# Introduction:

I will create an interactive website that reports on the key findings of a grant that I recently finished (discussed below). This webpage would be a great resource for distributing the collected data and generated analyses to project stakeholders in the field of criminal justice.

# Project Topic:

Crime is not randomly distributed in time or space, rather, it clusters around and is influenced by the environment within which people engage in their daily activities. According to Crime Pattern Theory, the concentration of crime is impacted by the built environment where the routes of travel can be routine and serve as anchors which generate a spatial awareness of a person’s environment. Geographic areas most prone to high mobility and the clustering of people are those where transit routes and activity nodes are highly concentrated. In attracting a large number of people through the use of transit at a fixed geographic space, transit can shape crime patterns in an urban environment. This can increase opportunities for crime when the ‘activity space’ of a person at a transit platform overlaps with that of a motivated offender in time and space (Bernasco and Block, 2000).

This project has advanced work in environmental criminology by analyzing the concentration of burglary and robbery crimes in relation to the presence of transit in Milwaukee, WI; a geography that has yet to be explored in the existing literature. Specifically, this research study has found that these crimes concentrate at an increased level relative to the uniform distribution of these events across the city.

Based on this finding, we address two questions at the meso- and micro-level of analysis to inform decision-making by law enforcement and transit administration. First, which Milwaukee districts experience the highest concentration of a.) transit stations and b.) crime. For this question, we will also report on geographical characteristics known to hold a relationship with the occurrence of crime. Second, which transit stations experience the highest concentration of a.) transit usage and b.) crime.

# Methodology:

To answer these research questions, we have acquired data provided by the Milwaukee Police Department, InfoGroup, and United States Census Bureau. The Milwaukee Police department provides officially reported crime data each year. Using this service, we have extracted burglary and robbery offenses reported to police in the year of 2021. This data includes location coordinates for all events, therefore, allowing the research team to examine the spatial distribution of these events across districts in Milwaukee. To examine the concentration of these events relative to transit, our research team has acquired data from InfoGroup; a company that provides information on land use types (including transit station coordinates) in the United States.

In measuring the concentration of crime and transit, we will rely on the calculation of location quotients. According to Groff and McCord (2012), location quotients are “ratios which compare the characteristics of a sub-areas to that of the larger, surrounding region” (Groff and McCord, 2012,9). Using this calculation, we will examine the distribution of crime and transit stops in each district in relationship to the city of Milwaukee, WI. This statistical calculation will be reported in the database tables (to be developed).

Finally, we will supplement this analysis with information provided by the US Census Bureau (2020) for each district in Milwaukee, WI. Specifically, in examining characteristics of Milwaukee districts that may hold a relationship with crime including population size, household income, and housing (e.g. % owned, rented, vacant).

# Deliverable:

As of November 11th, 2022, our research team has completed the meso- and micro- analysis in the city of Milwaukee. Given this critical step, the team’s next task will be presenting the gathered data and produced findings to our target audience of criminal justice academia and stakeholders in the city of Milwaukee, WI. In building a webpage that hosts these collected data and produced analyses, our team will deliver the following:

1. The development of a color-coded horizontal bar chart that presents the key findings for each district in Milwaukee.
   1. This chart will report on the concentration of crime, number of transits stops, and census bureau measures for each district (color-coded).
2. The generation of an area chart that shows the change of crime counts across Milwaukee districts over time (from January to December of 2021).
   1. Each district will be color-coded, and the visualization will be interactive in that the user can select a district, visualize the trend of crime rates over time, while hiding any unselected districts in the chart.
3. The creation of a scatter plot which showcases the relationship between transit usage and the frequency of crime.
   1. This plot will be created using the performed micro-level analysis which examined every Milwaukee transit station in respect to its usage and number of crimes that occurred within a proximate radius of the station.
4. The development of choropleth maps that showcase the concentration of crime and transit stations across districts in Milwaukee.
   1. Created in ArcGIS, these maps will be embedded into the website using HTML.