Course Project User Guide

Introduction

The project aims to analyze private investments in areas surrounding commercial corridors by permit type and property type. The analysis will cover investments made in the last seven years (2015-2022) within a half-mile radius of each corridor. The project will also rank the corridors based on private investment, controlling for differences in acreage/square footage/total number of properties.

Methodology

The first step in the data scrubbing process involved standardizing the data to ensure consistency and accuracy. This was achieved using tools including Microsoft Excel, & Python. The data was then cleaned to remove any duplicates, inconsistencies, and missing values.

The next step is grouping the data by using python by filtering the data within the 0.5 radii for all the corridors for each property type. The data is extracted to excel, the final grouped data file is used as the input for Tableau and the visualizations are created for analyzing the data for the given 2 research questions.

1st Research question: - *Investments by permit type: new buildings vs. renovations*

For this analysis, there are visualizations prepared in different sheets representing the data with various combinations such as

- Heat map for the sum of investment for all the application types present in all the corridors.
- Bar graphs are created for the sum of the investments for the New Build and the renovation.
- Bar graphs are created for a sum of the investments of the New Build and the renovation in each of the Corridors, respectively.
- A horizontal bar graph describes the complete description of data needed in Bar graphs for analyzing the given research question with the initial division of new build and Renovation with application types and the sum of investments for each corridor.
- A distribution chart across all years for all corridors. This chart describes the investment distribution in all corridors from 2015 to 2022.
- A distribution chart across all years for New Build vs Renovation. This chart describes the investment distribution in both New Build and Renovation from 2015 to 2022.

2nd Research question: - Investments by property type

For New Buildings: Breakdown by multi-family or mixed-use residential, single-family or duplex residential, commercial, industrial

For Renovations: Breakdown by Residential vs. Commercial vs. Industrial.

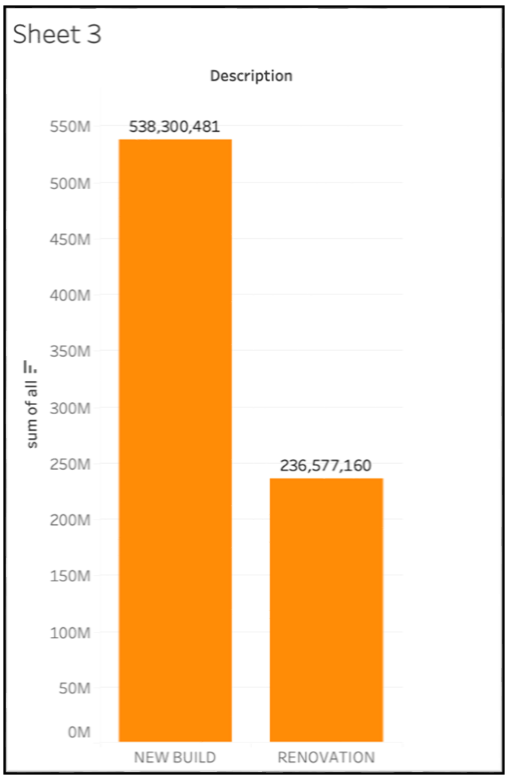
For this analysis, there are visualizations prepared in different sheets representing the data with various combinations such as

- Heat map for the total sum of investments for all the property types present with new build and renovation.
- This sheet describes the complete description of data needed in Bar graphs for analyzing the research question with the division of new build and renovation with property types and the sum of investments for each corridor.
- A distribution chart across all years for property types. This chart describes the investment distribution in all property types from 2015 to 2022.

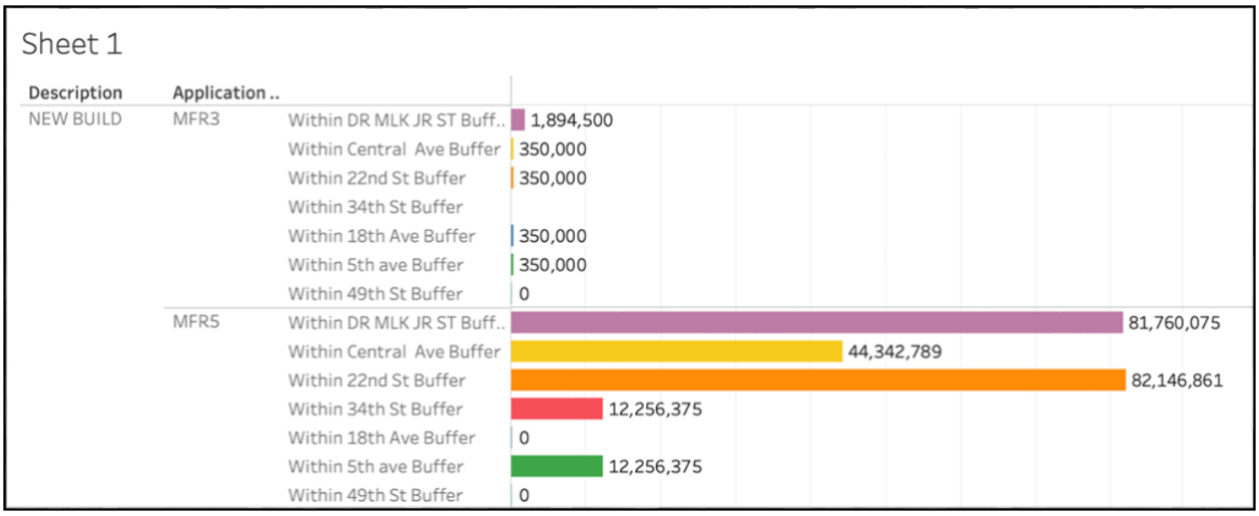
The final data is analyzed in the above-shown Tableau visualizations, which further help us in concluding the solutions and observations required for the research questions which are further explained in the coming sections.

Results

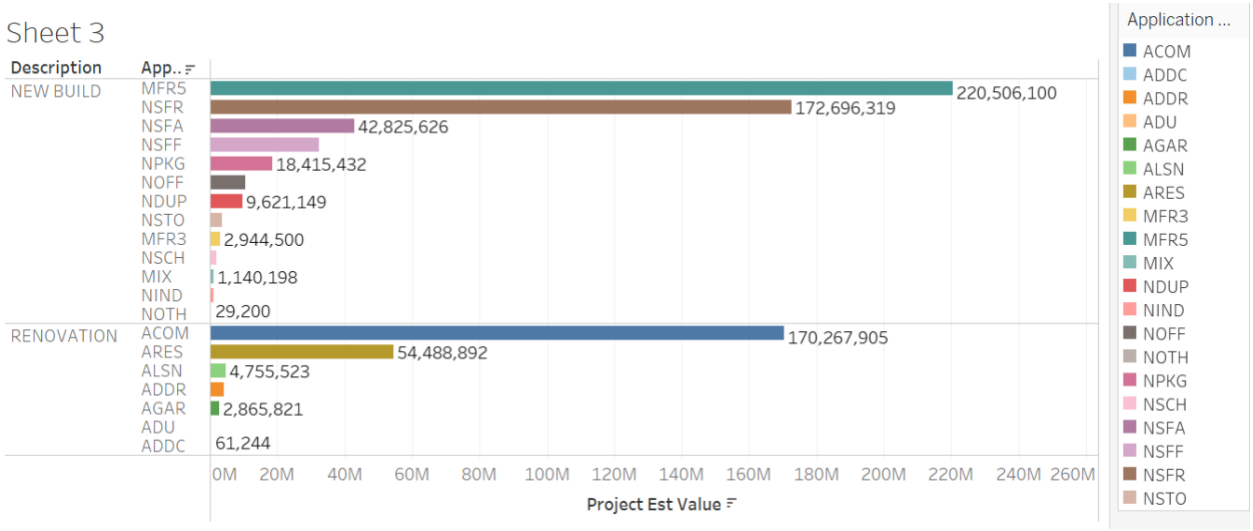
1st Research question: -



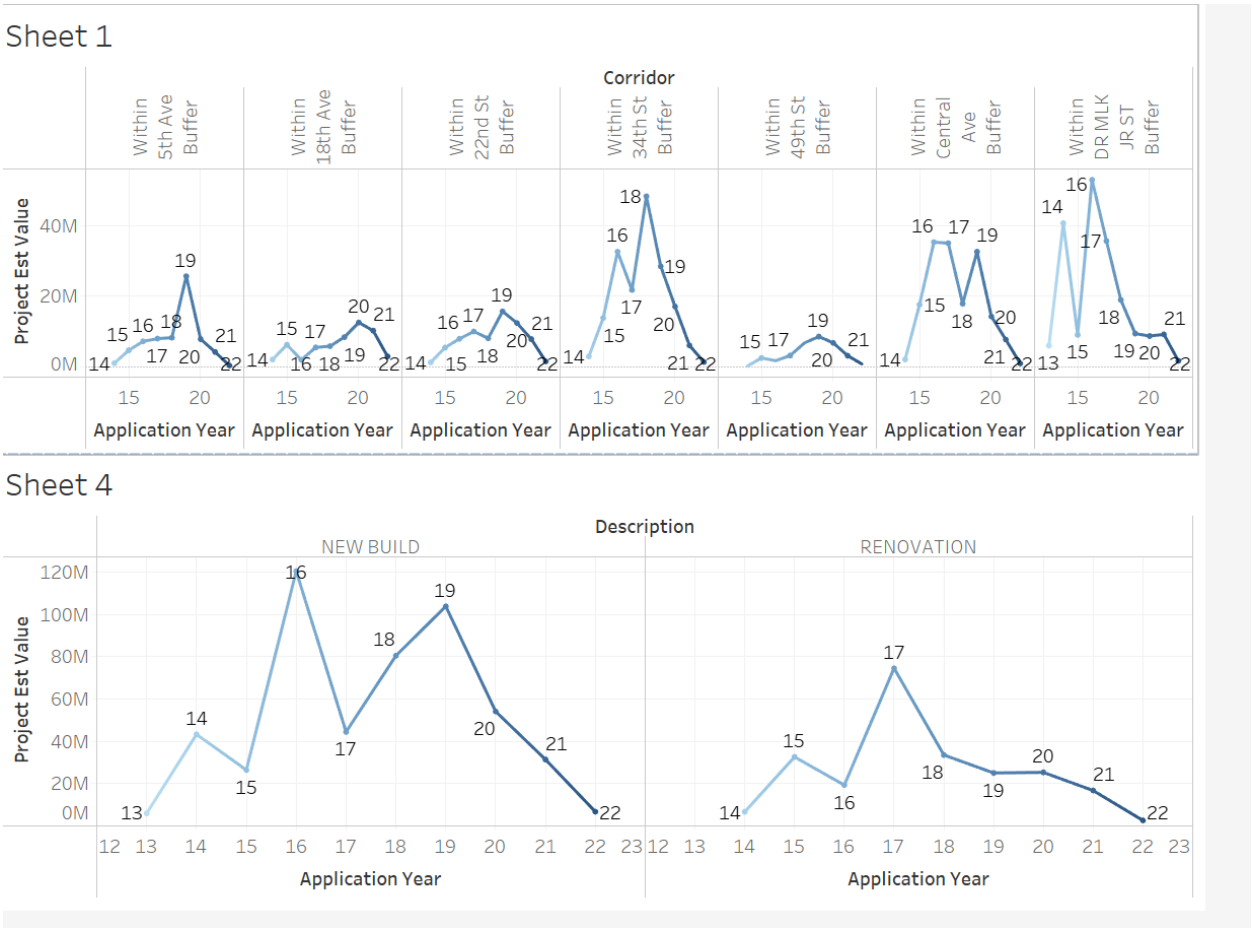
The bar graph shows the investments are mostly for the new build than the properties which are renovated. And we can notice there is a very large difference between them.



For research question 1, it is very interesting to see from the complete description sheet that in the New build properties from the **MFR5** application type property there are properties with a high value within the **22nd St Buffer** corridor.



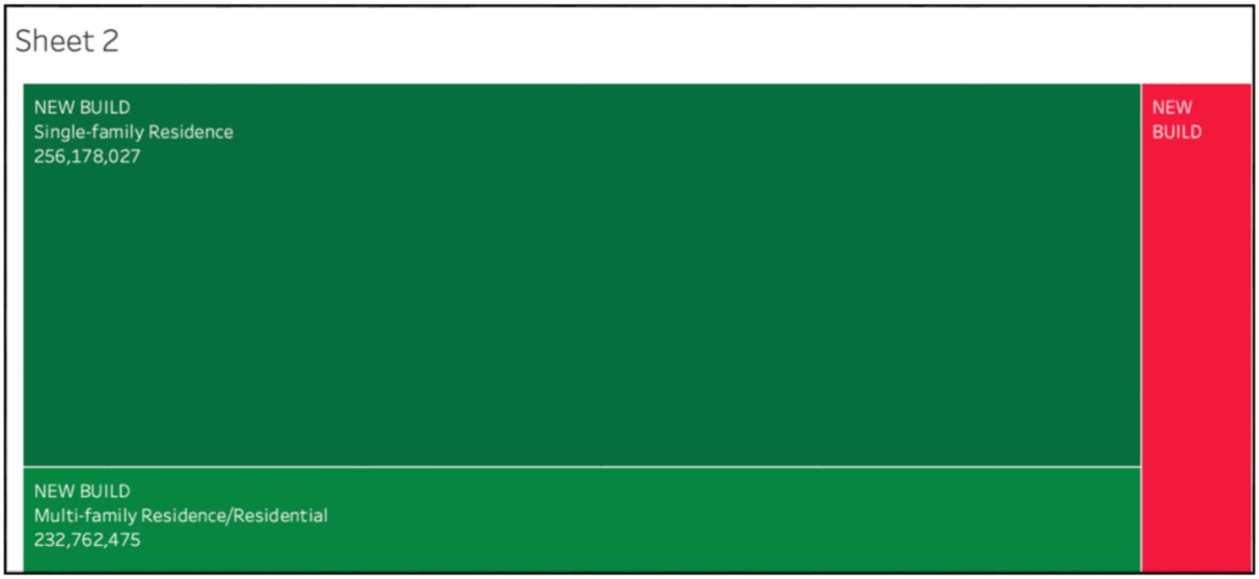
For research question 1, we can observe that investment in New Build Vs. renovation across all corridors. This shows that **MFR5** has the highest investment, which is a new build, and in Renovation, **ACOM** has the highest investment. We can see that investment in New build is more when compared to Renovation



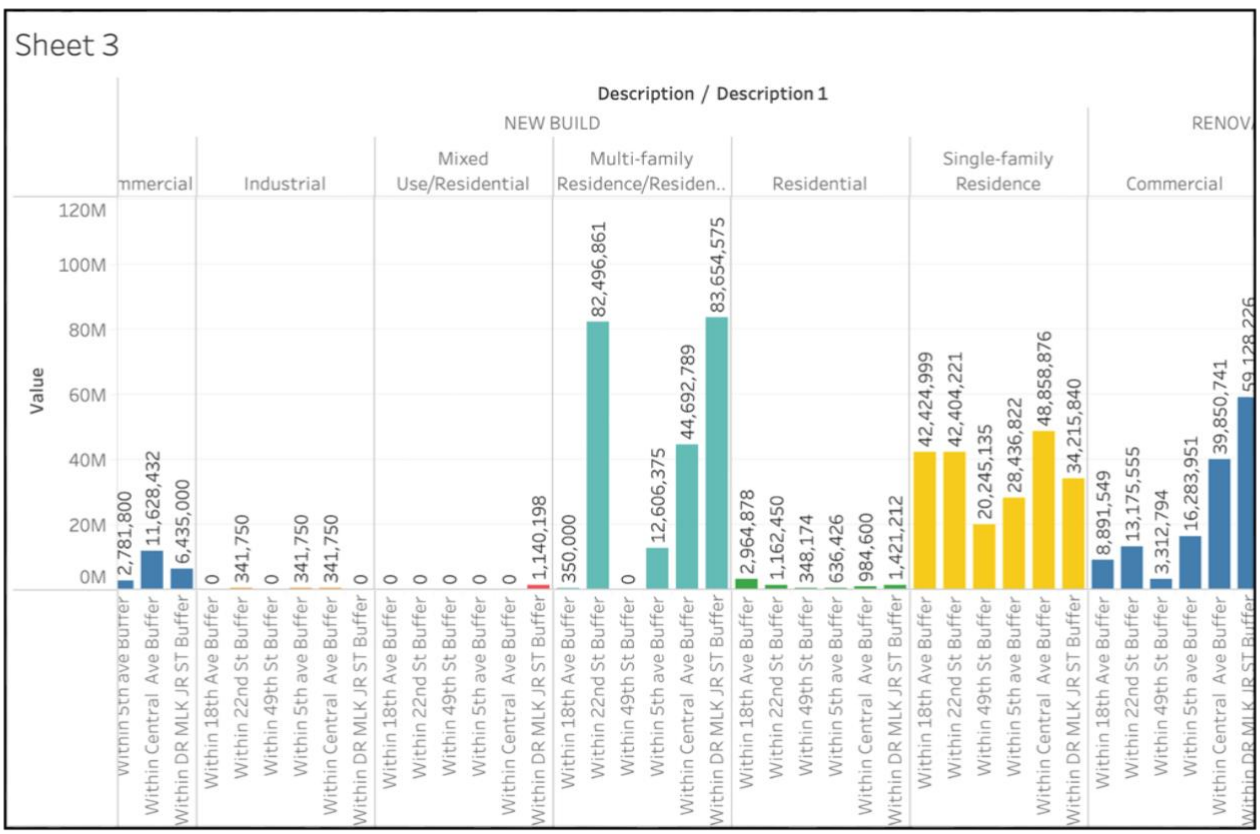
DRMLK JR ST has the highest investment in 2016 year. We can also see that the investment in 2016 is highest in the New Build type, and in Renovation highest investment is in 2017.

We can also see the trend of New Build VS Renovation across all the years, 2016 has the highest investment and renovation has the highest investment in 2017.

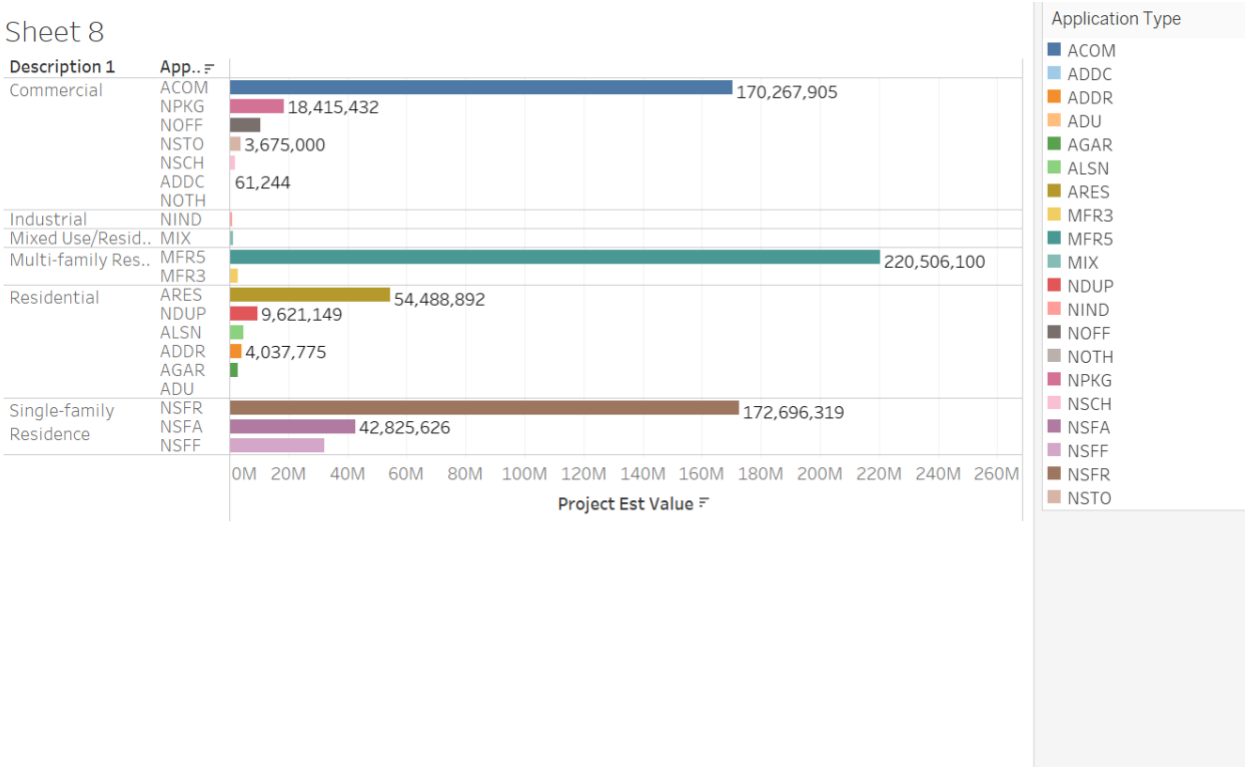
2nd Research question: -



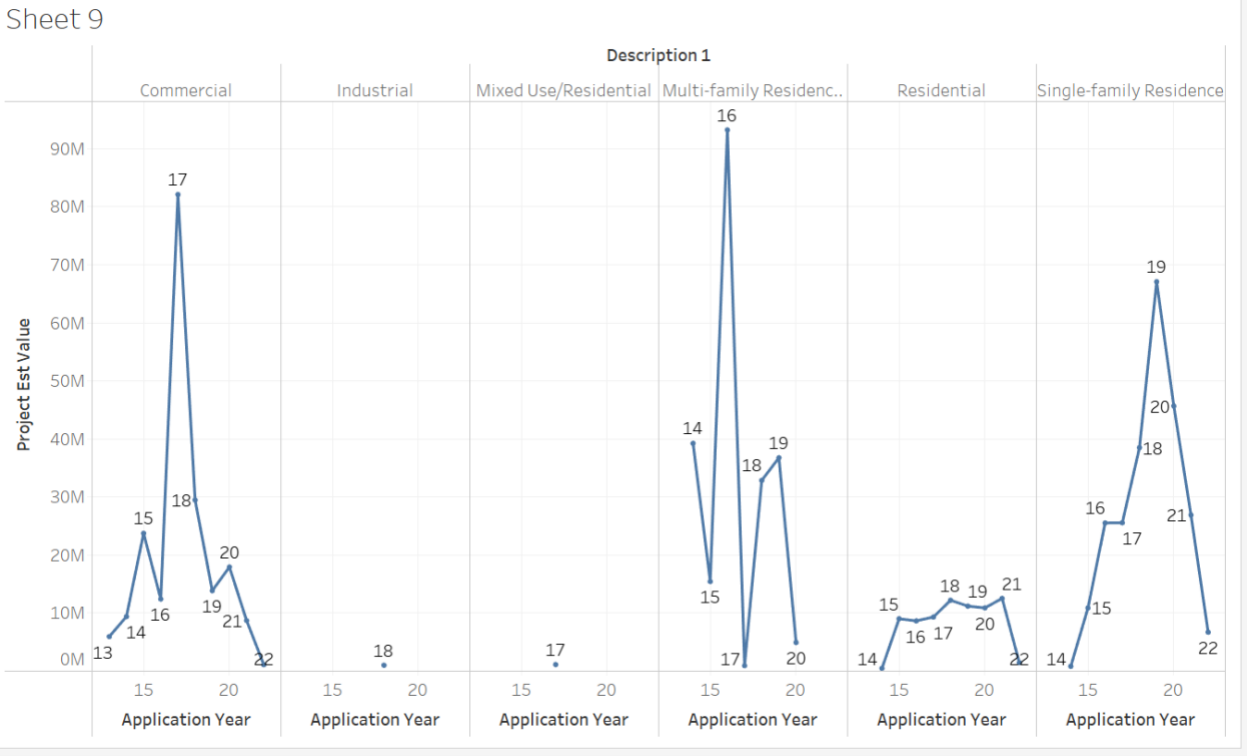
The above heat map shows that the new build properties for single-family residences have the highest value than the other property types.



From the above bar graph, it's very interesting to see that the new build for multi-family residences has the highest investments summing up within **DR MLK JR ST** Buffer corridor.



We can clearly see that Multi-family residence has the highest investment followed by single-family residences and commercial.



We can see the investment trends in all property types across all the years, and We can see that 2016 has the highest investments in multi-family residences.

Conclusions

For Research question 1

Dr. Martin Luther king's corridor has the highest investment when compared to other corridors. 2016 has the highest investments when compared to other years, the new build has more investment across all the years when compared to the Renovation.

For Research question 2

Multi-family Residence has more investments when compared to the other property types. 2016 has the highest investments in the Multi-family Residence property type.

Link to Visualizations

Combined Visualizations of Q1 and Q2

https://public.tableau.com/views/CombinedVisuaisationincludingyearsforQ1andQ2/ResearchQuestion1foryearlydistribution?:language=en-US&:display_count=n&:origin=viz_share_link

Visualizations of Q1

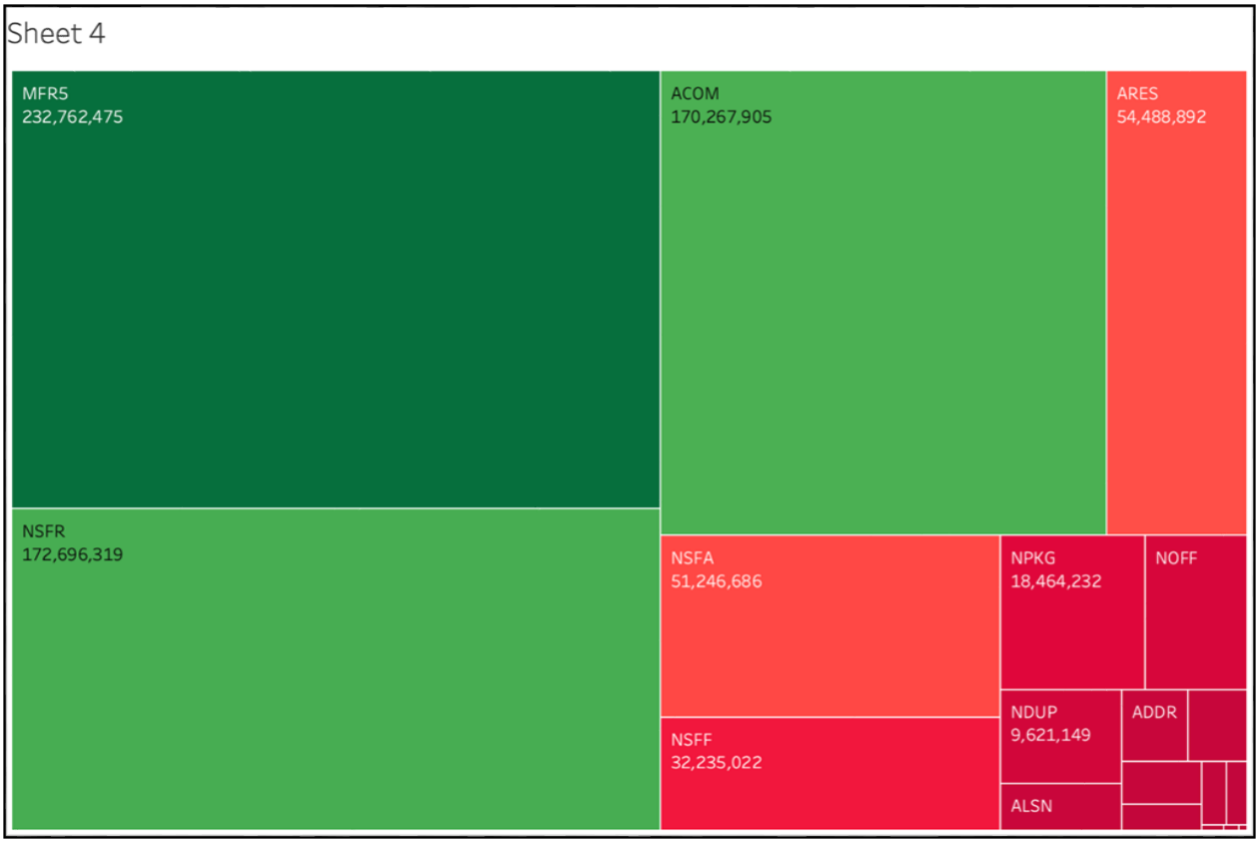
https://public.tableau.com/views/Q1Visualisation/Investmentsacrossallcorridorsindifferentapplicationtypes?:language=en-US&:display_count=n&:origin=viz_share_link

Visualizations of Q2

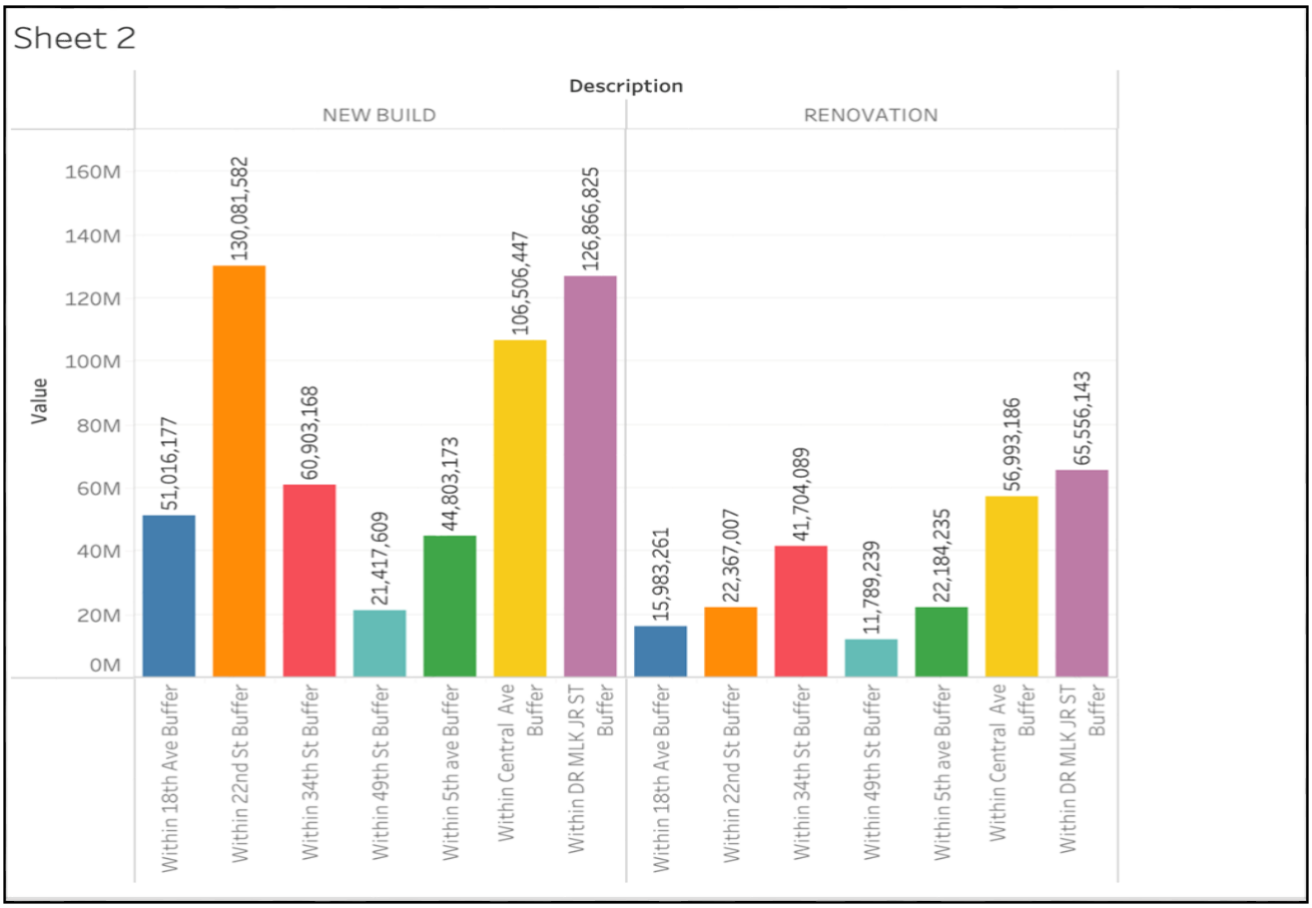
https://public.tableau.com/views/Question2investmentsacrossalltypes/Q2InvestinallproptypesHM?:language=en-US&:display_count=n&:origin=viz_share_link

Appendix

1st Research question: -



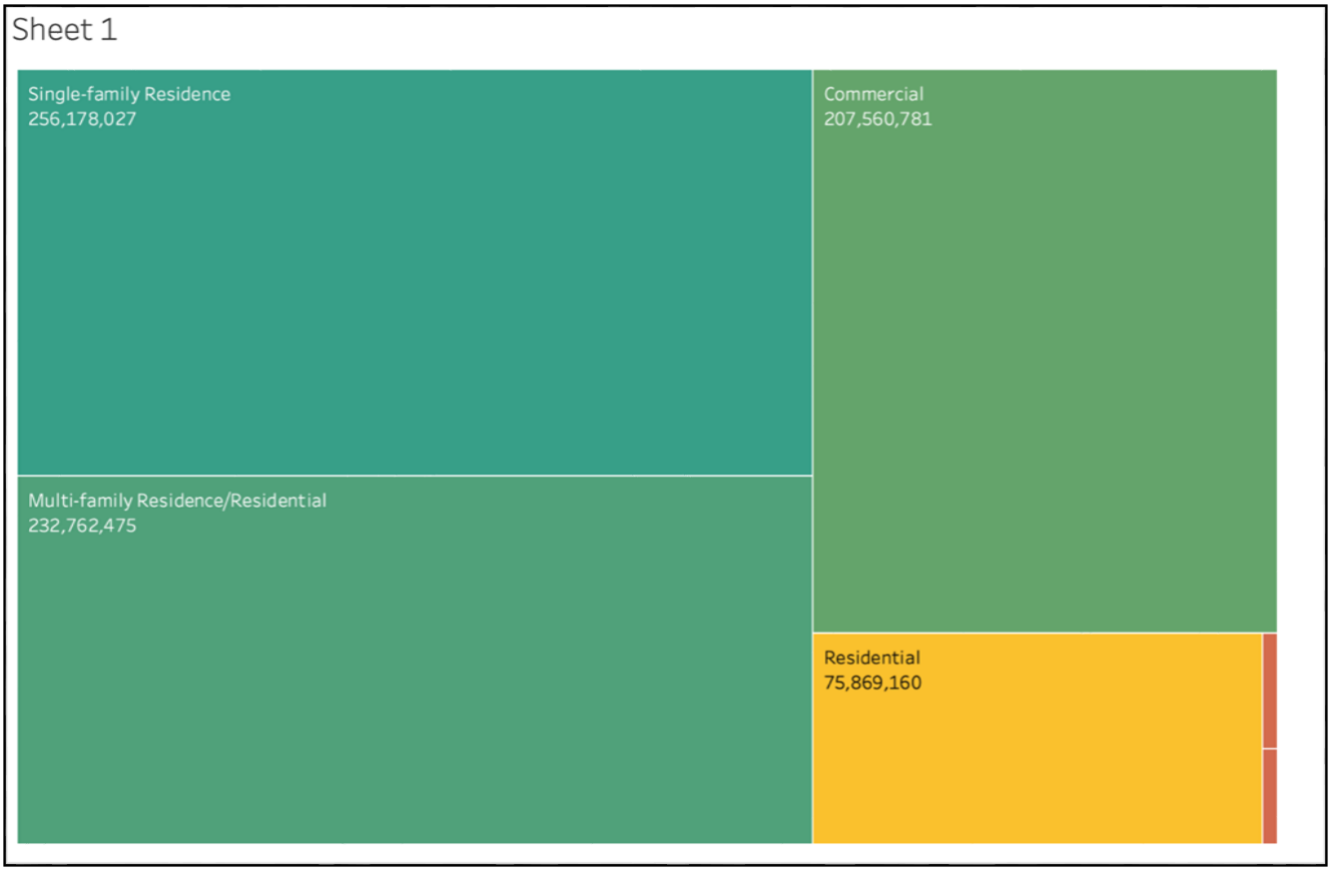
The heat map shows a lot of less-valued properties covering most of the application types shown in red.



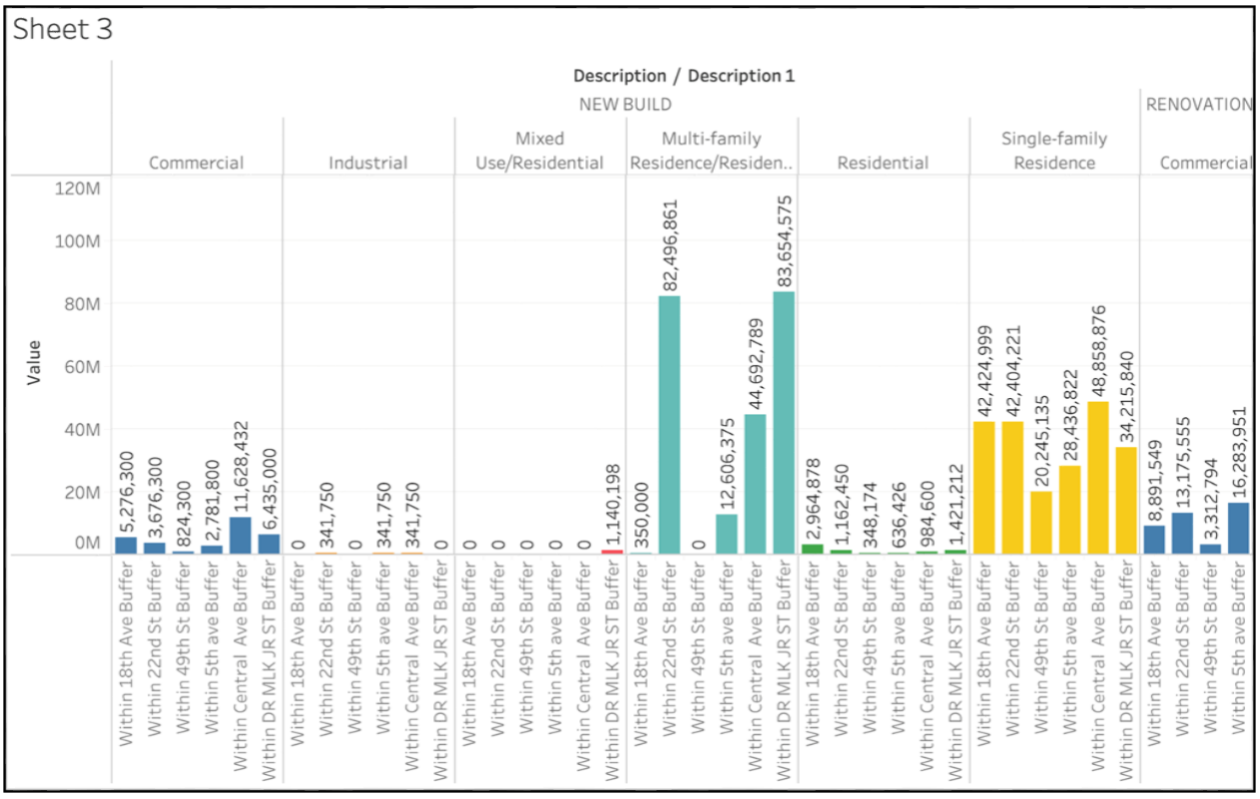
The above bar graph shows that the properties within **49th St Buffer** have the least value among both the new build and the removed properties.

There are properties with different application types at various corridors that are null to the overall investments with no properties seen in the Tableau dashboard.

2nd Research question: -



From the above heat map, we can observe that the properties categorized for the industrial are negligible when compared to the overall property types.



The above bar graph shows that properties have zero contribution and the highest contribution in the new build type and more can be understood from the dashboard attached.