



## **ALY6060: Decision Support & Business Intelligence**

### **Assignment 1: Property Tax Report**

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## A. Introduction

In real estate, comprehending property taxation intricacies is crucial for decision-making and urban planning. The interplay of legal classifications, land values, tax dynamics, temporal shifts, and spatial concentrations forms a complex tapestry. This report uses visualizations to uncover patterns, trends, and address business questions, providing a nuanced perspective on property taxation in the specified region.

## B. Business Questions

### 1. Understanding Property Distribution:

- What is the distribution of Property Identification Numbers (PIDs) based on legal types?
- How does this distribution impact the overall property tax landscape?

### 2. Analysing Land Value Trends:

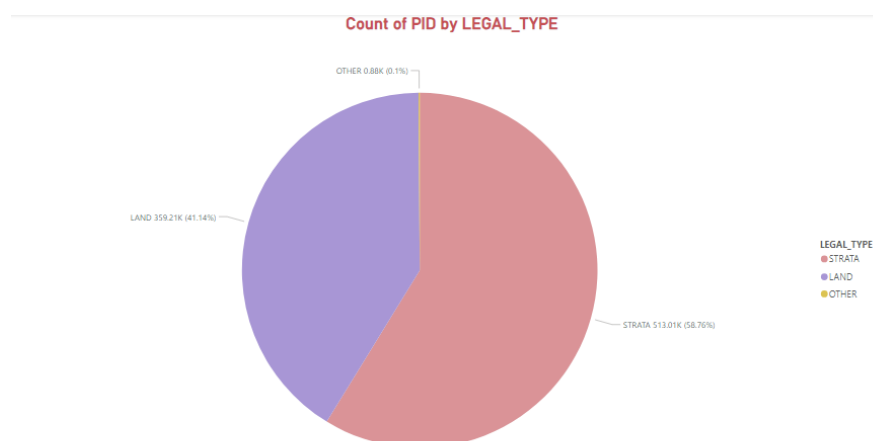
- How has the average current land value varied across different legal types over the years?
- Are there any notable trends or disparities in land value appreciation?

### 3. Exploring Tax Dynamics:

- What insights can be derived from the average tax levy in different legal types and zoning classifications?
- How do tax patterns differ among various property categories, and what factors contribute to these differences?

## C. Analysis

### 1. Property Distribution Insights:



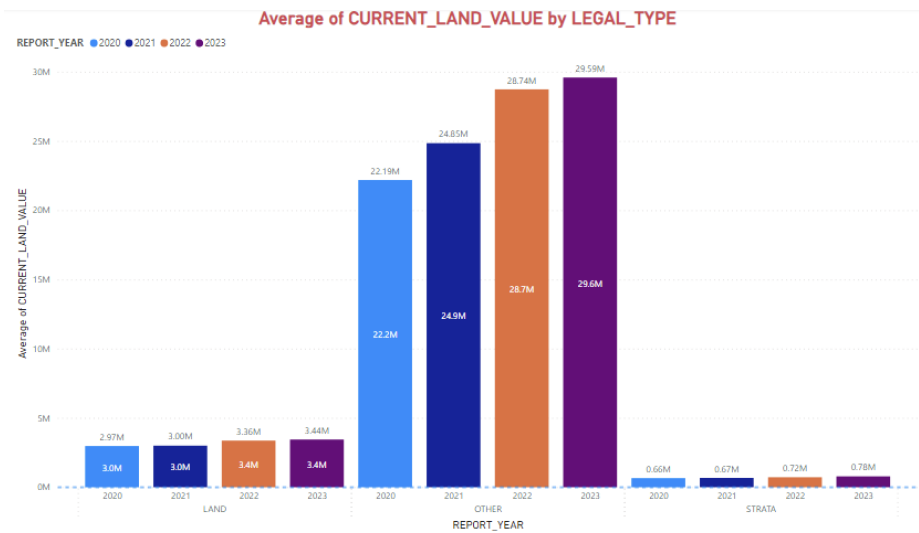
#### Overview:

Our property tax report unveils its first insights through a pie chart. "Strata" dominates at 58.76%, followed by 'land' at 41.14%, with other categories making up a mere 0.1%. This distribution sparks a key question: How does the prevalence of "strata" and 'land' impact

overall property tax dynamics? "Strata" likely represents a majority of multifamily units, while 'land' points to standalone properties. Let's explore the types within "strata" to grasp the diversity within this category. This adds depth to our understanding.

In essence, this pie chart is a window into our property landscape, urging us to explore beyond percentages, revealing stories that shape our approach to property taxation.

## 2. Land Value Trends Over the Years:



### Overview:

Our exploration of the property tax report reveals intriguing trends in average current land values from 2020 to 2023, showcased in a stacked column chart. While land and strata values exhibit remarkable stability, 'other' property types undergo substantial fluctuations, starting at 22.19M in 2020, rising to 24.19M in 2021, and peaking at 29.59M in 2023.

### Answering the Business Question:

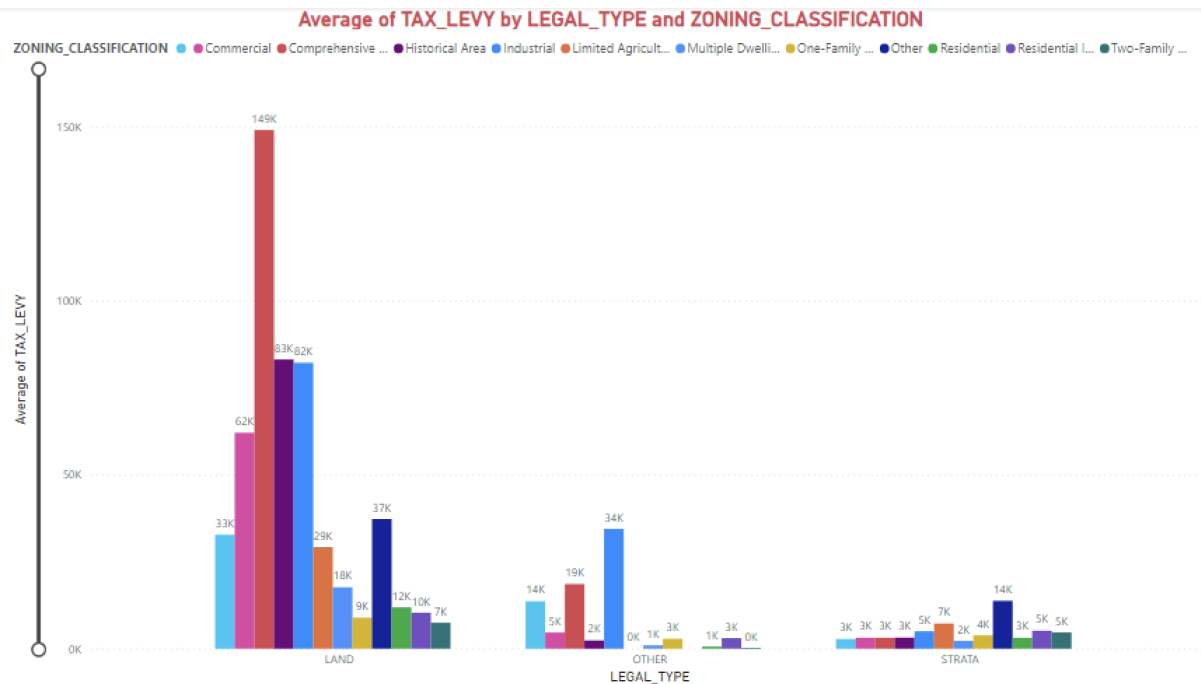
In response to our second business question, the stability in land and strata values contrasts sharply with the volatility in 'other' types. This prompts a deeper investigation into the factors behind this fluctuation, potentially linked to transformative urban development, rezoning, or emerging economic activities.

The 2M increase in 2021 suggests a surge in investment or development activities. By 2023, at 29.59M, it signifies a culmination, possibly fueled by successful projects, increased demand, or strategic urban planning interventions.

### Conclusion:

In the dynamic realm of real estate, every fluctuation in property values tells a story. The stability in land and strata values provides a baseline, while the surge in 'other' types invites us to explore the dynamic forces shaping the urban landscape. This concise journey through the stacked column chart not only answers our business question but also sparks curiosity about the transformative elements driving real estate dynamics in the specified region.

### 3. Exploring Tax Dynamics:



#### Overview:

Our clustered column chart unveils the intricacies of average tax levies based on legal type and zoning classification within the land category. Noteworthy is the fluctuating landscape, with comprehensive development claiming the highest tax at 149k, followed closely by historical and industrial at 83k and 82k. In contrast, residential properties, including one and two-family dwellings, bear lower tax burdens, all below 20k.

#### Answering the Business Question:

In response to our third business question, we explore the patterns in tax burdens across legal types and zoning classifications, with a particular focus on the disparities observed, especially between comprehensive development and residential categories.

#### Insights:

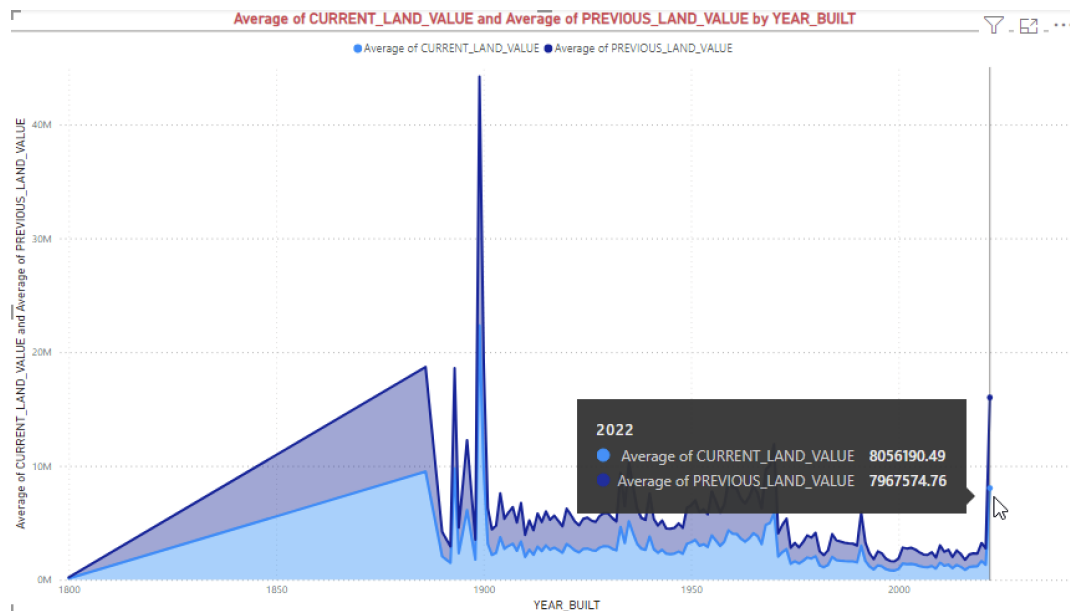
- **Comprehensive Development (149k):** The towering tax burden suggests potential higher property values or extensive service requirements. Further exploration into locations and amenities may reveal contributing factors.
- **Historical and Industrial (83k, 82k):** Proximity to historical sites or industrial zones likely influences tax burdens. A deeper analysis of locations and surrounding economic activities provides additional insights.
- **Residential Properties (Below 20k):** Consistently lower tax burdens on residential properties raise questions about size, location, or specific incentives supporting residential development.

- **Strata Types:** In contrast, strata types consistently exhibit lower tax burdens, with limited agriculture at 7k. This trend aligns with the communal and shared nature of strata properties.

### Conclusion:

As we navigate the clustered column chart, the narrative unveils the tapestry of tax burdens across legal types and zoning classifications. This concise exploration offers stakeholders insights into the factors shaping these dynamics, fostering a nuanced understanding for strategic decision-making in policy and urban planning.

## 4. Unveiling Property Evolution through Time:



### Overview:

Transitioning to a stacked area chart, we navigate through the historical relationship between property construction years, average current land values, and average previous land values.

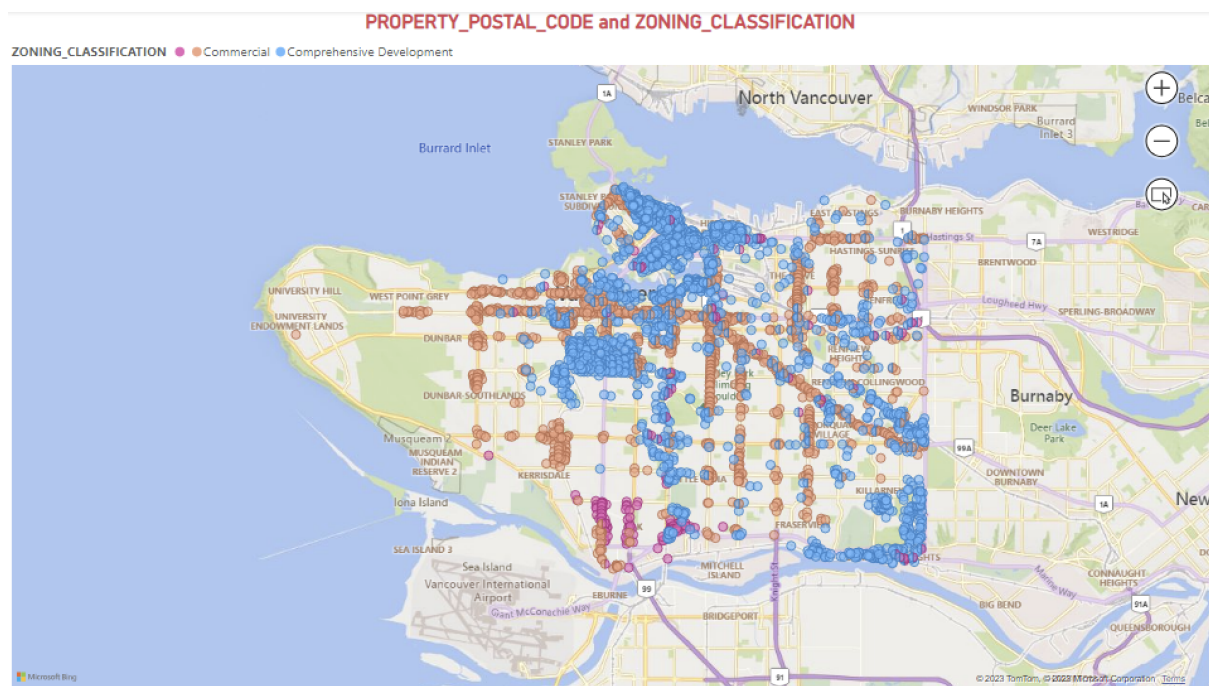
### Notable Observations:

- From 1800 to 1890, a distinct 10M difference appears as current land values dip. Around 1900, a remarkable surge catapulted both current and previous values to new heights - 45M and 22M, respectively. Post-1900, values fluctuate, consistently with the current value trailing by 5M.
- The temporal perspective prompts an exploration of historical and developmental factors influencing property value shifts.
- **1800-1890:** The dip invites scrutiny into economic downturns or societal shifts during this era, unravelling untold stories shaping property values.
- **1900:** The spike beckons an investigation into urban developments or technological innovations, uncovering catalysts behind the surge.

- **Fluctuations Beyond:** Post-1900 undulations raise questions about policy changes, economic cycles, or demographic shifts influencing property values.
- The stacked area chart serves as a portal, revealing shifts not just as data points but reflections of broader economic and societal changes.

In essence, the stacked area chart invites us to immerse ourselves in the narrative of property evolution, offering profound insights into the dynamic forces shaping the landscape over time.

## 5. Mapping Zoning Classifications and Property Postal Codes:



### Overview:

Our map view presents a dynamic interplay between property postal codes and zoning classifications. Notable concentrations include comprehensive development in downtown Vancouver and dispersed commercial zones throughout the city, with zoning classifications predominantly in the southern regions near the airport.

### Navigating the Landscape:

- *Downtown Hub:*

Downtown Vancouver stands as a hub for comprehensive development, reflecting strategic urban planning initiatives. This centralised, mixed-use core aligns with the city's vision for a vibrant metropolitan centre.

- *Commercial Nodes:*

Commercial zones sprawl across the east, west, and south, showcasing Vancouver's economic vibrancy. These decentralised hubs contribute to both economic growth and the unique character of each region.

- *Southern Zoning Focus:*

Zoning classifications cluster in the south, particularly near the airport, indicating a synchronised approach to land use planning and infrastructure optimization.

**Answering the Question:**

Why these concentrations? It's a deliberate blend of urban planning foresight and economic strategy, fostering a dynamic, purposeful urban landscape in Vancouver.

The deliberate concentration of zoning classifications aligns with broader urban development plans. Downtown vibrancy, dispersed commercial nodes, and southern clustering near the airport all point to a strategic orchestration for economic vitality and community enhancement.

## **D. Conclusion**

This property tax report unfolds a nuanced perspective on the real estate dynamics in the specified region. From the distribution of Property Identification Numbers (PIDs) highlighting the prevalence of "strata" and 'land,' to the stability in land and strata values over the years, each visualisation provides valuable insights. The tax dynamics exploration, particularly in the clustered column chart, offers stakeholders insights into factors influencing tax burdens. The stacked area chart delves into the narrative of property evolution over time, reflecting economic shifts and societal changes. Lastly, the map view reveals deliberate concentrations of zoning classifications, aligning with urban development plans and economic strategies. Together, these visualisations contribute to a comprehensive understanding of property taxation, guiding strategic decision-making in policy, planning, and development.