

Project Management Plan

Course: Crime Mapping

Project Title: Crime Density and Hotspot Analysis: Seattle's Little Saigon (January 2020 – September 2025)

Group Members: Zanella Silva, Jeevitha Bandi, Nikhil Ghugare

Instructor: Professor Joyner-Carpanini

Date: November 2, 2025

1. Project Overview

This project aims to identify areas in Little Saigon that experience heightened crime activity including nighttime hours. By conducting a crime density and hotspot analysis, we seek to understand both spatial and temporal patterns of criminal behavior. The findings will lead to data-driven recommendations aimed at enhancing safety in public spaces, such as restaurants, bars, parking lots, and transit stops.

Our analysis covers crime incidents in Seattle's Little Saigon neighborhood from 2020 to 2025, utilizing spatial and temporal analysis techniques in ArcGIS Pro. The objective is to pinpoint hotspots, explore offense patterns, and create visualizations based on data to support community safety initiatives effectively.

The focus is on mapping multiple types of offenses (not just nighttime incidents) to better understand when and where crime is most concentrated. By using GIS tools, this project will visualize geographic areas of concern and provide insights for policy, patrol allocation, and community awareness.

Key Objectives:

- - Import, clean, and analyze Seattle Police Department crime data from 2020–2025.
- - Categorize offenses into types (violent, property, traffic-related, and public order).
- - Identify and visualize spatial hotspots
- - Compare temporal patterns across months, weekdays, and seasons.
- - Provide recommendations for safety improvements in high-risk areas.

2. Research and Methods

Little Saigon is a densely populated urban district facing issues with theft, vandalism, and occasional violent incidents. Understanding these spatial and temporal patterns allows stakeholders, such as the City of Seattle and Friends of Little Saigon, to implement targeted safety measures.

Methodology Steps:

- To conduct a comprehensive analysis of crime trends in Seattle, we will collect crime incident data spanning from 2020 to 2025, sourced from the Seattle Police Department Open Data Portal. In addition, we will enhance our dataset by incorporating information from King County GIS, ArcGIS Hub, and local business and lighting datasets. By integrating data points such as transit routes, transit corridors, and business locations, we aim to identify the factors influencing crime rates and analyze crime hotspots effectively.
- Data Cleaning: Verify field names, coordinates, and timestamps. Remove duplicates and errors. Filter data by study area (Little Saigon boundary).
- Data Categorization:
- **Violent Offenses:** Assaults, threats, firearm-related incidents
- **Property Offenses:** Burglaries, theft
- **Other Offenses:** Public disturbances, harassment, etc.
- Analysis: Used ArcGIS Pro to visualize crime data by mapping specific locations and differentiating them based on the type of offense. To provide more context, we overlaid this information with business locations, light rail stops, and transit corridors. This helped us highlight areas with higher concentrations of crime calls, allowing for a clearer picture of where incidents are clustering. We also compared crime patterns across different neighborhoods such as Chinatown-ID, Yesler Terrace, and Pioneer Square to see how they differ.
- Map Production: In our map production process, we employed distinct and easily identifiable symbology for different categories of assault crimes, ensuring that each category was visually represented for clarity. We also carefully labeled key hotspots, areas with a high concentration of incidents, to draw attention to critical trends. To enhance user understanding, we included a comprehensive legend that clearly explains the symbology used. Furthermore, we provided detailed descriptions of the analysis conducted, outlining the methodologies applied to the map layers in each layout. This approach not only improves visual communication but also aids in interpreting the data effectively.
- Branding and Design: In designing the map, we followed professional layout standards, including a clear title, detailed legend, north arrow, and scale bar. By adhering to SU's branding guidelines, we ensured that the map was visually appealing and coherent. My goal was to enhance clarity and usability, allowing viewers to easily understand the information presented.

3. Expected Outcomes

- **Crime maps** showing assault locations from 2020–2025, overlaid with business and transit data.
- **Kernel Density maps** highlighting high-crime concentration zones within Little Saigon. **Comparison of sub-neighborhoods** (e.g., Chinatown-ID, Yesler Terrace) to show spatial variation.
- **Clean dataset** prepared for future weekday, weekend, or seasonal trend analysis.

- **Safety recommendations** for high-risk areas (e.g., better lighting, transit safety measures, community patrols).

4. Data Sources

- - Seattle Police Department – SPD Crime Data (2008–Present)
- - King County GIS Data Hub
- - City of Seattle Open Data Portal (Streetlight and Business License Data)
- - Friends of Little Saigon: Phố Đẹp (Beautiful Neighborhood) Safety Plan
- - ArcGIS Seattle Street Segment Dataset
- - Time and Date – Sunrise/Sunset Data (for temporal reference)

5. Work Log & Collaboration

Group Member	Tasks Completed	Hours Worked	Notes
Zanella Silva	Conducted literature review and background research; contributed to spatial reasoning and risk framing; co-led map development discussions	3.5	Focused heavily on identifying data gaps and helped contextualize findings through research
Jeevitha Bandi	Collected timely datasets, filtered based on current boundaries; created and managed ArcGIS layers; organized group workflow	3.5	Led data preprocessing and ensured alignment with the current analysis and team deadlines
Nikhil Ghugare	Developed and refined map layouts; performed density mapping and symbol classification; co-led interpretation of hotspot areas	3.5	Took the lead on ArcGIS design work and visual refinement of spatial outputs

Group	Shared decisions via Teams calls; co-analyzed crime distribution; brainstormed conclusions and future recommendations	10	Worked together to draft maps and discussion points; collaborated on worksheet edits
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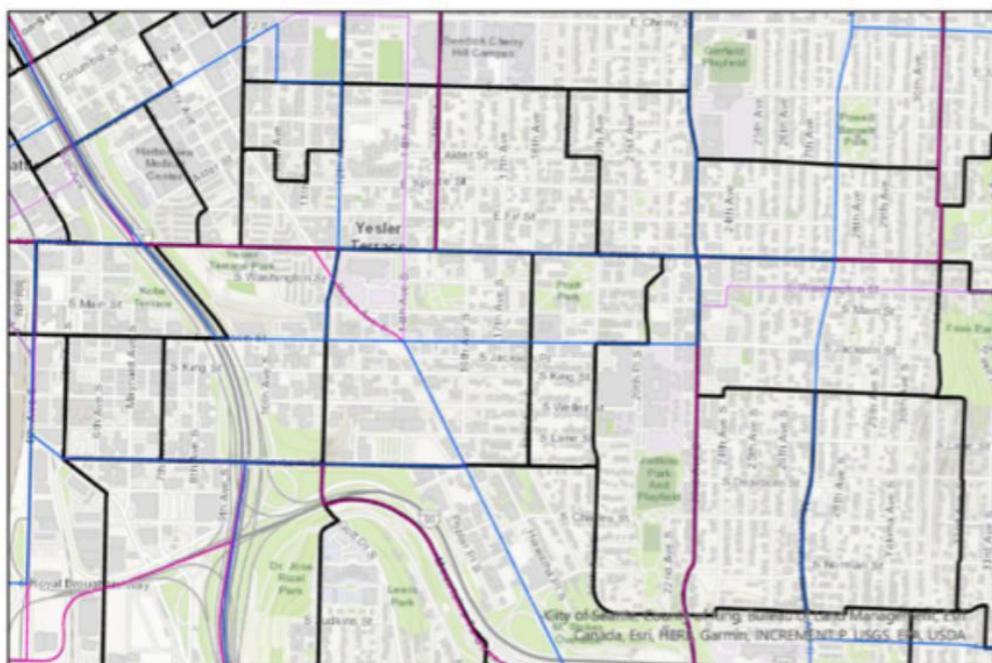
Total Group Hours: 10.5

6. Collaboration Check

All members participated equally in this stage. Tasks were divided and managed via shared documents and ArcGIS Online folders. The group collaborated on finalizing the project plan and ensuring alignment with the instructor's feedback.

7. Screenshots

Spatial Distribution of 911 Incidents in Little Saigon, Seattle (2023–2025)



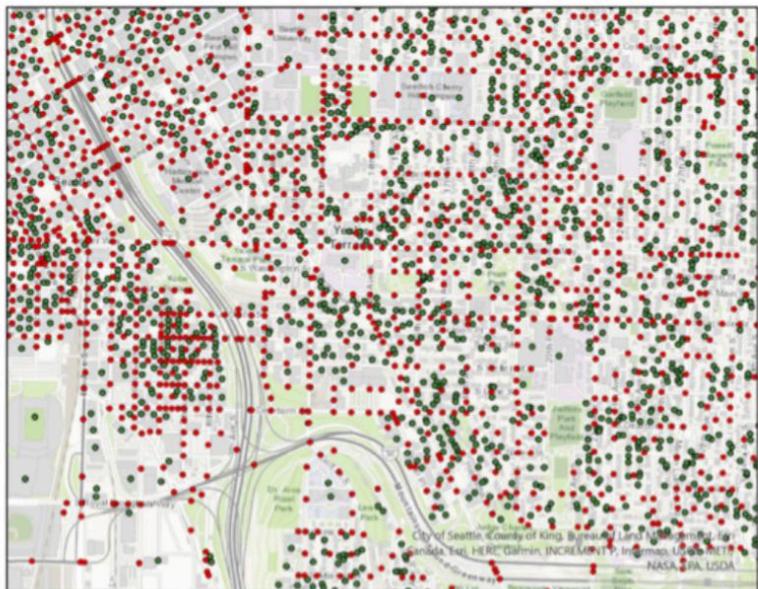
Legend

■ Metro_Neigh ■ Beats_WM
■ MCPP_WM ■ CensusBGGE



Made by Nikhil, Zanella, Jevitha

Spatial Distribution of 911 Incidents in Little Saigon, Seattle (2023–2025)

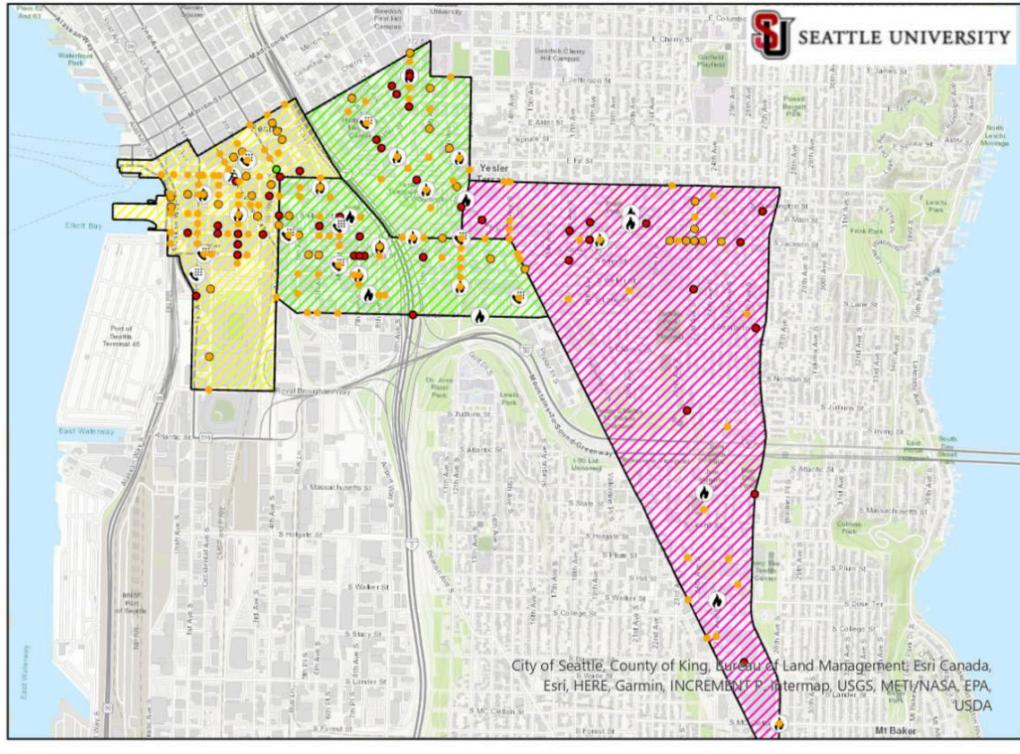


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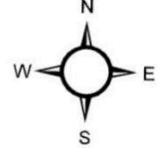
- CallData
- Business_Locatio



Types of Assault in Little Saigon, Seattle from year 2020 - 2025



0 0.5 1 2 Miles



Legend

CallData_LittleSaigo

Final_Call

- ASLT - WITH OR W/O WPNS (NO SHOOTINGS)
- ASSAULTS - FIREARM INVOLVED
- ASSAULTS - GANG RELATED
- ASSAULTS - HARASSMENT, THREATS

ASSAULTS - TELEPHONE, WRITING

- ASSAULTS, OTHER
- <all other values>

Neighborhood_Map

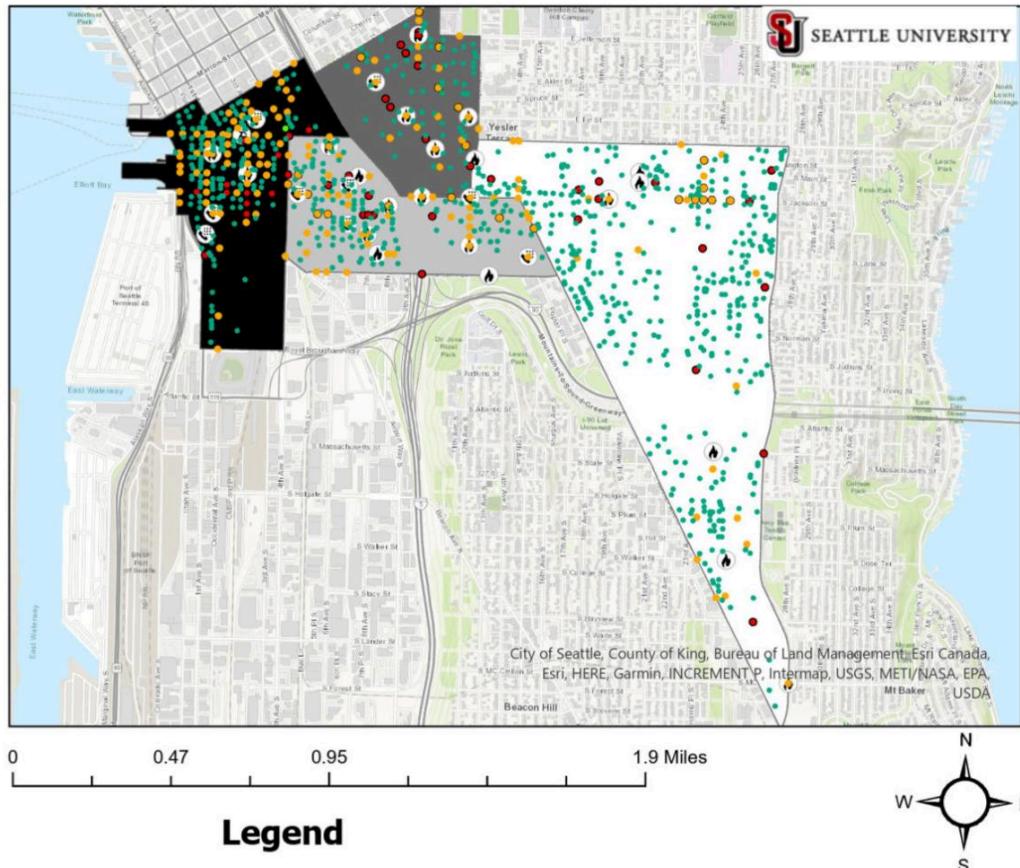
OBJECTID

- | | |
|---|-----------|
| ■ | 3.2 - 4.0 |
| ■ | 2.0 - 3.1 |
| ■ | 1.0 - 1.9 |

The map visualizes assault-related crime incidents in Little Saigon from 2023 to 2025, using categorized symbols to distinguish between types like firearm-related, gang-related, harassment/threats, and others.

Map created by- Jeevitha, Nikhil, Zanella

Exploring Business Activity and Assault Crimes in Little Saigon, Seattle



Legend

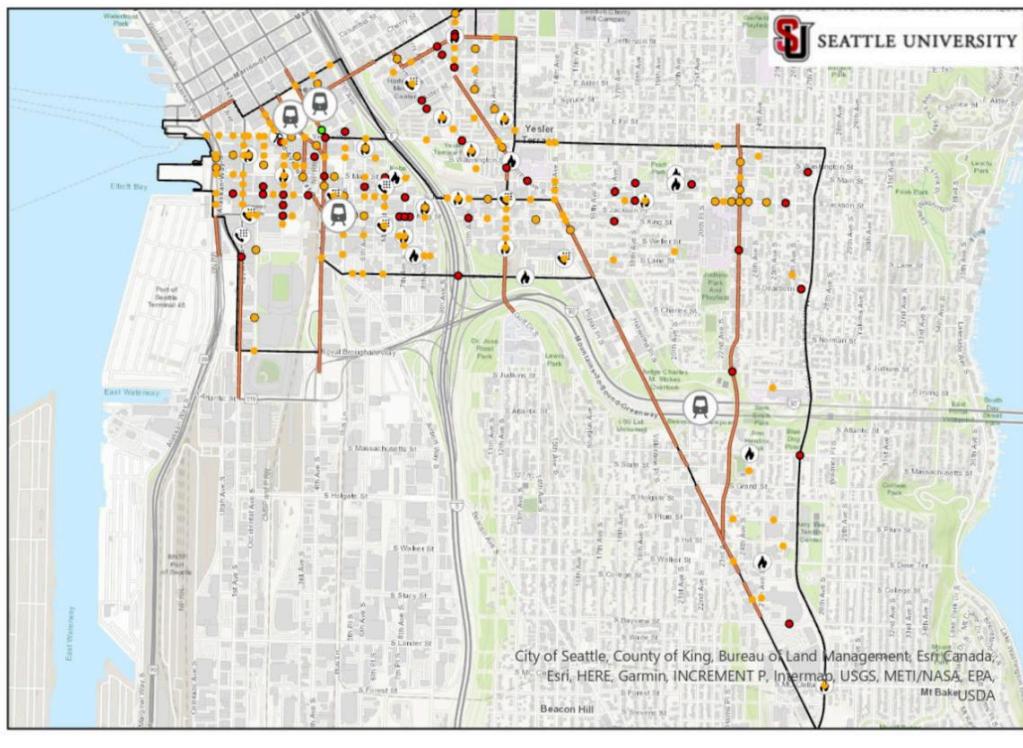
- Business_Locations_Littl
 - CallData_LittleSaigo
 - Final_Call
 - ASLT - WITH OR W/O WPNS (NO SHOOTINGS)
 - ASSAULTS - FIREARM INVOLVED
 - ASSAULTS - GANG RELATED
 - ASSAULTS - HARASSMENT, THREATS
- Neighborhood_Map**
- | OBJECTID |
|----------|
| 58 |
| 59 - 61 |
| 62 - 64 |
| 65 |

The westernmost zone, marked in black, has the highest density of both business locations and assault incidents, including firearm-involved and harassment threats. This layered analysis reveals a meaningful spatial relationship between economic activity and public safety within Little Saigon. The spread of green dots (businesses) is less dense than the black zone, yet there's still a visible overlap with assault points, indicating a need for targeted safety audits in this transition zone between high and low activity areas.

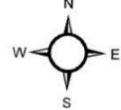
Map created by- Jeevitha, Nikhil, Zanella

1 jan 2020 to 19 October 2025

Assault Hotspots Around Transit Corridors in Seattle's Little Saigon



0 0.45 0.9 1.8 Miles



Legend

- Light_Rail_Stations_Littl
- CallData_LittleSaigo
- Final_Call
- ASLT - WITH OR W/O WPNS (NO SHOOTINGS)
- ASSAULTS - FIREARM INVOLVED
- ASSAULTS - GANG RELATED
- ASSAULTS - HARASSMENT, THREATS
- ASSAULTS - TELEPHONE, WRITING
- ASSAULTS, OTHER
- <all other values>
- Transit_Connection_Corr
- Neighborhood_Map_Littl

Assault clusters appear not only at transit nodes but along the corridors themselves, especially where the orange transit lines cut through the commercial core of Little Saigon and stretch south toward Rainier Ave S. Transit-connected movement paths and stops are key risk areas for assaults in Little Saigon. As such, this map provides a strong foundation for place-based safety interventions that prioritize high-traffic transit corridors and public transportation nodes.

Map created by- Jeevitha, Nikhil, Zanella