

Arrowdale Golf Course Community Engagement Survey; Statistical Significance and Findings

Dated; Tuesday, February 15th, 2021

Submitted to; City of Brantford - Clerk's Office

Submitted by; Friends of Arrowdale - *Community Interest Organization*

Executive Summary;

All findings & results calculated by accredited Professor Tim Swartz, PhD., Simon Fraser University, Department Chair; Statistics and Actuarial Science.

Based on the population of the City of Brantford, 2018, the Citizens of Brantford have rejected Brantford Councils motion to sell Arrowdale Municipal Golf Course. **55% of the population has rejected Councils decision to Sell Arrowdale within a 95% confidence interval.**

Statistically, **52,622 +/- 862** (51760,53484) Citizens of Brantford have rejected Councils decision to sell Arrowdale Municipal Golf Course and further to this, rejected Mayor Davis's motion to retain acreage for a park, not to be enjoyed by the city as a whole.

Methodology;

Survey & Statistical Analysis:

On January 14, 2020, Brantford residents as unpaid volunteers mobilized in a door-to-door public canvassing campaign creating awareness to the City of Brantford Municipal Council decision to dispose of Arrowdale Municipal Golf Course.

Included in the canvassing campaign was a survey component. The survey gave 2 options:

- A. SAVE Arrowdale lands as a community recreational and leisure green space, including heritage designations and Municipal Golf operation;
- B. SELL Arrowdale lands to the private sector for municipal profit and future developments.

Participants were asked to complete the survey record under headings:

Print Name;

Address;

Phone;

Email;

Signature;

In the interest of safety to the canvassers, only daylight hours were utilized in community contact.

In compliance with the Ontario Human Rights Code, every resident of the City of Brantford counted.¹

On March 13, 2020 the Ontario Government mandated strict COVID-19 rules of social engagement. In compliance, the awareness campaign ended.

On a few social distanced occasions, utilizing the parking lot of a Social Club in Brantford, citizens were offered the opportunity to access the canvassing material as well as the survey. The resulting survey component was of no significant statistical deviation to the survey result.

Advertisements were placed in the Brantford Expositor. The resulting survey public response was of no significant statistical deviation to the survey result.

Participation by residents residing in municipalities outside of the City of Brantford was of no significant statistical deviation to the survey result.

The survey signatory total as the result of Community Engagement between January 14 and March 13 is significant. Statistically, the data points of citizens engaged, SAVE/SELL, city population, provide a valid probability of the end value (Save/Sell) had COVID-19 not ended the campaign.

The survey results at March 13, 2020, along with applicable data points were submitted to: Professor Tim Swartz, PhD^{2,3}

¹ *Petition standards followed* <http://www.ohrc.on.ca/en/ontario-human-rights-code>

² *Supporting reference to professional statistician* <https://www.stat.sfu.ca/people/faculty.html>

³ *Second supporting reference to professional statistician* <https://www.sfu.ca/~tswartz/>

Discussion & Evidence of Statistical Analysis;

Data points submitted to Professor Swartz:

Brantford Population: **98,500**⁴;

Number of Brantford Citizens contacted: **12,190**;

Number of Brantford Citizens (Signatories) Save Arrowdale: **7127**⁵

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Statistically, 52,622 +/- 862 (51760,53484) Citizens of Brantford have rejected Councils decision to sell Arrowdale Municipal Golf Course and further to this, rejected Mayor Davis's motion to retain acreage as to what is a theme park, not to be enjoyed by the city as a whole.

Probability is how likely something is to happen. Whenever it's uncertain about the outcome of an event, mathematical probabilities of certain outcomes can be determined of how likely they are. The analysis of events governed by probability is called statistics.

Complete work included as attached email by Dr.Swartz.

Calculated and analyzed by;

Professor Tim Swartz, PhD

Department Chair: Statistics and Actuarial Science, Simon Fraser University

Email; tswartz@sfu.ca

⁴ City of Brantford Population from Census <https://brantfordvotes.brantford.ca/en/voters/ward-maps.aspx>

⁵ Petition Package as attached as '*Arrowdale Golf Course Community Engagement Survey*'

Email from Dr. Tim Swartz, as is, to Friends of Arrowdale Dated Monday, December 7th, 2020.

KM

REDACTED <REDACTED@hotmail.com>
Mon 2020-12-07 7:40 PM

From: Tim Swartz <tswartz@sfu.ca>
Sent: December 7, 2020 4:13 PM
To: REDACTED <REDACTED@hotmail.com>
Subject: Re: Arrowdale Community Survey

Hi **REDACTED**,

Here is a quick calculation for **REDACTED**. Tim

Let $X = 7127$ denote the opposed votes in the canvassed sample and assume that X is a random sample of the population. Then $X \sim \text{Binomial}(12190, p)$ where p is the proportion of opposed votes in the population of size $n = 98500$.

Then the standard 95% confidence interval for p is:

$\hat{p} \pm z_{\{.025\}} \sqrt{\hat{p}(1-\hat{p}) / 1290} \rightarrow 0.585 \pm 1.96 \sqrt{0.585 \cdot 0.415 / 1290} \rightarrow 0.585 \pm 0.00875$

Therefore the 95% confidence interval for the number of opposed votes $n \cdot p$ in the population is:

$n \cdot \hat{p} \pm n \cdot (0.00875) \rightarrow 52622 \pm 862 \rightarrow (51760, 53484)$