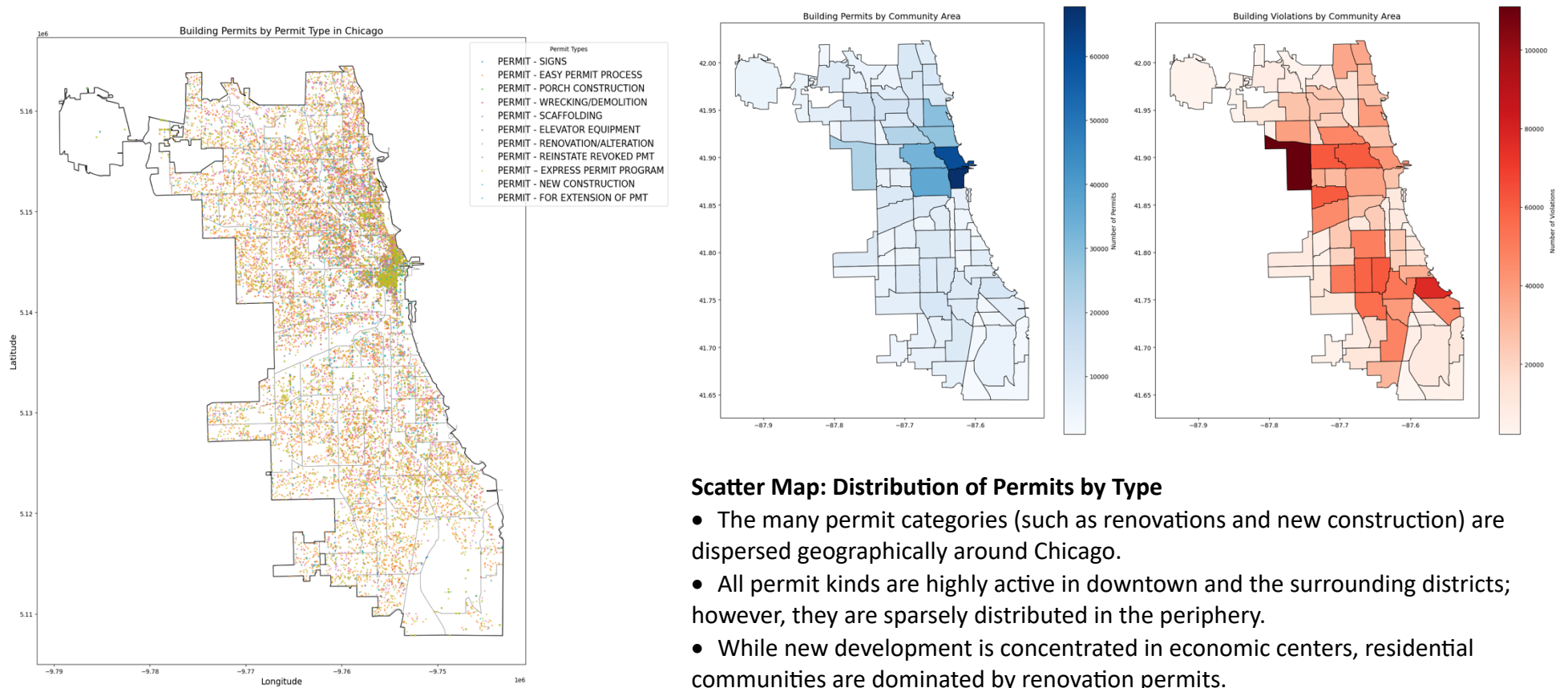


# Building Permits and Violations in Chicago

## INFSCI 2415 Information Visualization Final Report



### Building Permits and Violations by Community Area on Choropleth Maps

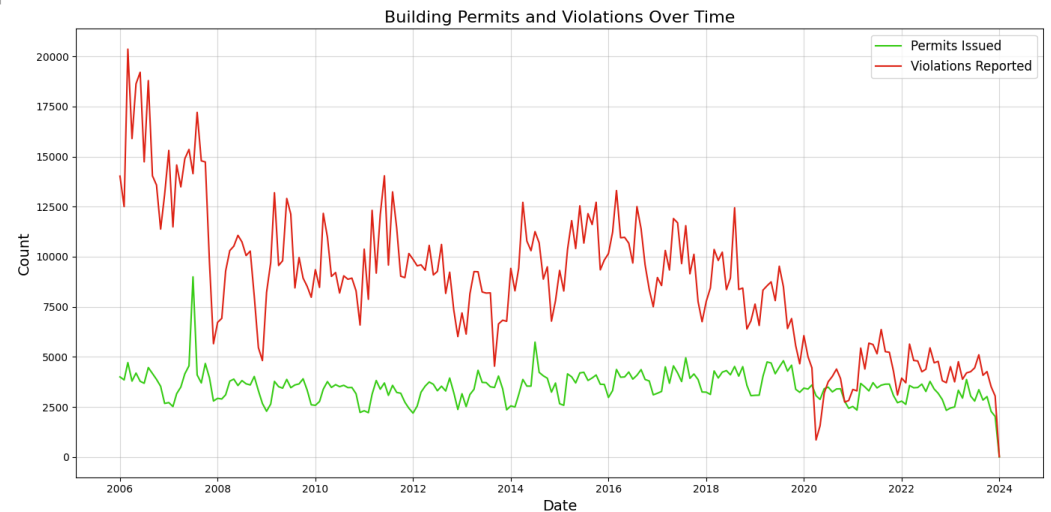
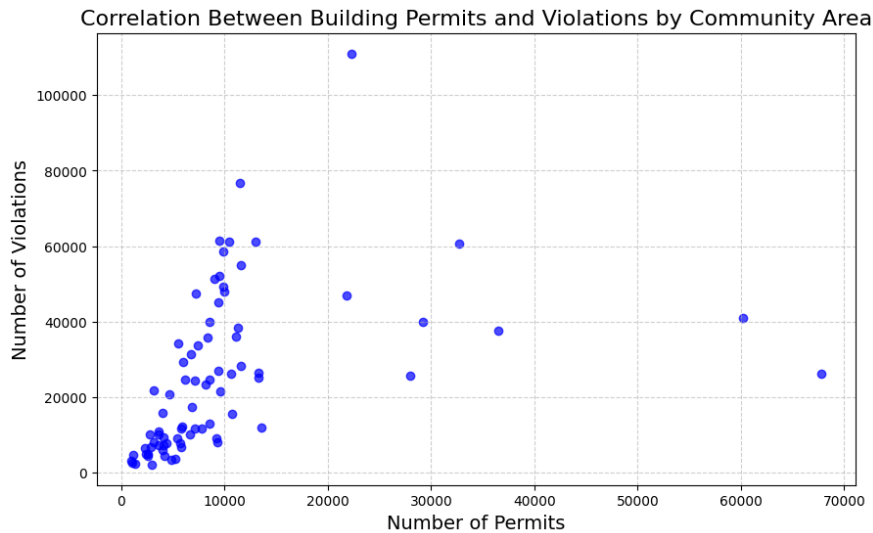
#### Permits for building:

- The largest permit activity is found in downtown and the surrounding districts, which is indicative of concentrated economic development and growth.
- Permit activity is lower in the farther south and west regions, suggesting underdevelopment or a lack of construction concentration.

#### Building Infractions:

- Particularly in the west and south, violations are concentrated in older, denser areas.

- Despite a high volume of permits, downtown exhibits minimal breaches, indicating strong enforcement and compliance.



- The number of permits and violations are positively correlated, suggesting that more building activity frequently results in more inspections and possible infractions.
- A few outliers have very high violations and moderate permits, while the majority of community areas cluster around low permit and violation counts.
- Since 2006, there has been a downward trend in violations, which may be due to increased compliance or less enforcement activity.
- Consistent construction activity is indicated by permits that are stable with very slight variations.
- Around 2020, the COVID-19 pandemic led to a precipitous drop in permits and infractions, which was indicative of a reduction in inspection and economic activity.

### Data and Method:

Construction Permits Data: Provides details about the types, dates, and locations of permits that have been issued. ([Link](#))

Building infractions Data: Contains information on the locations, dates, and reported building code infractions. ([Link](#))

Public Spaces Shapefile: Community area boundaries in Chicago. ([Link](#))

Choropleth Maps: Permits and infractions aggregated spatially by locality. Separate choropleth maps were used to map permit and violation counts in order to visualize spatial patterns.

Scatter Plot: Permit and violation count across community areas are correlated in a scatter plot. Used a scatter plot with distinct axes and data clustering to illustrate the relationship.

Permit Type Scatter Map: This dataset of permits was filtered by valid latitude, longitude, and permit type. Overlapping community boundaries, the spatial distribution of permits is plotted and color-coded by category.

Time-Series Analysis: From 2006 onward, aggregated data on licenses and infractions by month. Plotting temporal trends for both measures allowed for the identification of important events and patterns.

### **Significant Statement**

The following statistics are essential to comprehending Chicago's urban development and compliance dynamics:

- Urban planning and policy:
  - The differences in permit and violation statistics by location point to areas that require more funding and regulatory attention. Targeted revitalization initiatives can be necessary in peripheral areas with a high number of breaches but few permits.
  - The moderate infractions and high permit activity in downtown point to efficient enforcement and compliance, serving as a template for other areas.
- Economic Insights:
  - While the temporal drop in breaches suggests increased compliance over time, consistent permit issuance demonstrates sustained development.
  - Economic events (such as the post-2008 recovery or the impact of the pandemic) coincide with peaks in permit and violation activity, providing information about how outside influences influence urban growth.

GitHub Repo Link: [https://github.com/Ripu116/INFSCI\\_2415\\_Final\\_Report](https://github.com/Ripu116/INFSCI_2415_Final_Report)