

Data 601: Property Assessment

Exploratory Data Analysis

By: Dany Hachem, Atlanta Liu, & Greg Cameron

Property Assessment & Tax Calculator

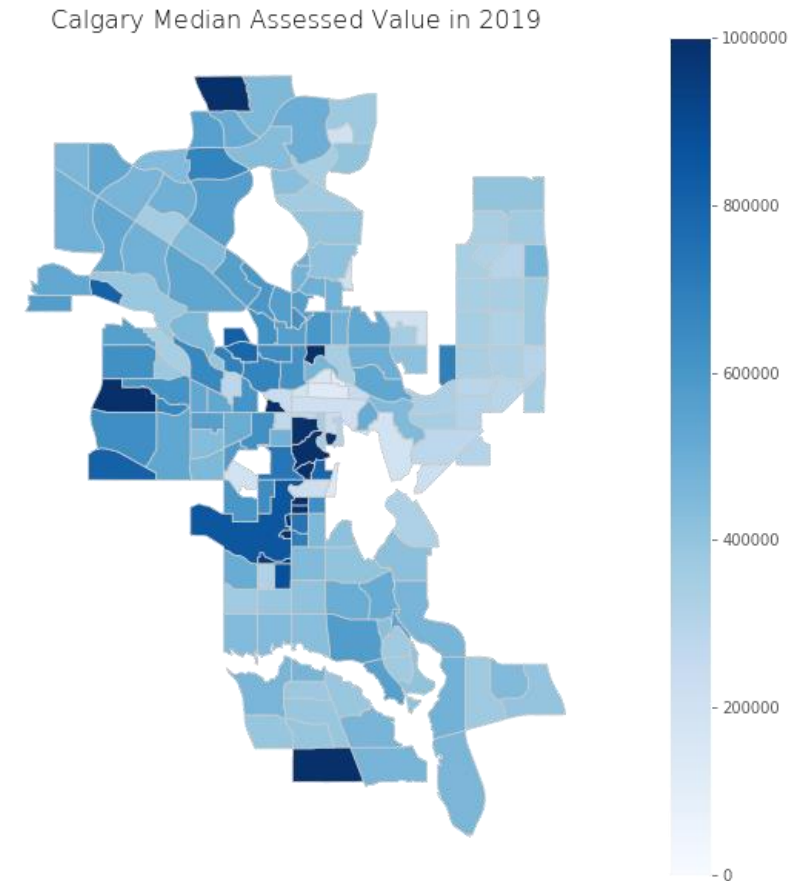
Sample Property Assessment	\$200,000	\$400,000	\$600,000	\$800,000	\$1,000,000
Municipal Property Tax	\$842.16	\$1684.32	\$2526.48	\$3368.64	\$4210.80
Provincial Property Tax	\$488.64	\$977.28	\$1465.92	\$1954.56	\$2443.20
Total Tax	\$1330.80	\$2661.60	\$3992.40	\$5323.20	\$6654.00

Guiding Questions

1. How has the economic downturn (decrease in oil price) affected the residential property assessments in Calgary?
2. How does population growth affect a communities' property assessments over the years?
3. What is the relationship between crime rates and property assessments?

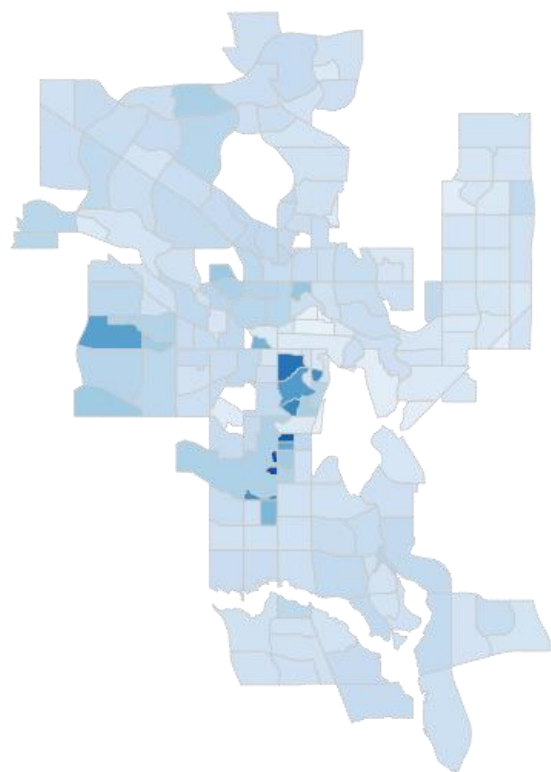
Data Wrangling and Cleaning

- Main Dataset – Property Assessments
 - ~ 6 million rows
 - 15 years
 - 190+ Communities
- Merged With
 - Crime dataset
 - Population dataset
 - Oil Price dataset
- Wrangling and Cleaning
 - Remove un-needed columns
 - Remove nan
 - Remove non-residential
 - Calculate median value per community per year

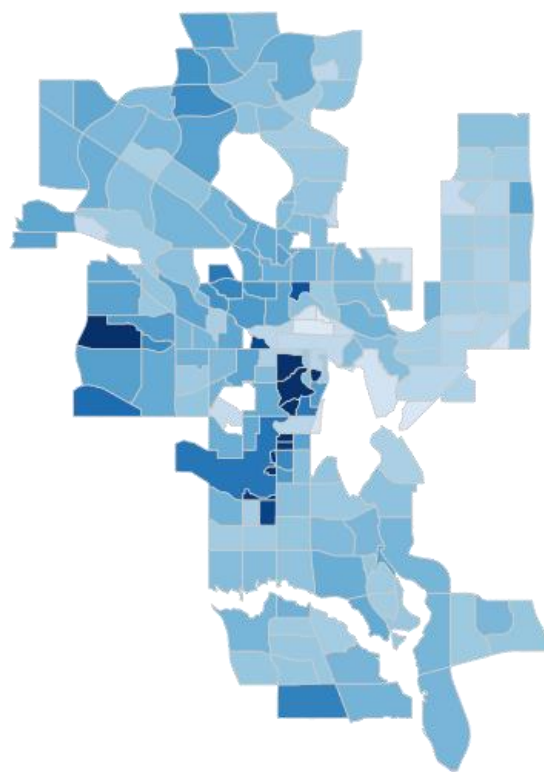


Property Assessments in Calgary – Change over time

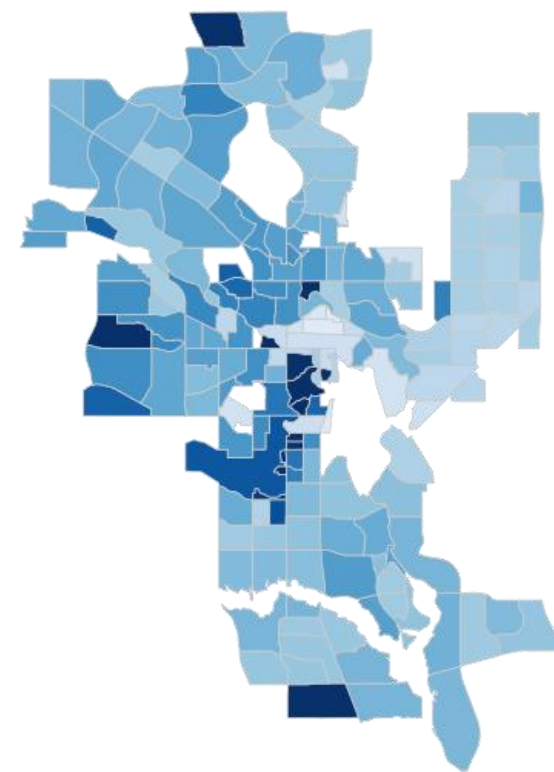
Calgary Median Assessed Value in 2005



Calgary Median Assessed Value in 2008

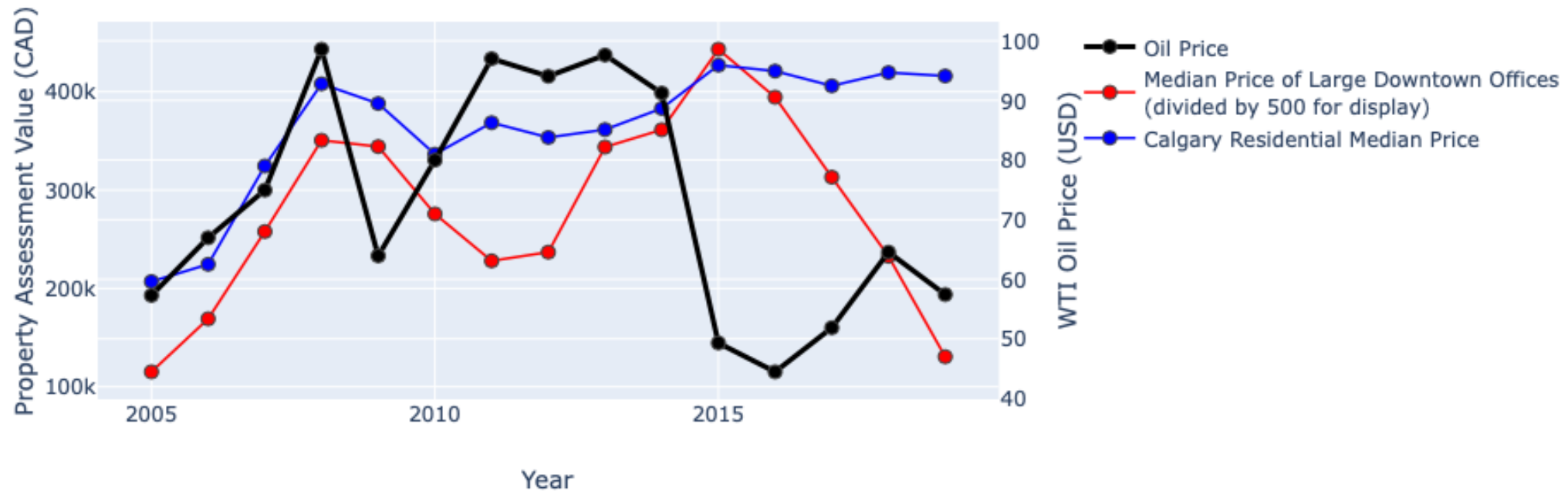


Calgary Median Assessed Value in 2019



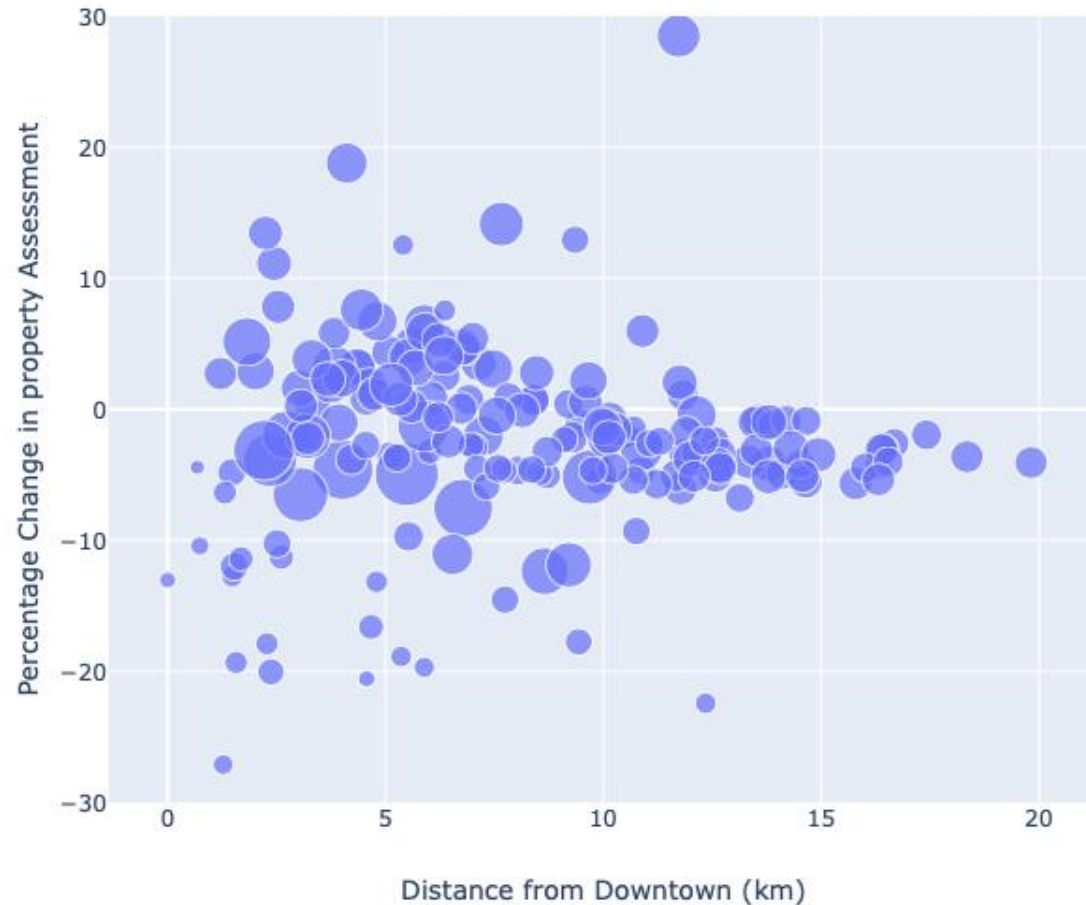
Oil Price Compared to Calgary Properties

Visualising Trends between Oil Price and Assessment Value

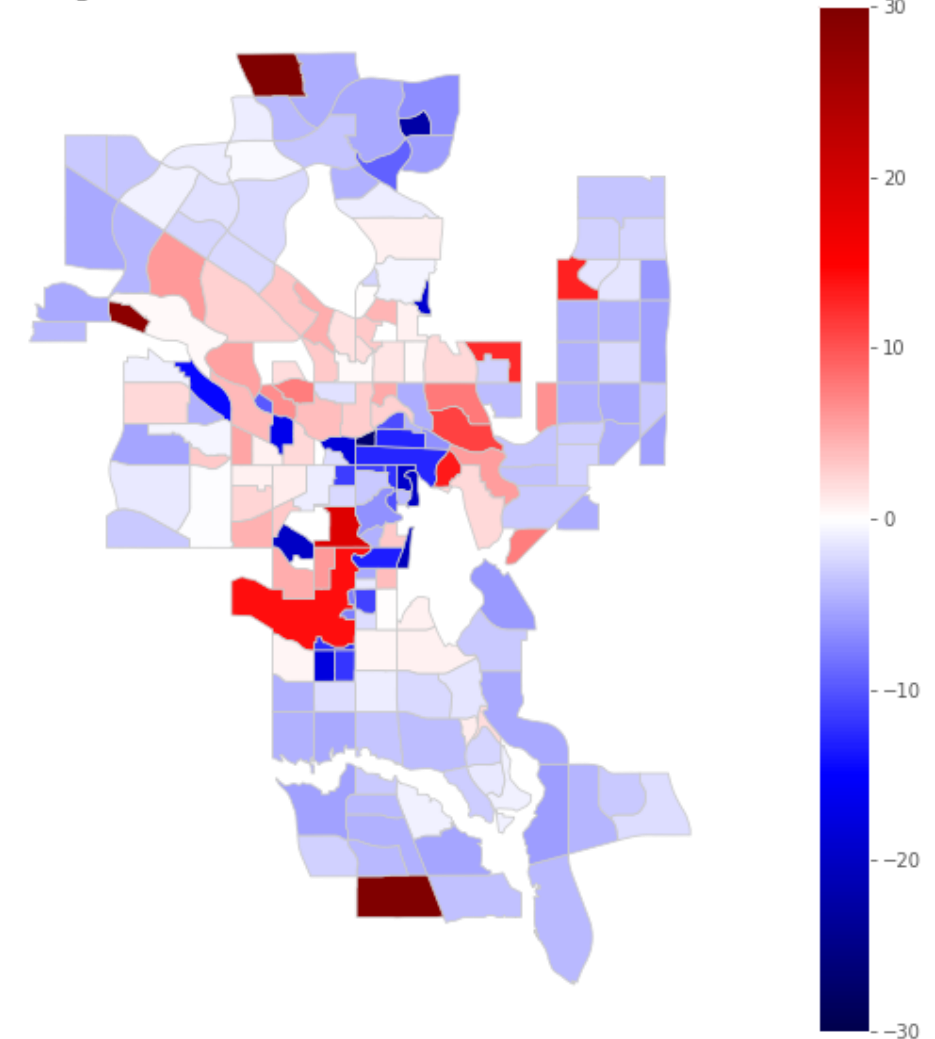


Property Assessments in Calgary – Change over time

Graph of Distance to Downtown vs Percentage Change in Assessed Value 2015 to 2019 (size = median assessment)

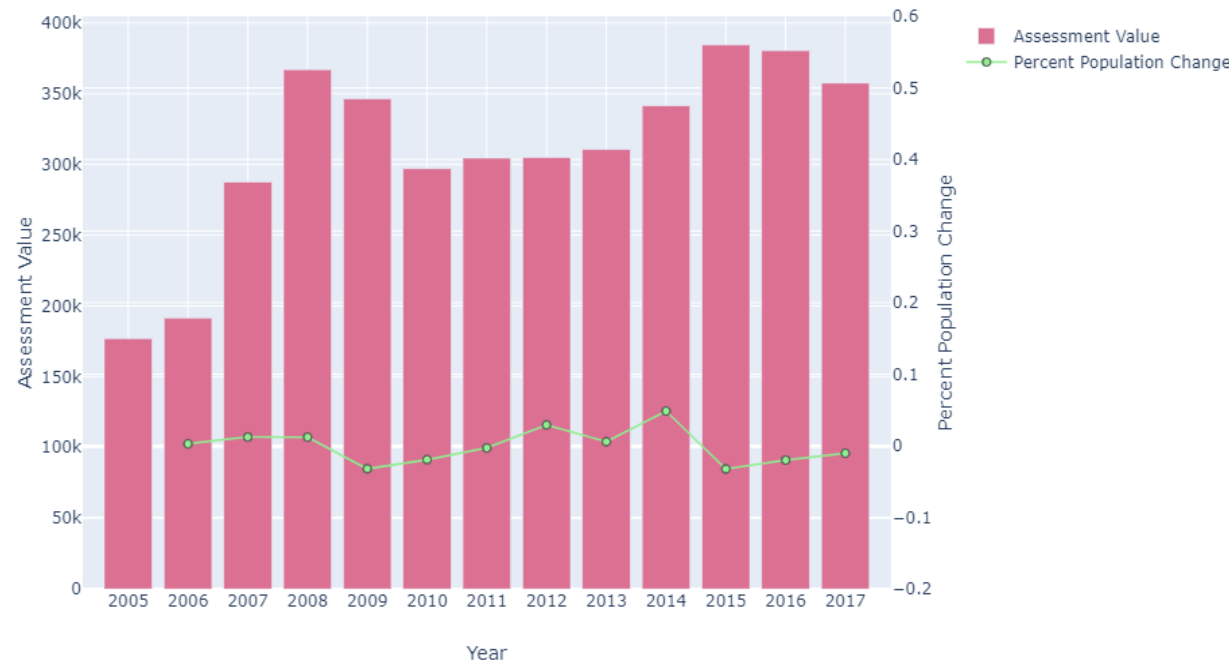


Percent Change in Median House Prices between 2015 and 2019

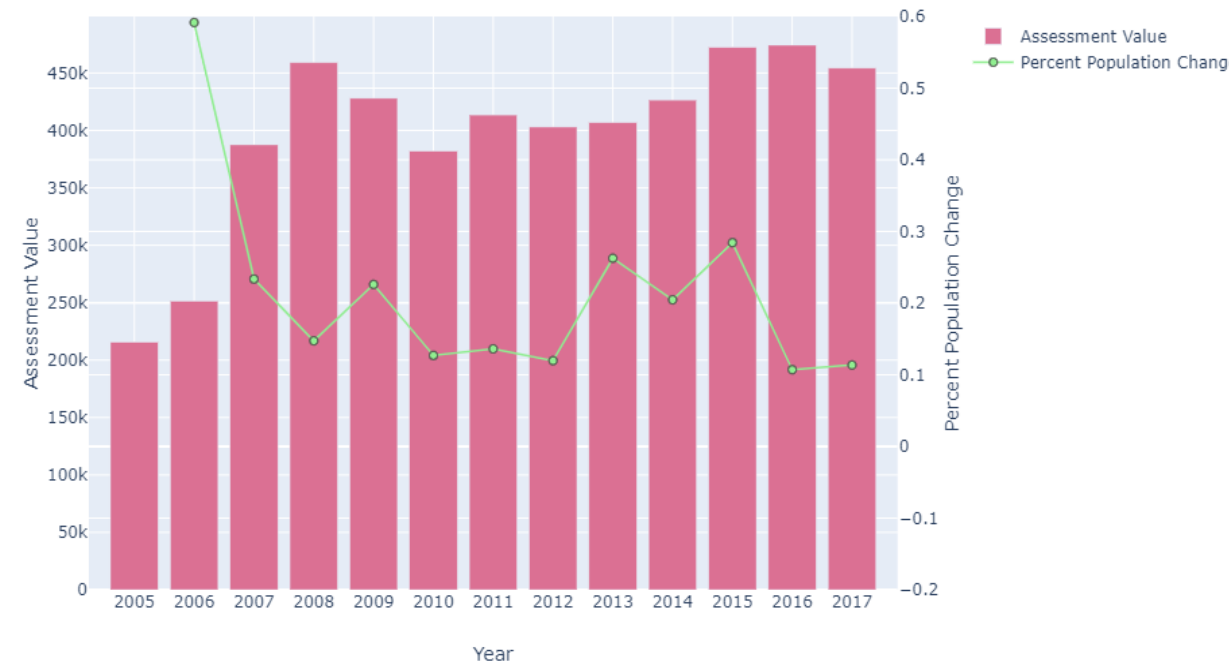


Communal Population Change & Median Property Assessment Bowness vs Evanston

Assessment Value and Percent Population Change in BOWNESS for 2005-2017

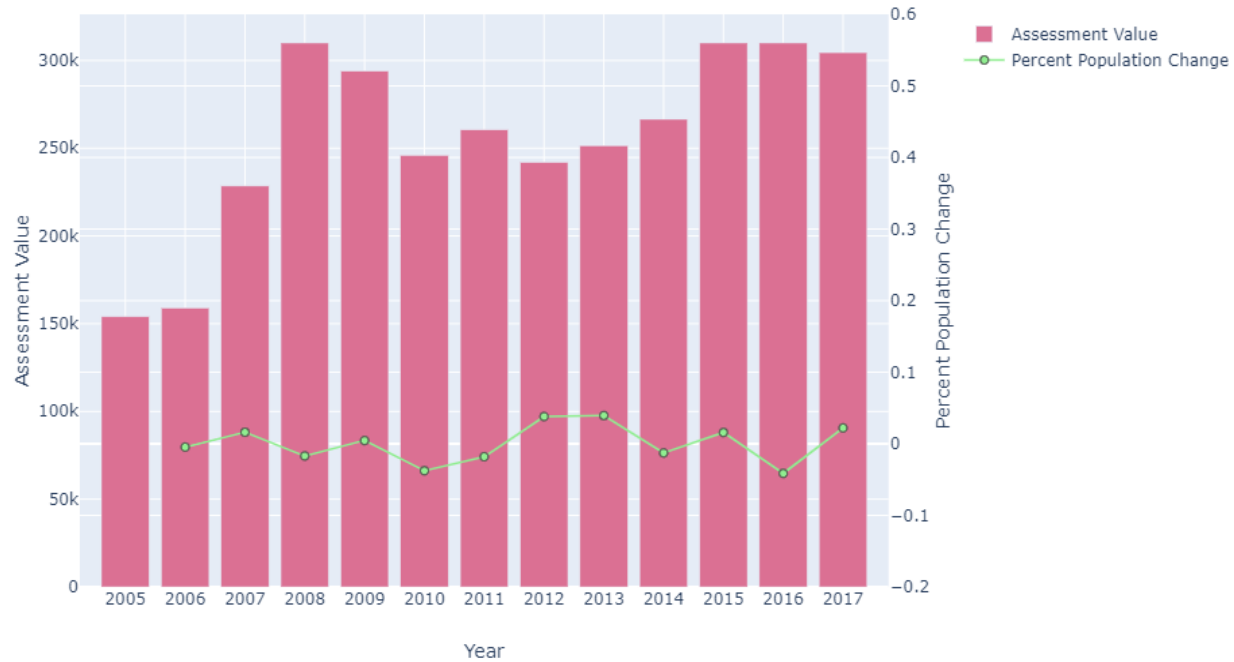


Assessment Value and Percent Population Change in EVANSTON for 2005-2017

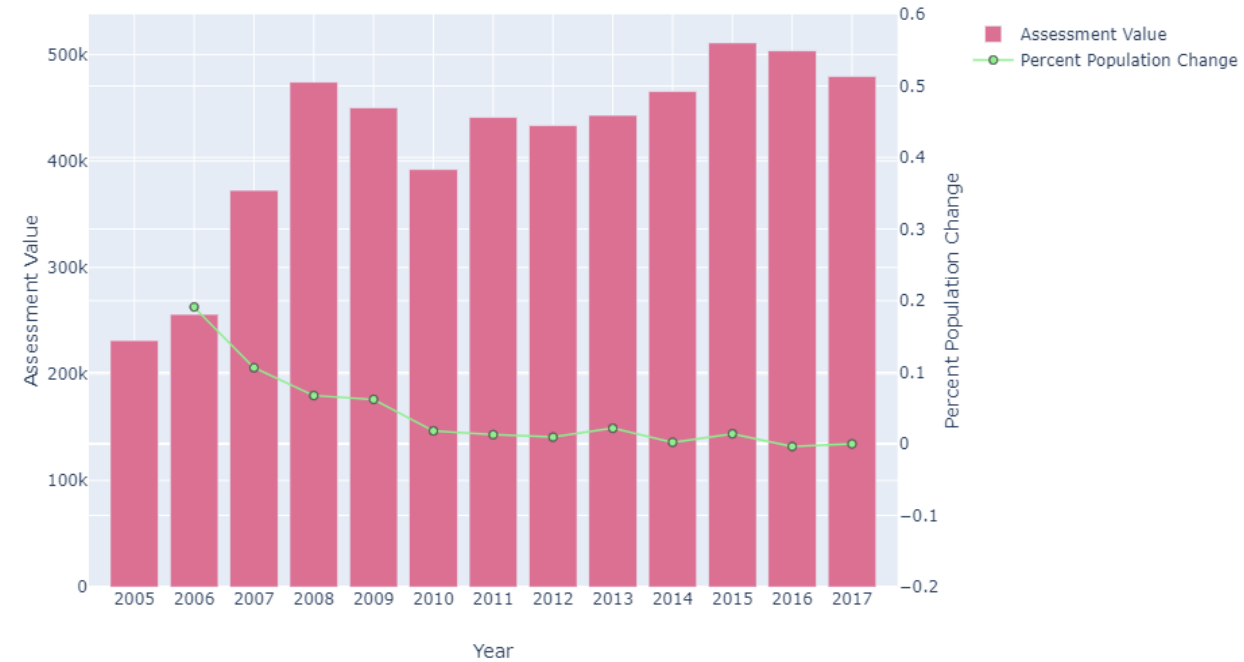


Communal Population Change & Median Property Assessment Abbeydale vs. Tuscany

Assessment Value and Percent Population Change in ABBEYDALE for 2005-2017



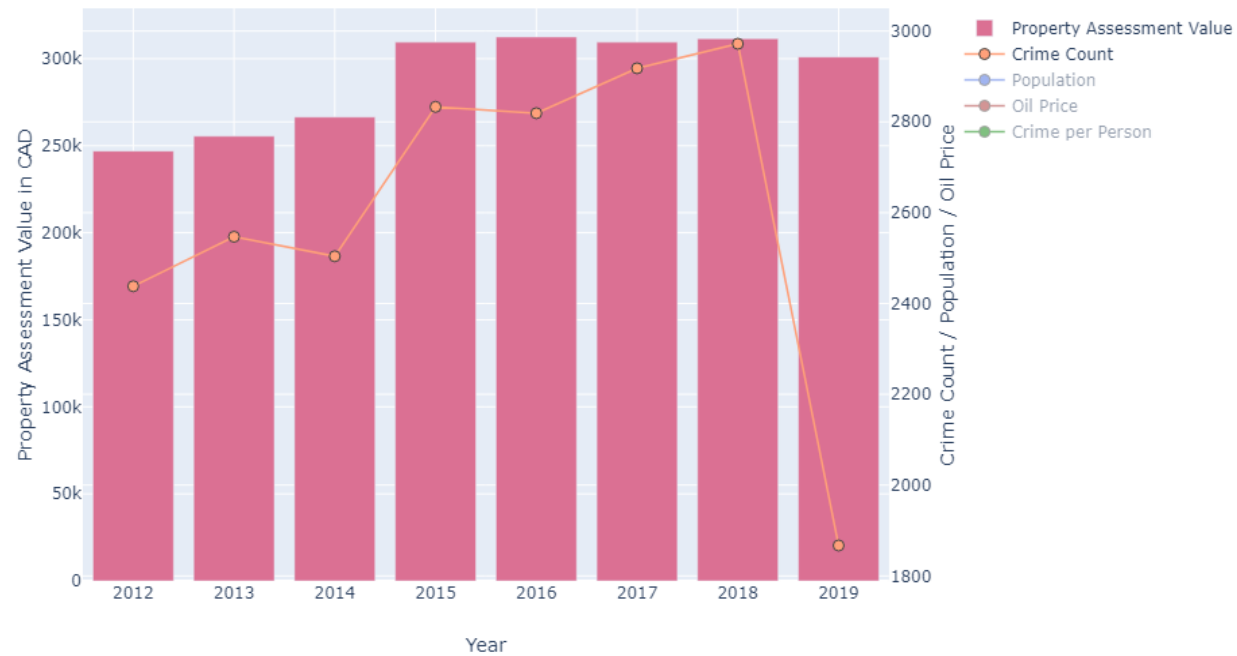
Assessment Value and Percent Population Change in TUSCANY for 2005-2017



Assessment Values and Crime Count

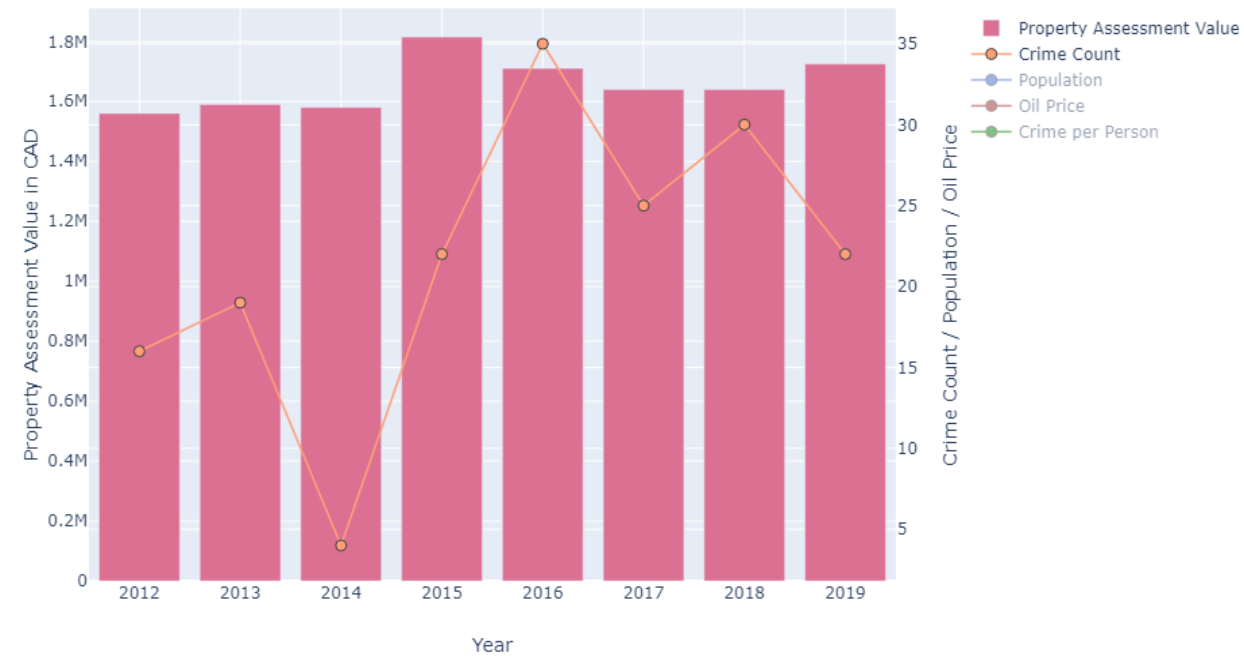
Forest Lawn & Bel-Aire

Visualising Trends for FOREST LAWN



Strong +ve relationship

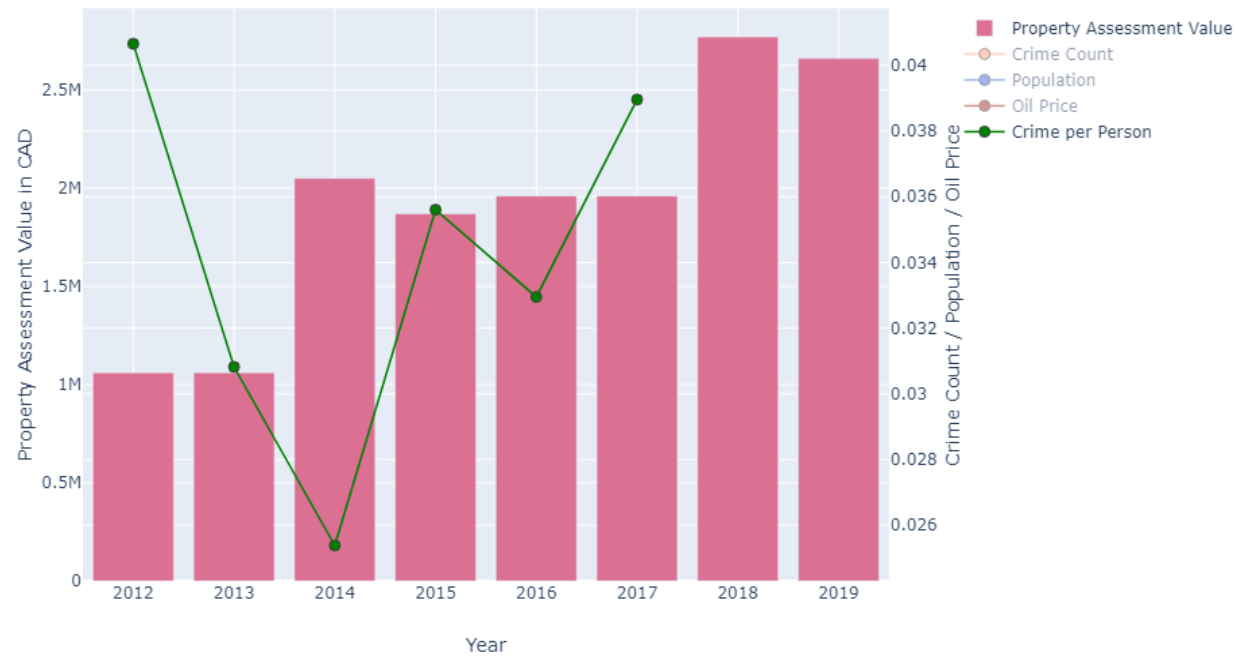
Visualising Trends for BEL-AIRE



Weak -ve relationship

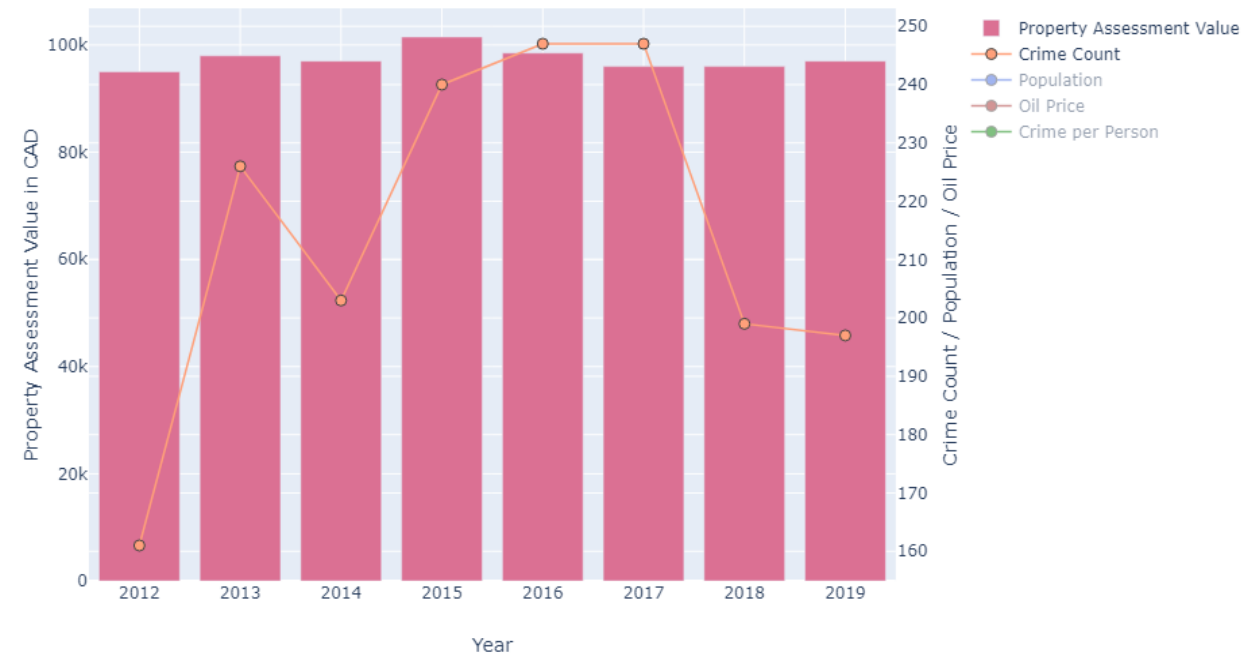
Assessment Values and Crime Count Sage Hill & Chinatown

Visualising Trends for SAGE HILL



No relationship

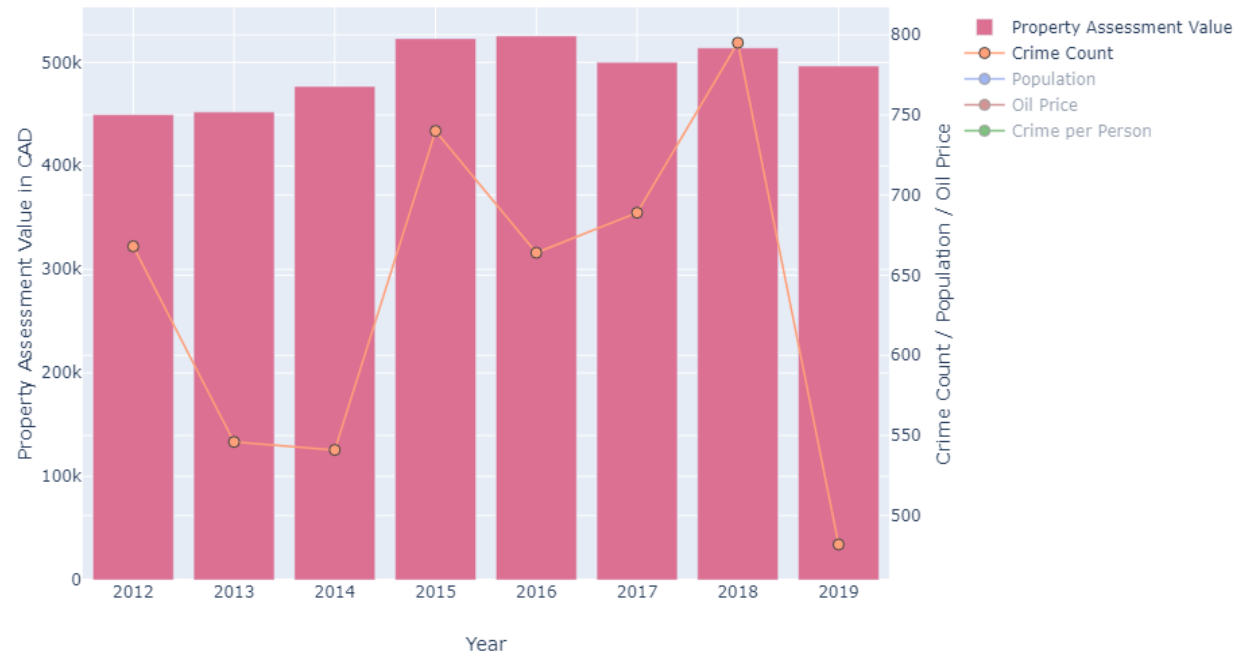
Visualising Trends for CHINATOWN



No relationship

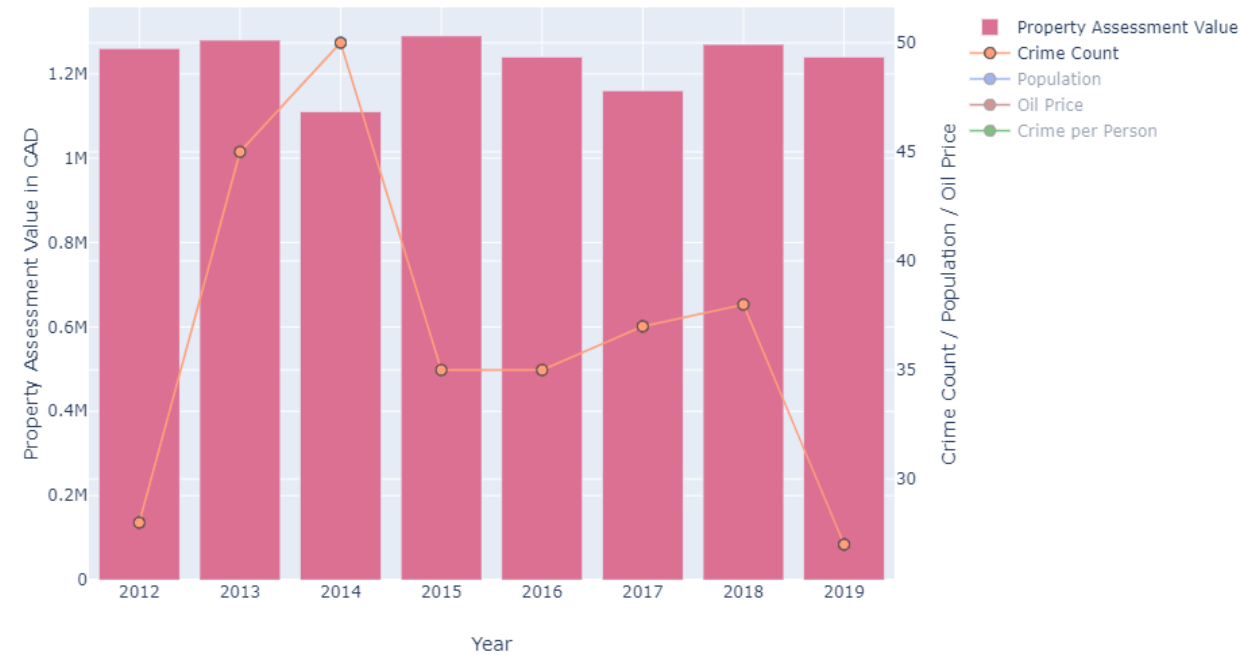
Assessment Values and Crime Count Panorama Hills & Roxboro

Visualising Trends for PANORAMA HILLS





Weak -ve relationship

Visualising Trends for ROXBORO



No relationship

Takeaways

- Assessment Values and Oil Price 
- Assessment Values and Population Change 
- Assessment Values and Crime Count 