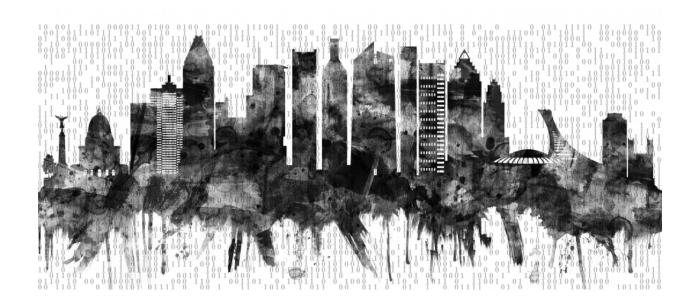
### **MARKET VISION REPORT**

### **INSERT PROJECT LOCATION HERE**

Date Evaluated: April 8, 2021





### Addressed to:

### **INSERT COMPANY HERE**

Attention to:

INSERT INDIVIDUAL NAME

**INSERT COMPANY ADDRESS** 

**INSERT COMPANY ADDRESS** 

**INSERT COMPANY ADDRESS** 





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### Disclaimer

Object: Market Analysis Report

SquareFeet.ai has carried out the market study for the project located at INSERT SUBJECT LOCATION, (herein referred to as the "Property") to provide a preliminary analysis of the residential market dated April 8, 2021.

We understand that the agent or any other agent designated by this study could use this report to facilitate the pricing of the properties in question. The content of this market study is subject to the extraordinary assumptions and limiting conditions.

These extraordinary assumptions and limiting conditions are a basic element of this report and are inseparable from this letter. We hope everything is consistent and to your complete satisfaction, and we ask you to accept the expression of our best feelings.

SquareFeet.ai has the obligation to ensure that none of your proprietary project information be directly handed out, sold or broadcasted to any party. SquareFeet.ai may share aggregated information linked to your proprietary project information. SquareFeet.ai has the obligation to ensure that the aggregated information can never be directly linked to your proprietary project information. SquareFeet.ai has the right to store your proprietary project information in its database to develop and perfect its platform.

Jordan Owen

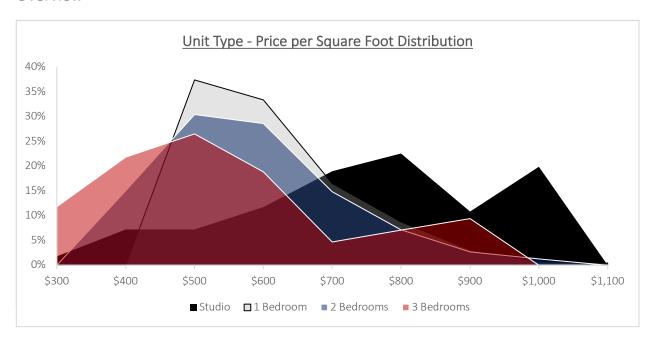
Masters' Real estate, MIT CEO - SquareFeet.ai





### **Executive Summary**

### Overview



	Avg. Today		Avg. in 12-Months		Avg. in 24-Months		Annual
Unit Type	Sales Price	Price per SF	Sales Price	Price per SF	Sales Price	Price per SF	Growth
Studio	\$366k	\$902	\$369k	\$910	\$372k	\$917	0.82%
1 Bedroom	\$460k	\$676	\$405k	\$700	\$419k	\$725	3.53%
2 Bedroom	\$640k	\$635	\$551k	\$655	\$568k	\$675	3.10%
3 Bedroom	\$1,301k	\$728	\$1,120k	\$750	\$1,150k	\$770	2.83%

#### **KEY FINDINGS**

SquareFeet.ai uses large data sets to recommend market pricing. Algorithms can control data in terms of location, building age, and other qualitative attributes without bias. The analysis conducted by SquareFeet.ai brings computers and humans together to achieve better results.

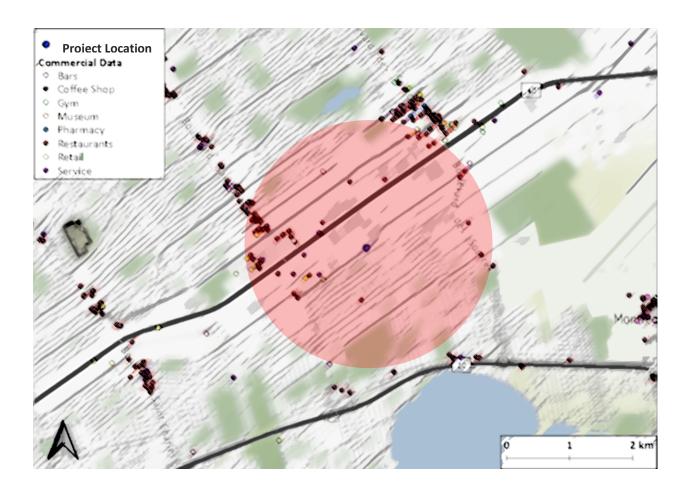
The table above illustrates SquareFeet.ai's recommended pricing scheme for each unit type. Please read the report to see how we achieved this recommendation.





# **Neighborhood Analysis**

Commercial Data

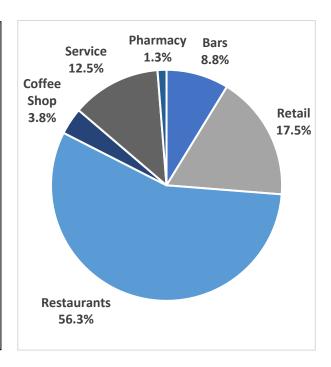


#### **KEY FINDINGS**

The immediate location around SUBJECT LOCATION has a good density of commercial/retail surrounding it. Over 85 commercial locations were found in the immediate 2km-radius of SUBJECT LOCATION, which includes the all points within the red highlighted circle on the map above.

Over 50% of the commercial locations are occupied by restaurants, and the rest is a mixture of retail, service and bars.

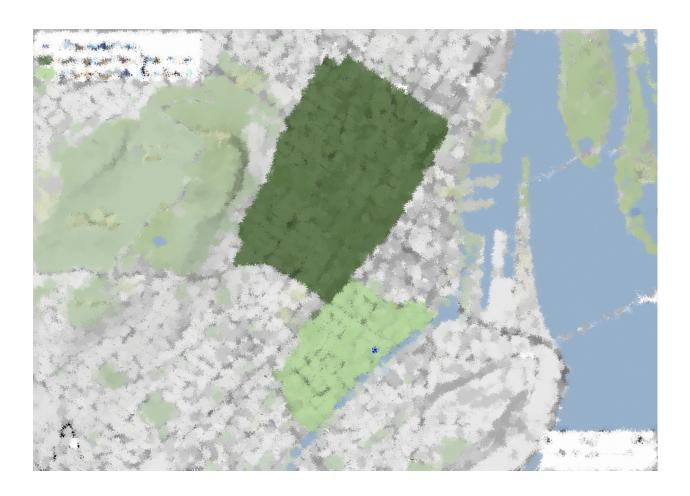
As the REM station becomes operationalized, commercial tenants will continue to flock.







Population Density



What is Census Data? Census Data is provided by the government and can be found on public websites such as censusmapper.ca or StatsCan. The data ranges across North America and includes attributes such as population density, mode of transit, household density, age distribution, income distribution, primary language spoken, among many others. SquareFeet.ai has implemented the public data into the market analysis to compare not only a radius around the Property, but to expand the data by pulling comparable from similar neighborhoods several kilometers away. We do this by "Clustering" similar neighborhoods based on the Census Data collected.





## **Census Clustering**

Cluster Methodology

#### **Cluster Layers**

As mentioned, the Census Data is used to find similar neighborhoods compared to the subject Property to expand the data in SquareFeet.ai's market analysis. We find the similar neighborhoods in terms of 1) Population Density, 2) Individuals Aged 25-40, 3) Housing Stock above 2005 Year of Construction, 4) Proportion of the Population using a Personal Vehicle as a main mode of transport, 5) Median Income, and 6) Individuals with a University Degree or higher. The result of the analysis is a series of neighborhoods that are highly comparable to the neighborhood where the subject Property is located. Given that there is a lack of perfect comparable projects in the immediate vicinity of the subject Property, the results from the "Clustered Comparables" as described in the next few pages, are critical to understand pricing in the Subject market for new condo projects.

To effectively compare these attributes, we first run the data through a series of cleaning and standardization algorithms to compare data with similar magnitudes. Standardization is conducted by calculating the Z-Score (formula illustrated below) of each attribute, which brings all the data to a mean of zero and a standard deviation of one. The result is population density, which can be as high as 5,000 people per kilometer squared and proportion of the population using personal vehicle, which can be as small as 0%, can be compared effectively without skewing the results.

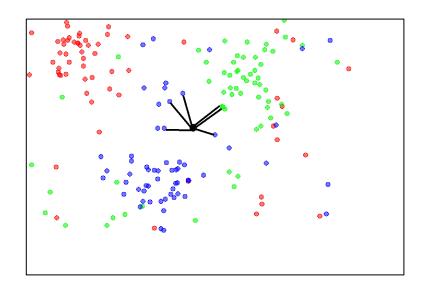
$$Z - Score = \frac{(X - \bar{X})}{\sigma}$$

Where  $\boldsymbol{X}$  is the datapoint being standardized;

 $\overline{m{X}}$  is the average value of the sample; and

 $\sigma$  is the standard deviation of the sample.

After the standardized variables are computed, SquareFeet.ai runs a clustering algorithm to find which Census Districts are closest in similarity to the District where the Project is located. K-Nearest Neighbors is the algorithm utilized during this process. The algorithm inputs the standardized Census Data and groups the data into several buckets. The data points within each bucket are closest in terms of the data inputted and can be considered as the best comparable. A two-dimensional visualization of grouping data into similar neighbors is illustrated below, where each color represents a different bucket.





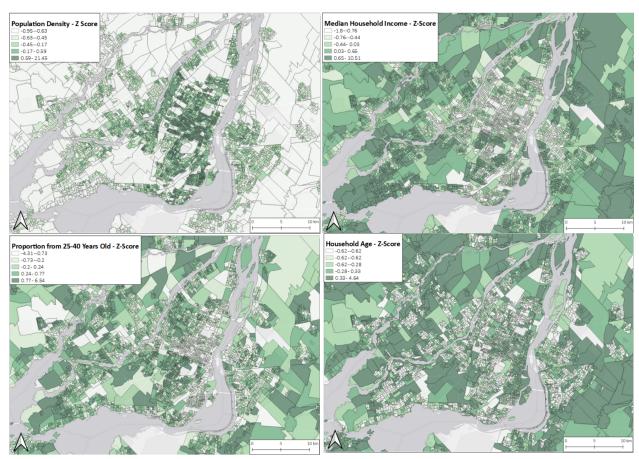


### **Census Clustering**

#### Cluster Layers

As mentioned, SquareFeet.ai uses of 1) Population Density, 2) Individuals Aged 25-40 or Younger, 3) Housing Stock above 2005 Year of Construction, 4) Proportion of the Population using a Personal Vehicle as a main mode of transport, 5) Median Income, and 6) Individuals with a University Degree or higher in our cluster analysis to find similar neighborhoods. A sample of the layers are illustrated below:

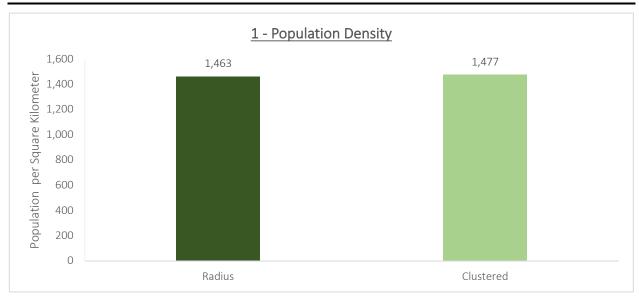
- 1) Population Density:
  - a. This layer helps find neighborhoods that are similar in terms of number of people per square kilometer. It is important because less dense neighborhoods have similar characteristics in terms of sprawl and lifestyle.
- 2) Individuals Aged 25-40:
  - a. This is an important attribute because individuals 25-40 have similar characteristics in terms of buying power and lifestyle. These individuals earn less income on average and require less space to live. Finding similar neighborhoods where age distribution is similar is critical for accurate pricing.
- 3) Median Income:
  - a. Income represents an individual buying power. Neighborhoods with similar buying power can afford a similar price range of housing.
- 4) New Building Stock (after 2005 for year of construction):
  - a. Finally, new building stock after 2005 for year of construction helps find neighborhoods where construction activity is similar.

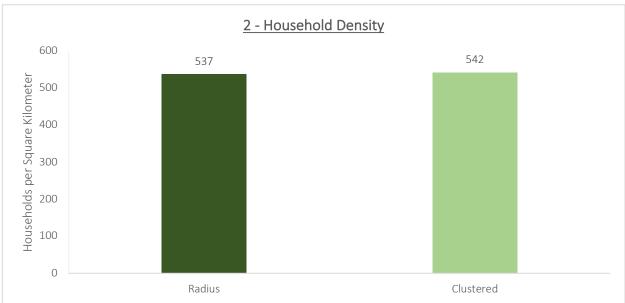


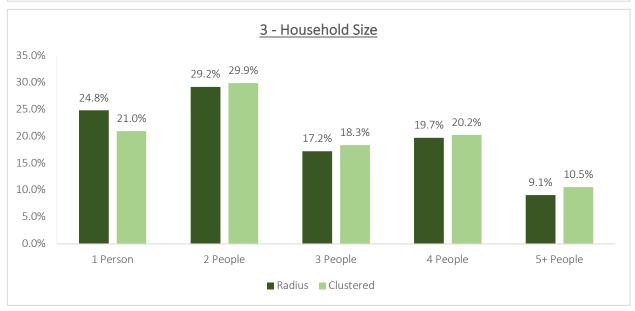
\*Sample of census data layered in Montreal. The same query was utilized around the Subject Property



### Population Density and Housing Overview



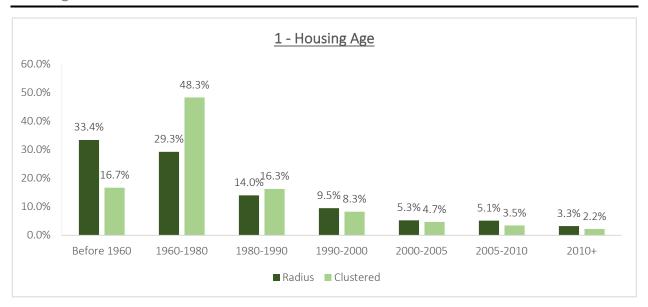


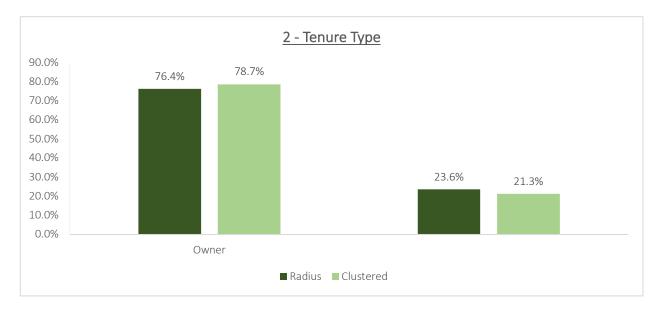


- 1 Population density refers to number of people per square kilometer. As you can see, both the Radius and Clustered are similar.
- 2 On a people per household basis, the Radius and Clustered have 550 dwellings / square km.
- 3 There is a heavier weight in terms of number of people per household in both markets.



### **Housing Overview**

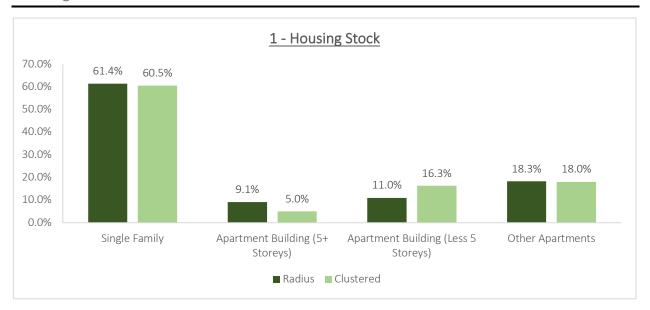


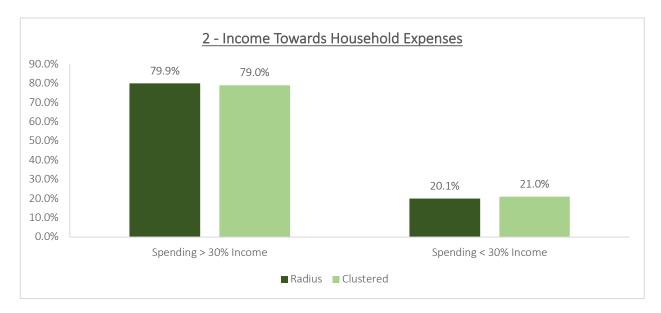


- 1 There are very few new buildings in both markets (only 2-3% are built after 2010).
- 2 Most individuals are owners in both markets. However, this does not mean that a rental project would not work as there is still a strong demand for rental (shown in the market analysis).



### **Housing Overview**

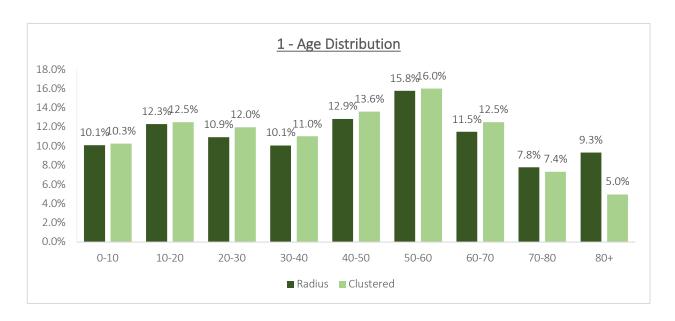


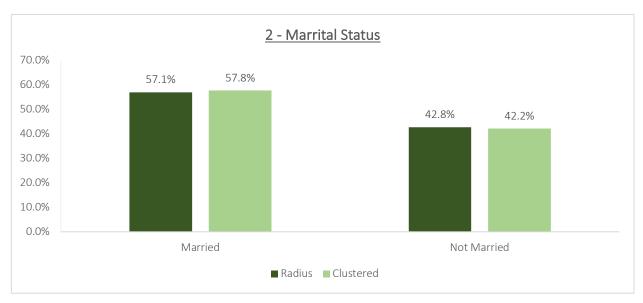


- 1 Graph #1 shows the distribution of housing stock in both markets. As illustrated, both markets have a strong single-family presence.
- 2 Graph #2 shows the proportion of individual who spend more or less than 30% of their annual income on housing expenses. Both markets illustrate a high proportion of spending on housing.



### Age Distribution and Marital Status



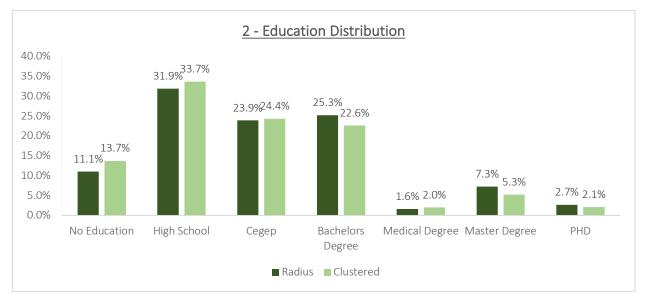


- 1 Graph #1 shows the age distribution for the Radius and Clustered Markets. The distribution is quite flat, meaning there are a similar number of individuals from each age bracket.
- 2 Over 55% of individuals are married, suggesting a greater need for larger units.



### Income and Education



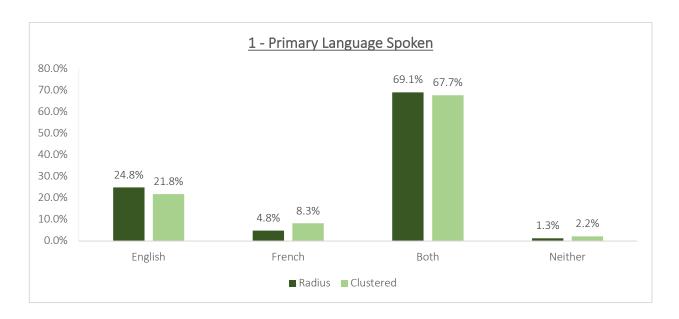


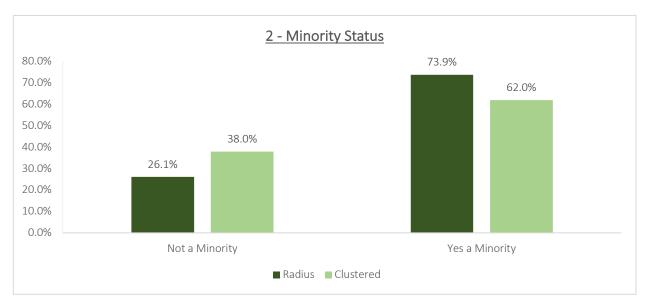
# **KEY FINDINGS**

1 – Both markets have a very large percentage of individuals who earn greater than \$150,000 annually.



### Primary Language Spoken and Minority Status

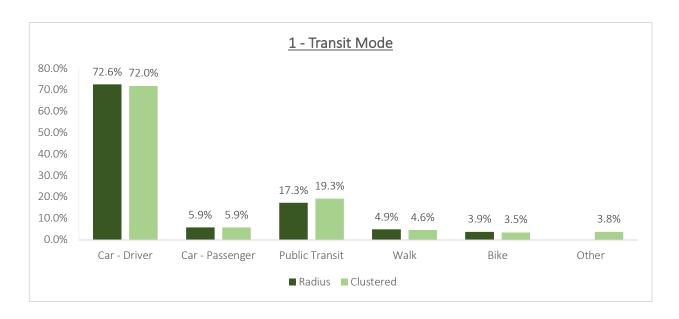




- 1 Marketing efforts can be both done in English and in French, as most of the population speaks both languages.
- 2 The status of the population is mostly considered a minority.



### Transit Mode and Transit Time





#### **KEY FINDINGS**

1- We see that the reliance on a personal vehicle is quite large, as 72.6% of the population rely on a personal vehicle as their main mode of transport. This suggests that a parking component is necessary for any new project situated in Hull.





### Tenant Cost vs. Housing Values



#### **KEY FINDINGS**

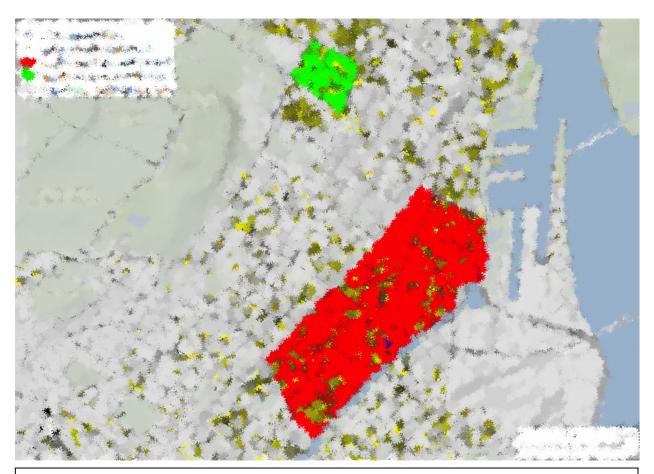
1 - Lastly, median housing value in both markets are around \$350-\$375 thousand dollars as well as median rental at around \$1,000 - \$1,200 per month.





### **Census Clustering**

### Clustering Results



#### **KEY FINDINGS**

Using K-Nearest-Neighbors cluster analysis on the Census Tracts with the attributes mentioned on the previous pages, the results are shown in the map above. All Census Tracts or areas colored in light green are considered "Similar" in terms of closest neighborhoods.

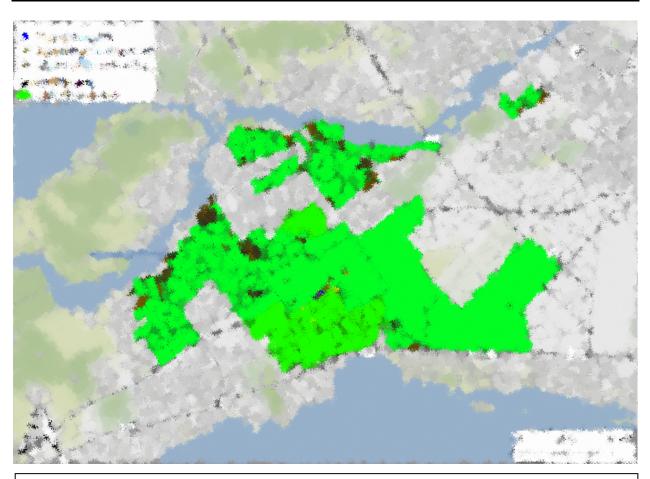
SquareFeet.ai continues the analysis by comparing the "radius" neighborhood, or the comparable within a fixed radius of the Project, as well as the comparable in the "clustered" neighborhoods.

The benefit of this analysis is that SquareFeet.ai compares both the traditional radius analysis and the clustered analysis to make the most educated evaluation.





Map of Data Collected

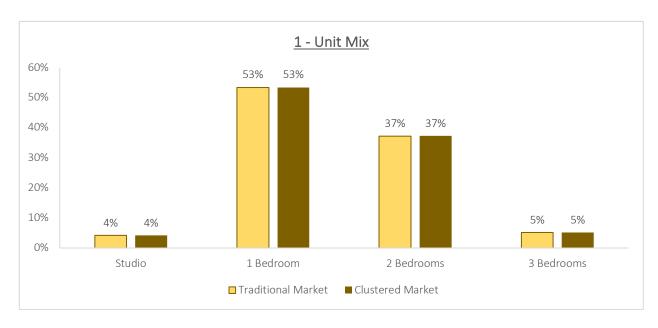


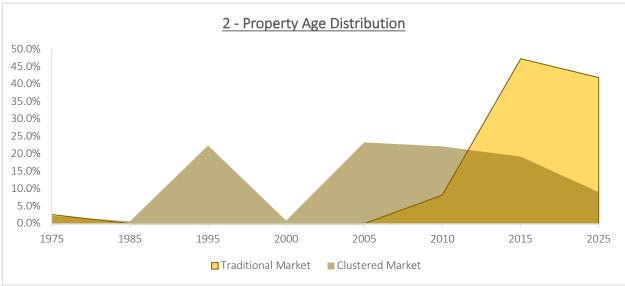
- 1) After cleaning the data 13,829 sale listings were collected in the red highlighted Census Tracts (**Traditional Comparables**); and
- 2) After cleaning the data 14,369 sale listings were collected in the green highlighted Census Tracts (Clustered Comparables).





### Unit Mix and Property Age



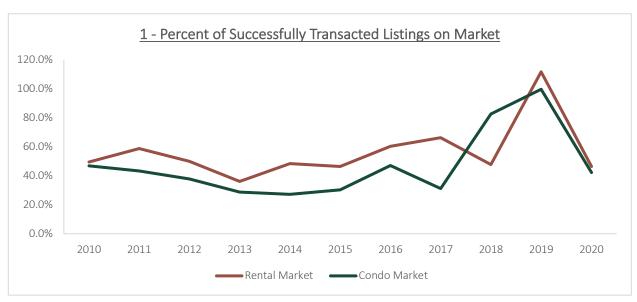


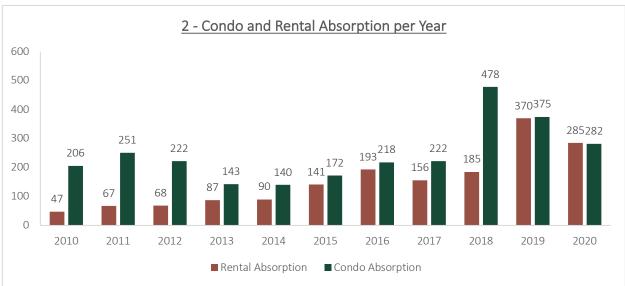
- 1 The market unit mix is illustrated in Graph #1. This does not suggest that the Property should have the same unit mix, it simply shows what the market is demanding as a proportion of the total. Increasing the number of One-Bedrooms could be optimal depending on the projected rental values per square foot.
- 2 Similarly, most listings in both neighborhoods were in properties that were built after the year 2000.





#### Market Activity



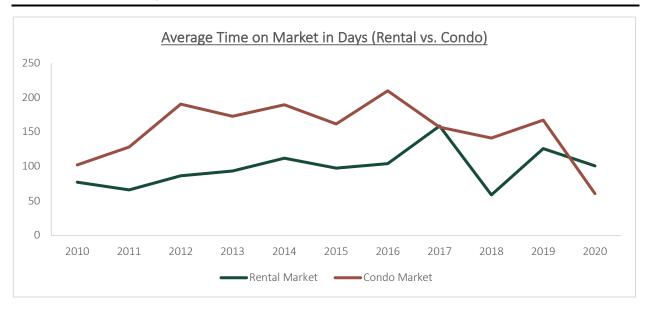


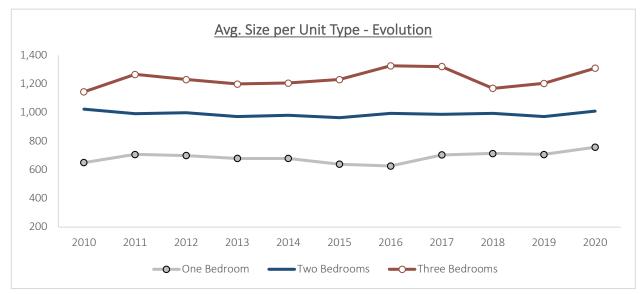
- 1 Graph #1 shows the percentage of the listings on the market that transacted. The ratio is calculated by taking the total number of transacted rental units in each market, divided by the total number of listings in each year. The result is a percentage of transacted over total listings and represents the heat of the market. The higher the percentage, the more successful transactions. As illustrated, the market was on an upward trend since 2015, with an understandable dip in 2020. This happened because the market was flooded with listings, but the market for new construction has not been impacted negatively, which will be illustrated on the next few pages.
- 2 Overall, yearly absorption in the Condo and Rental market have remained relatively strong, even during the difficult previous year due to COVID-19.





### Time on Market (Days) and





### **KEY FINDINGS**

Overall, the trend for Time on Market has fallen since 2016 from an average of around 150 days in both markets in 2016 to under 100 days today. Similarly, the average size per unit type has remained flat for the three-unit types. One bedroom units hovering around 600 square feet, two bedrooms at around 900-1000 square feet, and three bedrooms at 1,200 square feet.





Capital Markets



#### **KEY FINDINGS**

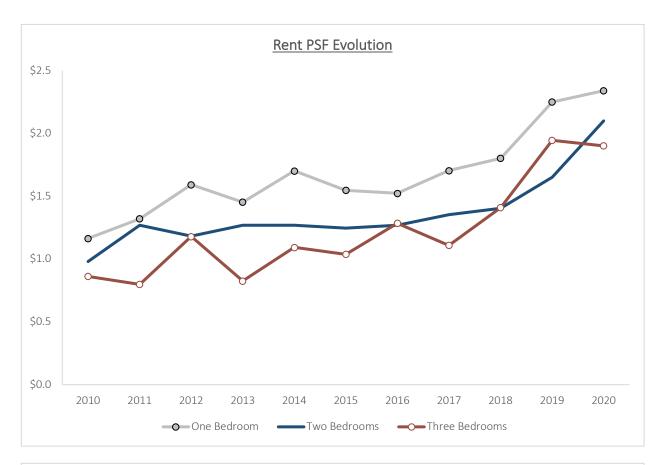
Capital markets since the year 2010 have been very favorable for the Condo market in Canada. The **Blue Line** represents the Average Cap Rate for residential real estate over time for the Surrounding Market specifically, the **Green Line** represents the 5-Year fixed bank rate, including Prime + the Risk Premium, and finally, the **Red Line** represents the spread between the two.

Overall, the condo market has in a secular bull market because of the tailwinds pushing the market forward. Low mortgage rates increase the purchasing power of individuals, allowing them to afford more expensive real estate with the similar carrying costs. The Blue Line (Cap Rates) asserts that real estate values are earning high multiples on total operating income. This means that rental assets continue to earn high multiples on their net operating income since the spread between the cap rates and mortgage rates continues to climb.





Rental Market Time Series Analysis





#### **KEY FINDINGS**

Since 2015, each unit type increased at an annual rate of the following:

One Bedroom Units: \$105 per month;
 Bedroom Units: \$96 per month; and
 Bedroom Units: \$134 per month.



Monte Carlo Simulations - Overview

#### **KEY FINDINGS**

Monte Carlo Simulation: Generate a series of Trial scenarios consisting of future possible outcomes. There are thousands of trials that are predicted based off empirical assumptions on volatility, mean reversion, and black-swan events. The simulations are in fact very efficient. There is no bias. Finance theory suggests that stock prices move up and down in a random walk, meaning there is no correlation. Real estate is not the same. Future real estate prices can be better predicted because there are fundamental real estate dynamics that can be modeled, outlined below:

- 1) **Heterogenous Products**: There are lots of differences in real estate assets compared to stocks. One barrel of oil is identical to the next, but one apartment or building is very different based off many qualitative and quantitative characteristics. Sun exposure, floor of the unit, layout, views, building material... The list goes on. This makes it very difficult to estimate value.
- 2) **Lower Efficiency**: Because of the difficulty to assess value, the real estate market is stickier and more sluggish than the stock market.
- 3) **Autoregression**: Property prices tend to auto regress, meaning prices are impacted from previous prices. This means that real estate markets are not Memoryless or Random Walks. They are sticky and correlated to last years prices.
- 4) **Cycles**: Real estate markets tend to follow very long cycles with as much as 25% variations in the ups and downs. These cycles are long run and predictable.
- 5) **Long Run Mean Reversion**: Real Estate seems to show more long-run mean reversion than stocks do

The Figure below illustrates a 6-trial Monte-Carlo simulation on a sample dataset. You can see that the trials all follow a similar trend.

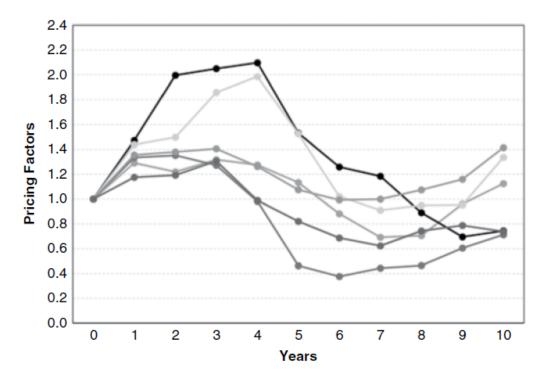


Figure 7.2 Pricing factors for six future scenarios, based on real estate parameters (random walk with autoregression, cyclicality, and mean-reversion).

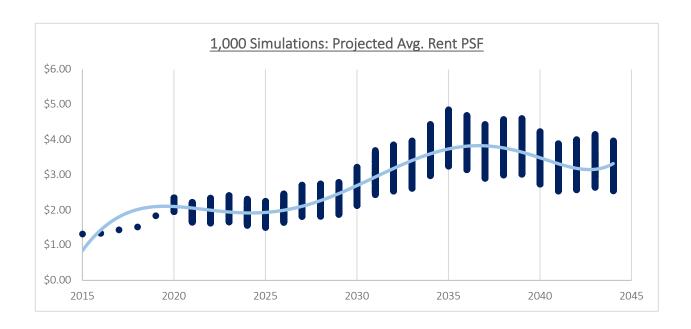




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### **Market Analysis**

Monte Carlo Simulations - Results



#### **KEY FINDINGS**

The table above illustrates a 1,000 Simulation Monte-Carlo analysis, projecting average rents until 2045. The projections used are based off best in practice forecasting methodologies published by academics and professionals from the top universities and firms in the industry. For more information on the methodologies used to forecast real estate, please visit <a href="http://pricedynamicsplatform.mit.edu/">http://pricedynamicsplatform.mit.edu/</a>

Based off the current market regime, we see that real estate values are projected to remain stagnant for several years before experiencing another long-term bull market from 2025 to 2035. The reasons for this projection are outlined in the major inputs in the model, outlined below:

1) Long-Term Growth: 2.5%;

2) Rent Cycle Amplitude: 20%;

3) Cap Rate Cycle Amplitude: 2%;

4) Annual Volatility: 10%;

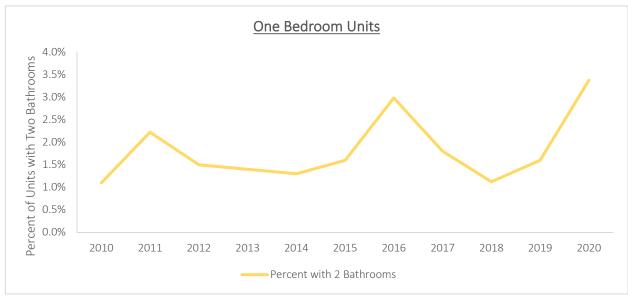
5) Black Swan Probability: 5%;

6) Black Swan Impact: -25%; and

7) Peak to Trough Cycle Period: 10 years.



Bathroom Analysis – Percent of Units with Two-Bathrooms





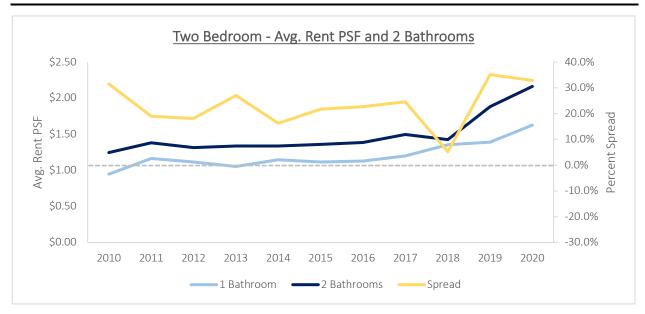


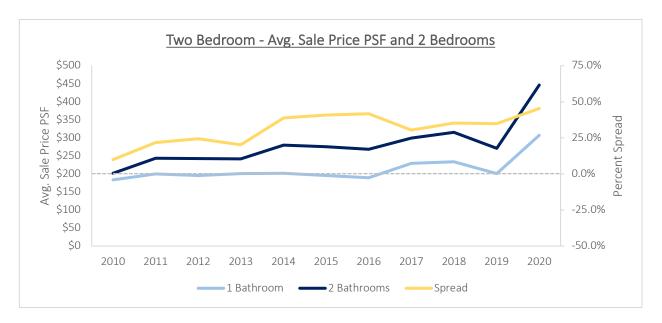
#### **KEY FINDINGS**

The Yellow Line shows the percentage of units with Two-Bathrooms, the Dark-Blue Line represents the percentage of listings that were successfully transacted for each unit type, separating whether they had One, or Two Bathrooms. This is a great gauge for the percentage of the Subject Property's units that have Two-Bathrooms.



Bathroom Analysis – Avg. Rent PSF and Sale Price PSF





#### **KEY FINDINGS**

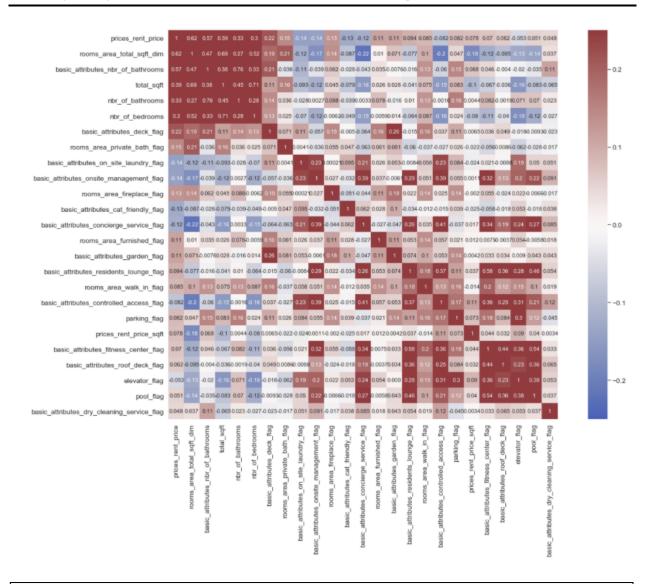
The graphs above illustrate the average Rent PSF and Sale PSF for Two-Bedroom units with One or Two-Bathrooms. The **Dark Blue** Line represents units with Two-Bathrooms and the **Light Blue** Line represents units with One-Bathroom. The most important part of these graphs is in fact the **Yellow** Line, which represents the percent spread between the two Rents and Sales Price PSF. If the Yellow Line is above the grey dotted line (0% Line), it means that there is a positive spread between the Rent or Sales Price PSF for units with One or Two-Baths. As illustrated, Two-Bedroom units show positive premiums for units with two bathrooms, suggesting a large demand.

One-Bedroom units (not illustrated above) showed no premium if there were One, or Two-Bathrooms, suggesting no need to include Two-Baths. On the other hand, two bedroom units show a premium when including two-bath. SquareFeet.ai would recommend designing at least 30% of two-bedroom units with two full bathrooms.





### Amenity Analysis - Which Amenities are Tenants Looking For?



#### **KEY FINDINGS**

The table above illustrates a correlation matrix for all major amenities that can be included in a property and the associated impact on Monthly Rent. The table is color coded so that Red has a positive impact and Blue has a negative impact on monthly rent. These value are statistically significant, however the nominal values should be taken with a grain of salt as collinearity exists between the four variable.





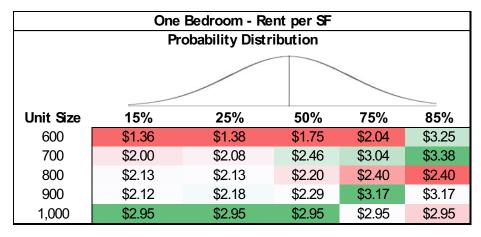


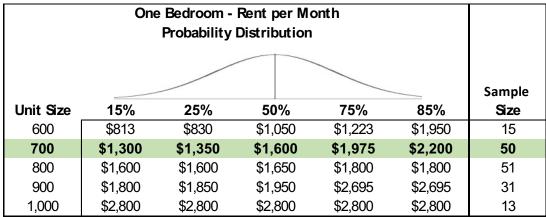
Sample of Comparables Selected

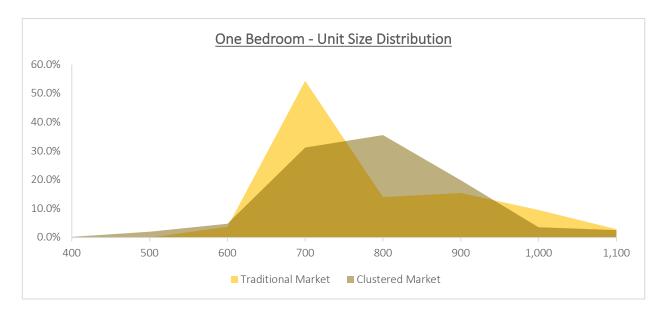
Notable Comparables						
Property	Address	Year Built				
	1188 Saint Antoine Ouest	2019				
	2020 rue Ottawa	New Build				
	950 rue Notre Dame	2010				
	190 Murray	2015				
	1320 rue Olier	New Build				
	888 Wellington	2015				



Rent Price Analysis Results - One Bedroom Units







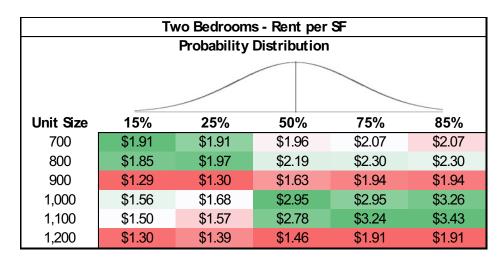
#### **KEY FINDINGS**

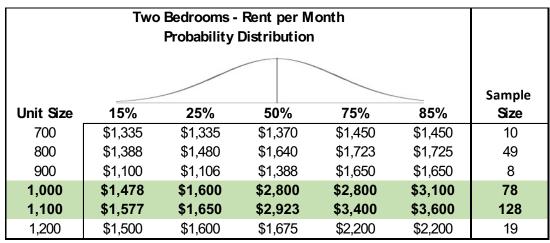
The tables above show the distribution of pricing from the 15<sup>th</sup> percentile (lowest values) to the 85<sup>th</sup> percentile (highest values) for each size range for the rent per square foot and the rent per month.

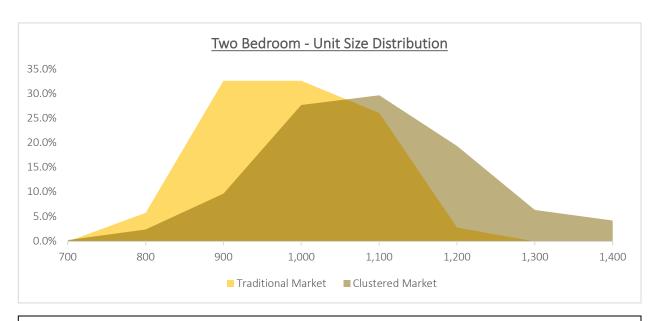
The optimal size for a One-Bedroom Unit is around 600-700 square feet and monthly rent range from \$1,300 to \$2,000.



Rent Price Analysis Results – Two Bedroom Units







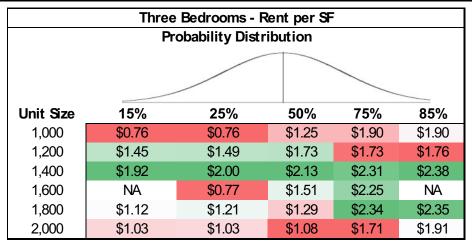
#### **KEY FINDINGS**

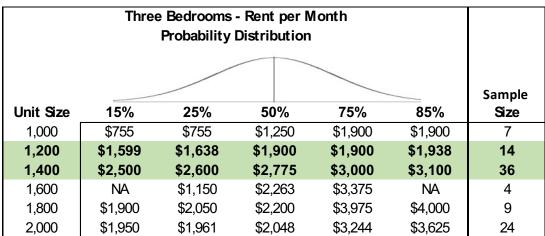
The tables above show the distribution of pricing from the 15<sup>th</sup> percentile (lowest values) to the 85<sup>th</sup> percentile (highest values) for each size range for the rent per square foot and the rent per month.

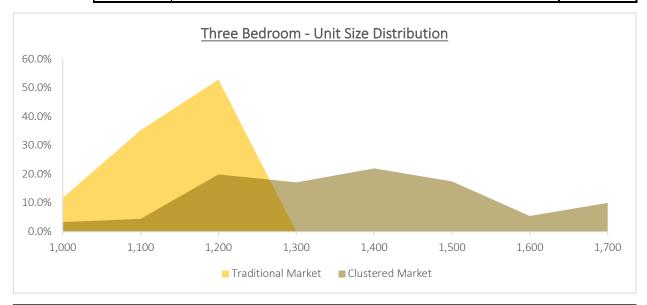
The optimal size for a Two-Bedroom Unit is around 800 square feet and also around 1,000 square feet. Monthly rent range from  $$1,500 ext{ to } $3,000$ .



Rent Price Analysis Results – Three Bedroom Units







#### **KEY FINDINGS**

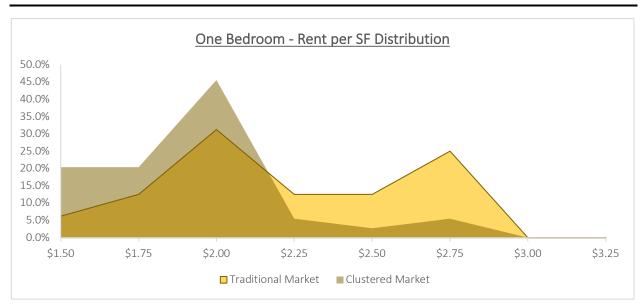
The tables above show the distribution of pricing from the 15<sup>th</sup> percentile (lowest values) to the 85<sup>th</sup> percentile (highest values) for each size range for the rent per square foot and the rent per month.

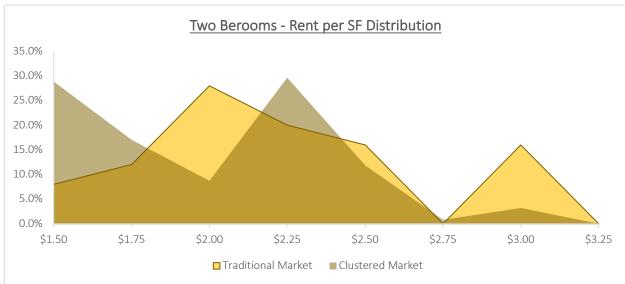
The optimal size for a Three-Bedroom Unit is around 1,200-1,400 square feet and monthly rent range from \$2,500 to \$3,000.

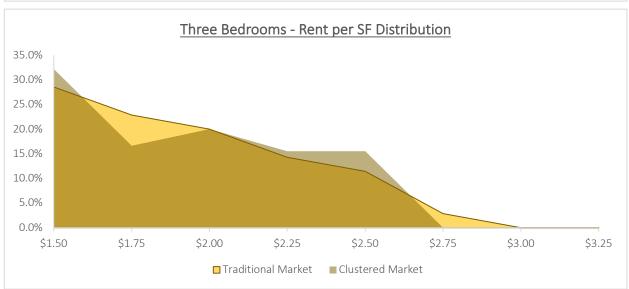




Monthly Rent per Square Foot Distribution







### **KEY FINDINGS**

The graphs above illustrate where the market ranges of monthly rent per unit type.

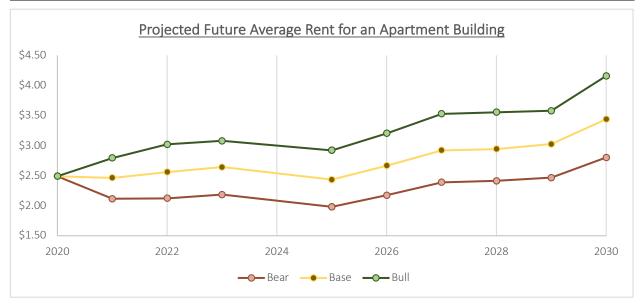
Once SquareFeet.ai receives the architect plans of the Subject Property, we will recommend prices for all unit that fit within the ranges in the market.





### Overall Recommendation

		TODAY			
	Averages Range in Rent		in Rent		
Unit Type	Optimal SF	PSF	Monthly	Low	High
One Bedroom	700 - 900	\$2.59	\$1,747	\$1,685	\$2,198
Two Bedrooms	1000 - 1100	\$2.49	\$2 <b>,</b> 529	\$2,356	\$2 <i>,</i> 630
Three Bedrooms	1400 - 1800	\$1.91	\$2,810	\$2 <i>,</i> 775	\$3,625



#### **KEY FINDINGS**

Given all the data analyzed, controlling for building age, building quality, etc. SquareFeet.ai recommends an average rent per square foot for the proposed building at \$2.49 per square foot today.





# **Project Profitability Sensitivity Analysis**

Major Assumptions and Sensitivity Analysis on Development Profits

Revenue Assumptions		Other Assumptions		
Res Rent PSF	\$2.49	Affordable Units	20%	
Exit Cap Rate	3.50%	Affordable Discount	20%	
		Hard Cost PSF	\$160	
		Soft Cost (% Hard)	20%	
		Financing Cost (% Total)	10%	
		Development Fee	3%	

### RENTAL: Sensitivity of Profits on Rent PSF and Construction Cost PSF

		Variance in Projected Rent PSF					
		-10.0%	-5.0%	0.0%	5.0%	10.0%	
ম	\$170	\$15.50M	\$23.11M	\$30.72M	\$38.33M	\$45.94M	
\$170 \$180 \$ \$190	\$180	\$10.42M	\$18.04M	\$25.65M	\$33.26M	\$40.87M	
	\$190	\$5.35M	\$12.96M	\$20.58M	\$28.19M	\$35.80M	
uction PSF	\$200	\$0.28M	\$7.89M	\$15.50M	\$23.11M	\$30.73M	
<u> </u>	\$210	-\$4.79M	\$2.82M	\$10.43M	\$18.04M	\$25.65M	
Constr	\$220	-\$9.86M	-\$2.25M	\$5.36M	\$12.97M	\$20.58M	
ŭ	\$230	-\$14.93M	-\$7.32M	\$0.29M	\$7.90M	\$15.51M	

# RENTAL: Sensitivity of Profits on Rent PSF and Exit Cap Rate

		Variance in Projected Rent PSF					
		-10.0%	-5.0%	0.0%	5.0%	10.0%	
ਲ	\$170	\$30.84M	\$39.72M	\$48.60M	\$57.48M	\$66.36M	
	\$180	\$17.12M	\$25.31M	\$33.51M	\$41.71M	\$49.90M	
	\$190	\$5.35M	\$12.96M	\$20.58M	\$28.19M	\$35.80M	
uction PSF	\$200	-\$4.84M	\$2.26M	\$9.36M	\$16.47M	\$23.57M	
-	\$210	-\$13.76M	-\$7.10M	-\$0.44M	\$6.22M	\$12.87M	
Constr	\$220	-\$21.63M	-\$15.37M	-\$9.10M	-\$2.83M	\$3.44M	
<b>Ö</b>	\$230	-\$28.63M	-\$22.71M	-\$16.79M	-\$10.87M	-\$4.95M	

### **KEY FINDINGS**

A Sensitivity Analysis could be conducted on the Subject Property to recommend which use type should be utilized to maximize value. Studying the condo or rental model, as well as sensitizing on future scenarios can be utilized to decide which project is optimal.





# Experience and Qualifications of SquareFeet.ai

Team, Major Clients, and Unbiased Opinion

#### SquareFeet.ai - Team



Jordan - CEO
MIT Masters Real
Estate Development

MIT Masters in City Planning

Real Estate Developer



Benoit- CTO
HEC Masters in Int.
Business

Polytechnique Civil Engineering

Data science / Engineering



Sean- COO
UQAM Law (LL.B.)
ETS Civil Engineering

(Ing.)

Residential
Construction / Law



McGill Economics and

Business

Real Estate Developer and Software Engineer

# **Unbiased Data Analysis**

SquareFeet.ai uses large data sets to recommend market pricing. Algorithms can control data in terms of location, building age, and other qualitative attributes without bias. The analysis conducted by SquareFeet.ai brings computers and humans together to achieve better results.