desired needs.
- **Route Option B:** the second option would add the TLT Town Hall in Lansdowne as a stop on the route. This would add 30 minutes to each loop; however, it would expand the satisfaction of needs. Therefore, we recommend selecting this option for the Express Bus.
- **Route Option C:** the final option would add Seely's Bay to Route Option B. This adds 86 minutes and 104 km to the Route Option A. This was considered to be a significant rerouting and inefficient use of resources. Each loop would take 2.5 hours, which would mean limited service to Kingston.

5.1.3 Bus Scheduling

The scheduling of the bus was adapted to reflect the needs of citizens identified in the demand survey. Respondents selected their preferred travel time, which was accumulated in a histogram. This demonstrated that the demand was during peak 'commuter' times. Therefore, it is recommended that the buses are run more frequently during peak demand from 7 am – 10 am and 4 pm – 7 pm. During this peak time, 1-2 buses would run every 1.5 hours – 45 minutes. From 10 am – 4 pm, it is recommended that only 1 bus be run less frequently due to a significant decline in demand. However, this should be tested during a pilot phase to prove its validity. The schedule can be changed and adapted to ensure maximum efficiency and satisfaction of needs.

5.1.4 Non-Financial Criteria Assessment

Prior to assessing the financial feasibility of the express bus, the non-financial criteria were assessed.

- **Satisfaction of Needs:** although the proposed bus does not meet all needs, such as the broader TLT community, it does align well with commuters. Additionally, it is recommended that the bus used is accessible to accommodate users of all needs. This was found not to add a high cost to the bus, and multiple grants are available to cover this cost. In phase one of implementation, the commuter is the target demographic. Thus, this does a great job of meeting their demand.
- **Ease of Operations:** The Town would have limited responsibility in the operations of the express bus, requiring limited resources. This can be easily trialed in a staged implementation to assess demand for such a service. Additionally, it can be scaled and adapted depending on its success moving forward. This could include extended service hours, buses, and route distances.

- **Alignment with Stakeholders:** with a regular stop at the Shorelines Casino, it meets the needs of a key stakeholder. In a discussion with Wheels of Care, it was determined that such a system could run in collaboration with them. It should be noted, however, that the express bus is reliant on the funding of key stakeholders. This is to fill the financial gap between costs and fare revenue generated. This will be further expanded upon in the next section.

5.2 Financials

5.2.1 Methodology

While developing our financial feasibility we created a three-step methodology. The first step would be to derive the costs of the project. We investigated both the daily operating costs of the project and the upfront capital investment involved in the project. To find these costs we spoke with thought leaders, service providers, and industry experts. The second step was to derive the potential fare revenue of the project. To do this we projected the potential ridership and multiplied this by our proposed fare prices. The potential ridership was based on our demand analysis and the proposed fare prices were based on the survey results and comparable transit systems. After deriving the potential fare revenue and costs, the last step of our methodology was to determine the gap between the costs and the revenue. This financial gap between the revenues and costs displays the loss that would need to be filled with other funding options.

5.2.2 Costs

While deriving the costs, we knew we had two different cost scenarios one where the Town of Gananoque owned the bus and leased it to a third-party provider and another where the third-party owned the bus. From these scenarios we developed a few key assumptions. These included 350 operating days a year, 10 hours of operation a day, no price fluctuations from any third-party provider, that the fixed expenditure is a function of maintenance and depreciation, and the variable expenditures are a function of gas prices and service fees.

After these assumptions were made, we were able to derive the potential costs of the express bus using industry expert interviews and service provider estimates. From those interviews and estimates we identified that if Gananoque were to purchase their bus it would cost either \$350,000 or \$150,000 and last either ten or five years depending on if they decide on a new or used bus. If the third-party were to own the bus, there would not be the large initial investment but would be charged a greater operating cost. Combining these initial costs with the fixed costs and variable costs we compared the cost of the two scenarios. To use a third-party's bus we estimated it would cost around \$206,500 annually and for the Town to purchase and lease a bus to a third-party it would cost an estimated \$231,175 annually. Given this cost difference and the added operational risk of owning the bus, we determined it best to use busses owned by the third party service provider.

*Please see full financial estimates in the presentation appendix

5.2.3 Revenues

After deriving the costs, we had to estimate the potential revenues. To do this we would have to determine the potential ridership and a potential fare structure for these riders.

5.2.3.1 Projected Ridership

While determining our potential weekly riders we created a forecasting methodology. This methodology had three steps. The first step was to review the total potential ridership that we derived from our demand side analysis. The next step was to determine a penetration rate or percentage of the potential ridership that we would capture on an annual basis. To determine this penetration rate, we benchmarked against case studies from Loyalist and Deseronto that went through similar projects along with the Shoreline Casino shuttle ridership. Once we determined the potential ridership, we believed we could capture, the final step was to set a maximum cap. This was used to cap the number of rides per week based on the seat capacity of the buses. This can be expanded as we hit this cap by adding more busses into our contract as the service grows. This cap was set at 921 rides per week.

Using this methodology, we created both a best- and worst-case scenario for potential ridership. In these scenarios we estimated the ridership of three main demographics, work riders, medical appointment riders and social riders. Each of these demographics was given an initial penetration rate along with year-over-year increase to those rates based on our benchmarking. In the best-case scenario, we estimated higher penetration rates with higher year-over-year increases than we did in the worst-case scenario. In the best case scenario we estimated the first year ridership would be around 330 rides per week and increase nearly 94% the next year to 638 rides per week while the worst case scenario estimated 156 rides per week the first year with a 71% increase in year two that would equal around 267 rides weekly.

*Please see full ridership projections in the presentation appendix

5.2.3.2 Fare Structure

After deriving the ridership estimates, we proposed the following fare structure for the riders. To do this we used the results from our demand analysis which asked the respondents how much they would be willing to pay for a bus ride and compared it to their current travel options. From the survey we found that 79.17% of respondents said a ticket price of either \$5-\$10, or higher would be affordable and fair.

We then looked at what current independent travel options would cost. The two options we identified were owning a car or using a taxi / uber. Of these two options a car was cheaper. That being said a car would still cost nearly \$33 per day or \$710 per month to own not considering any parking or gas costs which could cost an additional \$6.50 per day. Using both these data and the data from the survey we determined that a bus ticket price of \$10 would be fair and affordable. Once we had this base ticket price, we were able to use Kingston Transit's fare structure as a template to create a proposed fare structure. This proposed fare structure can be seen in the appendices.

*Please see full fare structure and bundle passes in presentation

5.2.3.3 Revenue Conclusion

Once we had determined our best-and-worse case scenarios for weekly ridership and our proposed fare structure, all that was left to determine our estimated revenue was to multiply the two numbers. This gave us two revenue scenarios. In the best case scenario we estimate the first year revenue to be around \$78,000 and by the fifth year revenue to grow to \$215,000, while the worst case scenario would see around \$37,000 in first year revenue and would grow to about \$134,000 by the fifth year.

*Please see full financial projections in presentation appendix

5.2.4 Financial Gap

The last part of the financial feasibility for this option was to determine the gap between the costs of the project and the fare revenues that would be collected from it. In both scenarios, we identified that in the first two years the costs would outweigh the revenues creating a gap. By the third year, the best-case scenario's revenues outweigh the costs and the project would become self-sustaining. This is not the case for the worst-case scenario. For both cases we have identified some options that can be used to manage this gap. These options include various grants and partnerships and will be explained later in the implementation section of the report.

5.3 Phase 2 - On-Demand Transit

Phase 1 should be assessed over 3-4 years to understand if it is successful. Factors signaling success will include:

- A growing ridership demand year over year.
- There are sufficient fare revenue and funding from key stakeholders to fill the financial gap.
- The transit system is meeting the needs of community members, which can be assessed through annual transit surveys.

If Phase 1 is determined to be successful, it is recommended to move onto Phase 2 of delivery with Option 2: On-Demand Transit. This would mean expanding the service coverage to the greater TLTI area with the addition of an On-Demand software provider, and bus (/s).

5.3.1 What is On-Demand Transit?

On-Demand Transit is a form of shared public transport where vehicles alter their routes based on a particular transport demand at that moment, rather than using a fixed route or timetable. It is highly efficient because passengers can hail the bus to their desired stop in real-time through the use of an app or phone call. It applies to rural areas because it performs well in areas of low population density and demand. A fixed route would travel to every stop, irrelevant of if passengers get on the bus or not. This system would only travel to areas where passengers will use it.

5.3.2 How would this work for Gananoque?

Riders request rides to a virtual transit stop in their area. The software continuously optimizes the entire fleet in real-time to guide drivers. Drivers are equipped with smartphones and tablets to guide them through their routes as demand fluctuates.

The significant addition in this phase is the incorporation of a software provider. Several Canadian providers are fully capable of offering their services. The team had conversations with RideCo and Pantonium. RideCo has implemented On-Demand transit in Cochrane, Okotoks, and Airdrie in the province of Alberta. While Pantonium has implemented its software in Belleville and Deseronto. Their contact information will be provided in a separate document. The software will cost \$30,000 - \$50,000 annually to license and utilize it. This higher cost comes with higher ridership, bus route efficiency, and satisfaction of needs. It allows the service to have a wider area while being more cost-effective than an identical fixed route with the same coverage.

There would be 2-3 buses in operation which have the freedom to travel to pre-determined stops as needed. It is possible to restrict one bus to the original express bus route in phase 1 to ensure reliable and consistent service. However, with multiple buses utilizing the software, the travel to Kingston could increase during commuting times and decrease during off-peak hours.

5.3.3 Non-Financial Criteria Assessment

It was determined that the non-financial criteria would be surpassed through the transition to Phase 2.

- **Satisfaction of Needs:** the addition of additional buses and an on-demand service would allow for members of the TLTI community to access the transit system. Additionally, for non-commuters, the on-demand buses would adjust to meet their variable schedules. There is an onboarding process for customers to download the application and understand the system. However, we believe by this stage it will be a simple transition provided phase 1 is successful.
- **Ease of Operations:** the addition of a software provider does add complexity in terms of operations. However, the operations would be optimized to increase vehicle efficiency and operational costs. The system would be even more flexible to adapt to changing demand.
- **Alignment with Stakeholders:** this phase would maximize ridership with software that would appeal to stakeholders involved. Therefore, we believe it aligns well with the stakeholders as the express bus service did.

5.3.4 Conclusion

In conclusion, we want to reiterate that a public transit system is both feasible and realistic to implement. Demand for transit has been proven to be significant based on a well-responded survey. Some unique stakeholders have expressed interest in supporting the project, which presents excellent opportunities. The area has capable contractors that are willing to bid on operating such a project. Finally, new technologies are available to optimize and increase the efficiencies of the proposed transit system. These two phases can be

implemented in a staggered approach that will ensure success. This implementation will now be explored at a deeper level.

6 Implementation

6.1 Risk Mitigation Strategy

Lack of Ongoing Community or Political Support (risk – low)

The impressive community response to our survey indicated that the region is passionate about having a transit solution. However, to ensure long term support for the project, begin measuring success metrics (outlined below) for the anticipated social benefits. Collect survey feedback to measure these metrics on a quarterly or semi-annual basis.

Inability to Access Grant Funding (risk – medium)

Increase reliance on private business support. Get businesses to purchase passes for their employees to generate recurring revenues to support the project. Do not purchase the bus. Implement a pilot phase to test success.

Operational Failure (risk – medium)

Introduce performance standards into contract with third party provider.

Unsuccessful Casino Negotiations (risk – high)

Unsuccessful Business (and school) Partnerships (risk – high)

In the case of these high impact risks, the town should reduce service hours and operating costs. If businesses and schools are unwilling to purchase monthly passes in advance to generate recurring revenues and the casino is unwilling to partner with the town, the town should consider lower cost options.

6.2 Funding: Grants

We have identified five high potential grant opportunities related to this project:

- Ontario Community Transportation Grant Program (OCTGP)
 - o Investment for rural and small communities that would not have been able to develop sustainable transit.
- Ontario Community Infrastructure Fund (OCIF)
 - o To be used in conjunction with the Gas Tax Program to facilitate the maintenance of roads and bridges for communities with less than 100K people.
- Ontario Gas Tax Program
 - o 70% based on ridership, 30% based on population including all municipalities providing any funding.
- Eastern Ontario Development Fund

- Investment for rural and small communities that would not have been able to develop sustainable transit
- Trillium Foundation Investments
 - Eligible based on population of 20K or less, high potential opportunity

Note: Other potential grants stem from benefits to seniors, economic development and increased tourism in Ontario

6.3 Funding: Business Partnerships

Developing partnerships with businesses and schools will be key to generate recurring revenues that the town can count on to financially support the project.

For large employers in the town such as Cardinal or Gananoque Boat lines, the town should sell monthly passes to the business in advance for their employees. This could work for the Keys employment center to subsidize passes for people looking for work.

The sales approach can be applied to retirement centers such as Caraveth and Fox Run By The River to subsidize passes for seniors in need of health appointments. Additionally, schools such as St. Lawrence College have looked for opportunities for students to travel to Gananoque and the major schools in Kingston are good opportunities to develop recurring revenue.

The most significant partnership is with the Shorelines Casino. As they run a free shuttle service for their customers, they are paying around \$250,000 per year. The town can incentivize them to subsidize the project because it can save them money. However, the service would need to meet their needs of being free for their customers (which can be negotiated into the amount they pay) and stopping at the Casino location. This is a unique opportunity that can benefit the region in developing a transit system.

6.4 Operations: 5 Step Plan

Beyond funding, the operational steps are:

1. Service Provider Selection – Issue a Request for Proposal from major bus providers such as McCoy and Clark Bus lines.
2. Stop Development – Discussions with Kingston transit to integrate stop times into their downtown transfer point.
3. Key Partnership Development – This sales and negotiation process should be started early on and can continue throughout the project (along with grant applications) because funding is such a critical component of the project.
4. Marketing and Promotion – Once the transit system logistics are in place, introduce a mix of online and offline promotions to make different demographics of the population aware.
5. Pilot Program – Introduce a closely monitored pilot phase to test resident's reaction to such a service. Beyond this, surveys to test the social benefits of the project should be completed quarterly or semi-annually.

6.5 Evaluation Metrics: Measuring Social Benefits

Desoronto transit has successfully implemented an “Outcome Measurement Reporting” proving its system’s success based on the specific social goals of the project:

- 94% improved access to vital services
- 89% improved quality of life
- 81% achieved more disposable income
- 11% obtained employment
- 23% retained their job

These outcomes are critical to prove to the council as well as partners and government bodies that the project is creating immense value for the region and its citizens.

6.6 Town Council Feedback

Bus Ownership - Discussion about whether owning the bus, the major benefit being access to grants to offset this capital expenditure, is really worth it when you consider the service level necessary and that one bus may not cover this expectation. It was agreed, in the presentation, that the lower costs and lower risk of having the service provider own the busses outweighed the benefits of increased grant access. Therefore, the town might consider using the busses of the private contractor so that they can provide a higher service guarantee. Again, it is important to include service level agreements in that contract for expected performance.

Fare Discounts - Fares were discounted for seniors and youth only for bundle purchases and not for point of purchase tickets. This was based on research about elasticity of point of purchase transit sales with the goal of maximizing revenue recoup for the town. However, it was discussed that discounts for seniors and youths across the board in fare structure might be more appropriate.

Proposed Deal with Casino - As mentioned, the casino business partnership is a unique opportunity for the town because they currently pay around \$250,000 dollars for their shuttle service. In conversation with the casino managers, a proposed deal would need to meet their conditions including free transit for their customers and a stop at the casino. In our eyes, this proposition is acceptable given the casino support the town with a comparable monetary contribution with compensation for all casino customers riding the service for free. Mechanisms will need to be put in place to certify that the customer spends \$10 (or minimum dollar amount) at the casino.

Bus Accessibility - As a municipality, Gananoque will have to ensure that the bus they purchase or the bus that a service provider supplies is wheelchair accessible. In Desoronto’s case they converted two 24-seater community busses to give wheelchair access, which reduced the seat count to 18 and 16 seats.

Appendix Financials and Projections - All financial estimates, survey data and projections (detailed information) are included in the appendix slides of the PowerPoint presentation.