Economic and Social Impact of Arlington Restaurant Initiative
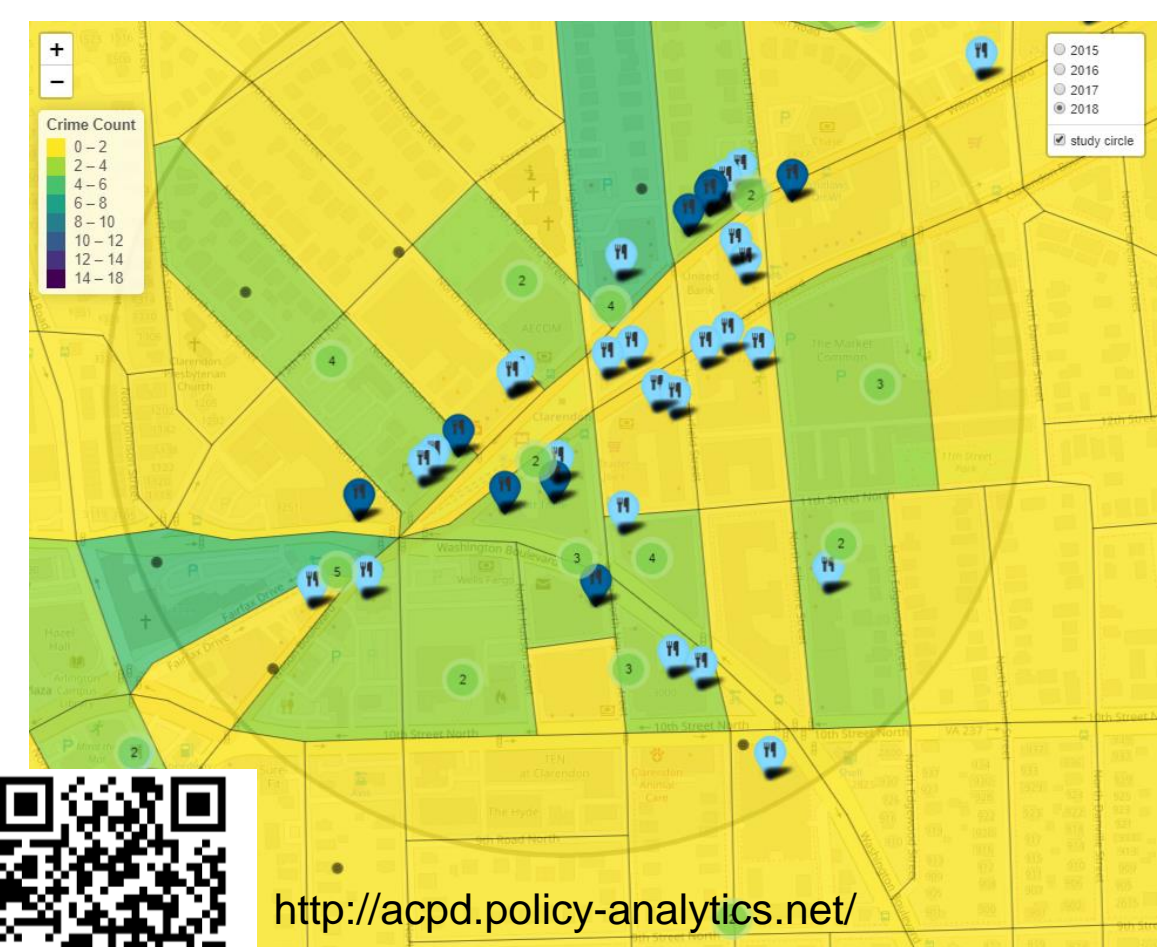
DSPG Team: Victoria Halewicz (Illinois) and Kateryna Savchyn (Georgetown University), Jessica Keast (Smith)

SDAD Team: José Bayoán Santiago Calderón, Gizem Korkmaz, and Aaron Schroeder

Sponsor: Dimitrios Mastoras, Arlington County Police Department

Introduction

The Arlington Restaurant Initiative trains and certifies restaurants and bars to prevent and proactively address nightlife alcohol-related incidents

- Is the intervention reducing alcohol-related crime?
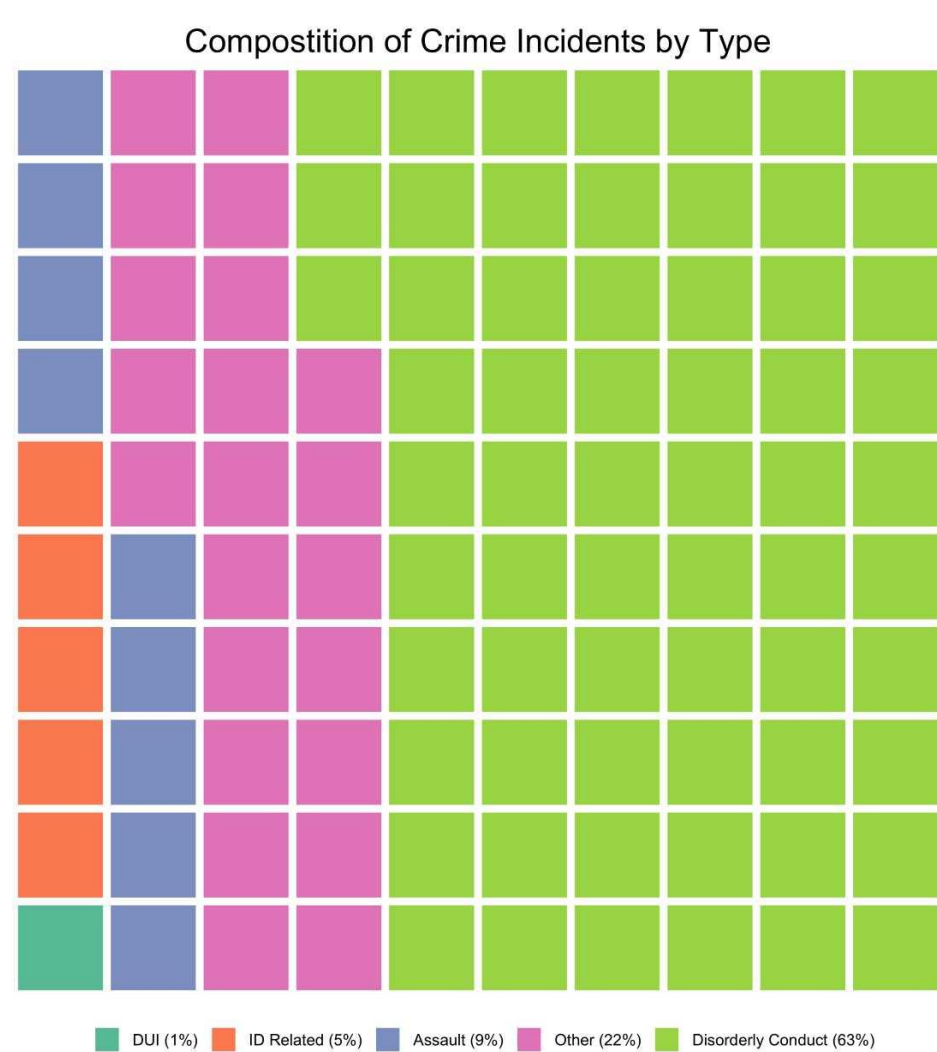- What is the benefit of reducing crimes?

Data Sources

- Arlington County Police Department (ACPD)
  - Police Incident Logs
  - Nightlife Detail Calls for Service
  - Restaurant Accreditation information
- Virginia Alcoholic Beverage Control (ABC)
  - Licenses and violations
- Yelp Restaurant Features

Geospatial Crimes Application
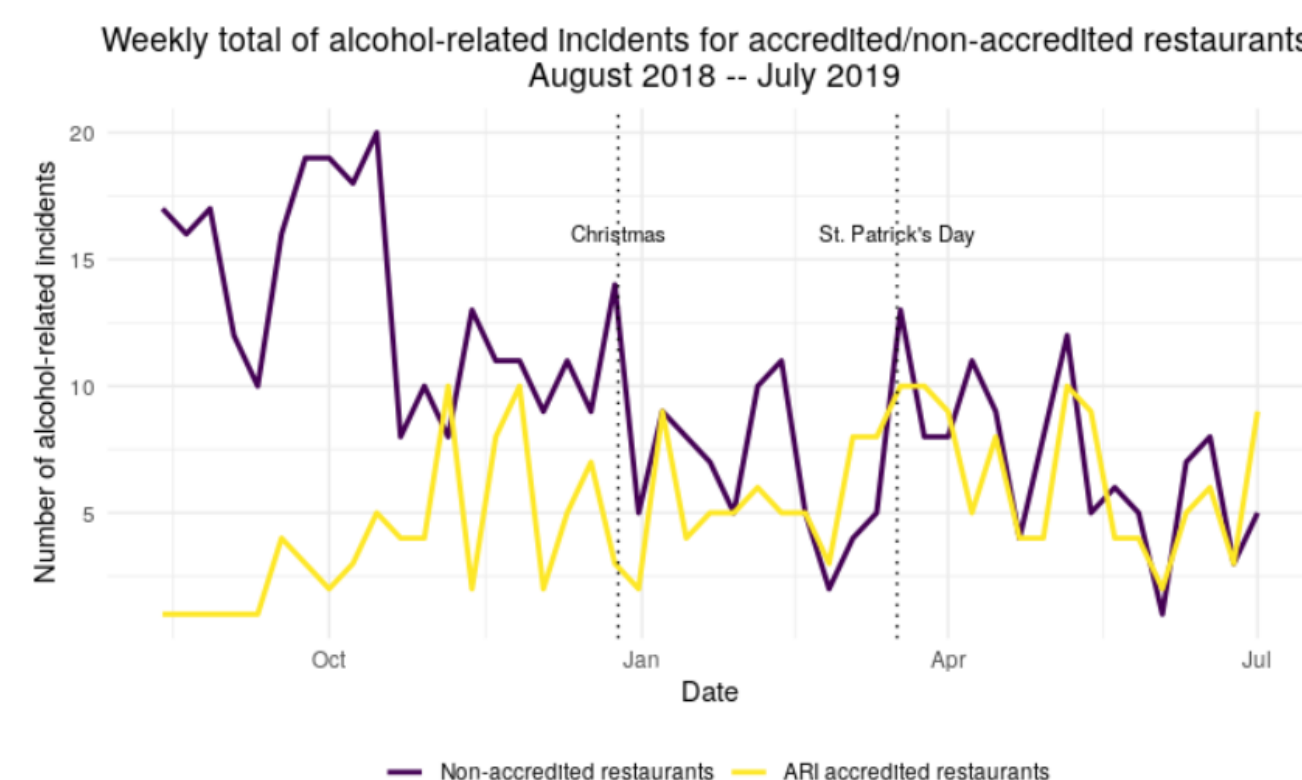

http://acpd.policy-analytics.net/

- Spatially explore crimes in Arlington County from 2016 – present
- View and filter data by year, by crime type, and area of interest
- View establishments and ABC Violations for restaurants included in the analysis
- Explore incident occurrence by the hour
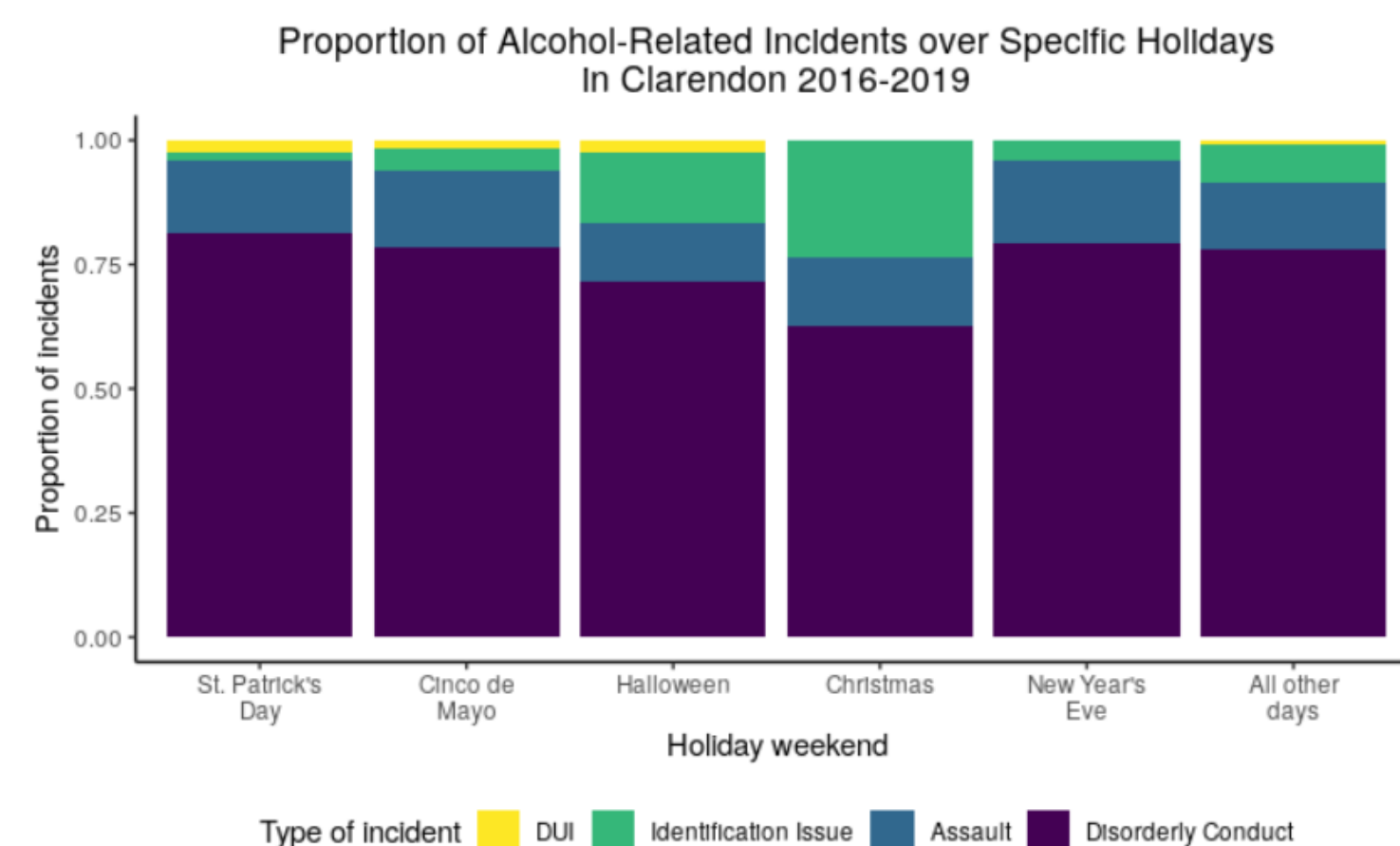- View, filter, and export raw data including descriptions and time stamps of incidents

Methods

SIMILARITY MATRIX

- Develop similarity scores among 89 restaurants based on Yelp 51 attribute features (Ex: "Kid Friendly", "Noise Level", etc.)
- Jaccard Similarity Indexing is computed as the intersection of shared features over the union of features between all restaurant combinations
- The similarity matrix is used to identify similar restaurants for various statistical models.

Data Exploration

COMPOSITIONS CLARENDON CRIMES

Compositition of Crime Incidents by Type

DUI (1%) ID Related (5%) Assault (9%) Other (22%) Disorderly Conduct (63%)

SEASONAL TRENDS

Weekly total of alcohol-related incidents for accredited/non-accredited restaurants August 2018 -- July 2019

General downward trend of crime across both accredited and non-accredited restaurants. Peak holidays include Christmas and St. Patrick's day.

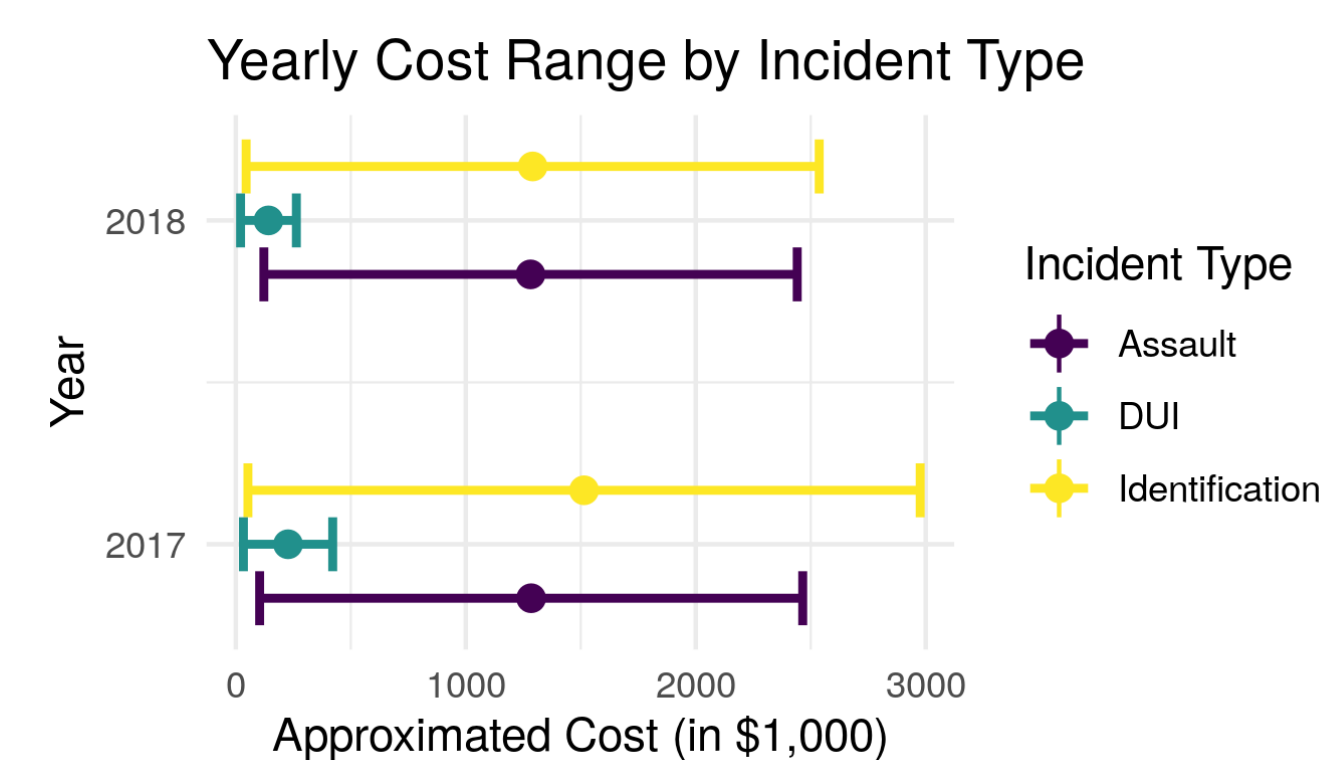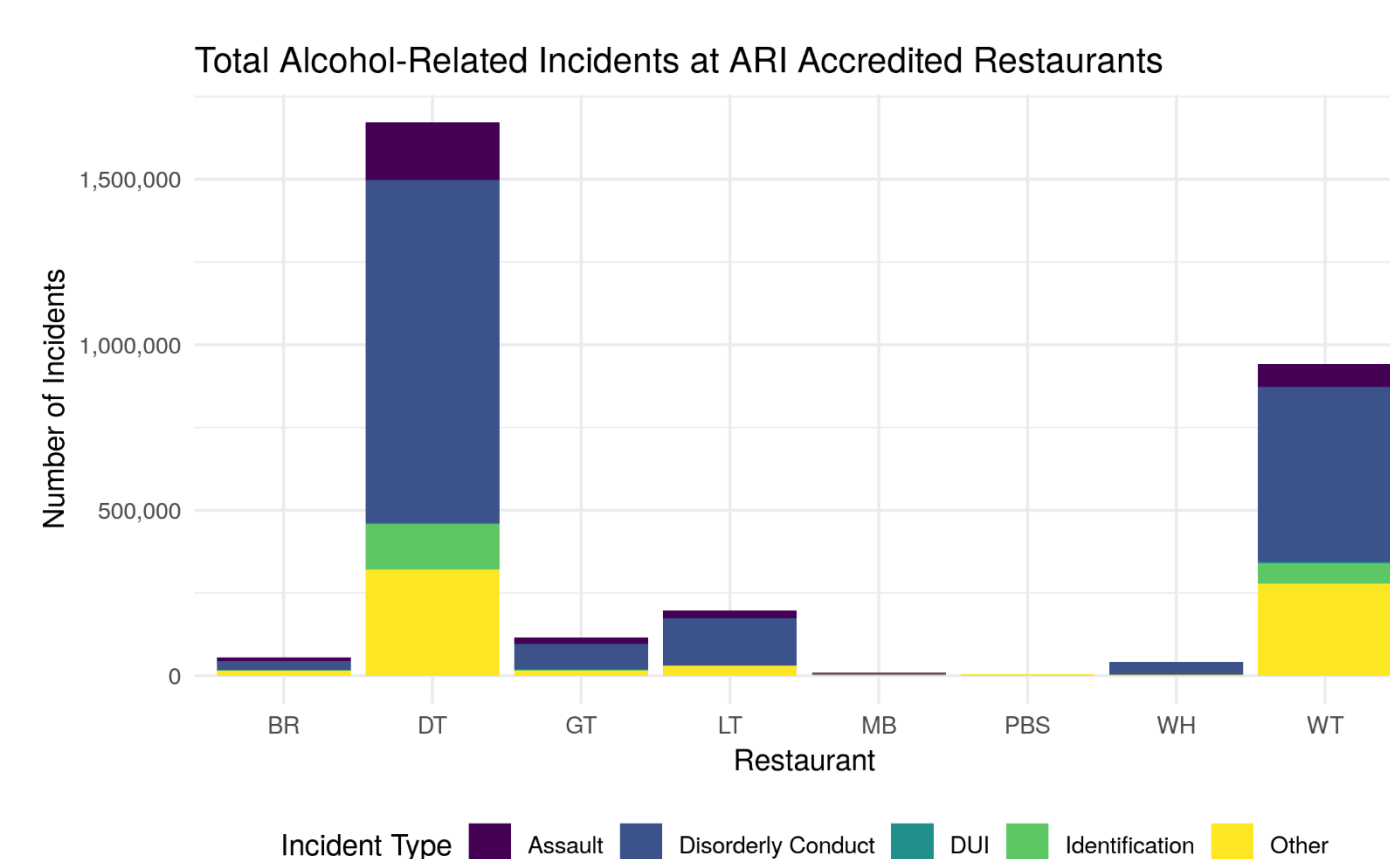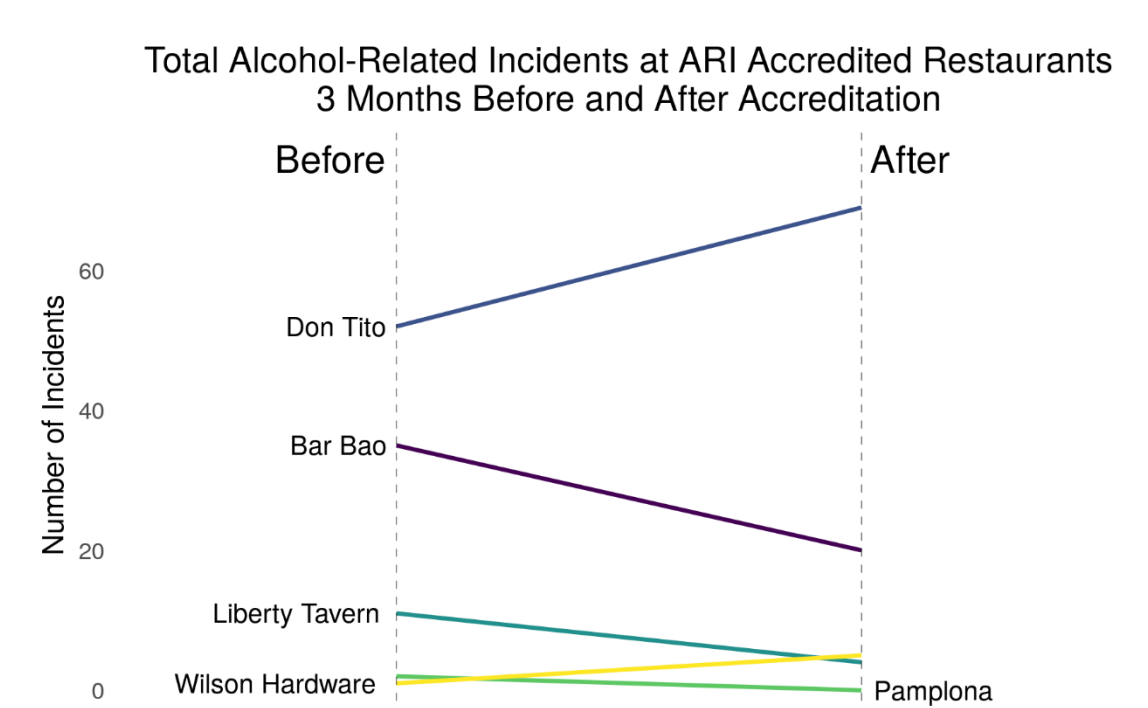Proportion of Alcohol-Related Incidents over Specific Holidays In Clarendon 2016-2019

Crime type prevalence differs by holiday. Christmas has least disorderly but greatest identification crimes. Halloween has the most DUIs.

COSTS OF CRIMES

Preliminary crime costs calculated using tangible prices (see example). We used cost estimates from various studies and the number of incidents in Arlington to calculate the minimum and maximum yearly costs for crime types.

Example of a cost estimation (minimum)

Driving under influence:

Fine..	$250
Jail time	$634
Attorney	$1,900
Court	$1,100
Car insurance ↑	$800
Towing vehicle	$170
Mandatory Classes	$250
Total	**$4,134**

Yearly Cost Range by Incident Type

Our next steps will include intangible costs of crime such as psychological distress, impaired productivity, etc.

RESTAURANT SPECIFIC CRIME COUNTS AND FLUCTUATION

Total Alcohol-Related Incidents at ARI Accredited Restaurants

Two restaurants in the accreditation program comprise the majority of crime incidents in our database.

Total Alcohol-Related Incidents at ARI Accredited Restaurants 3 Months Before and After Accreditation

While the majority of the restaurants exhibit a decreasing trend in crimes, one establishment's crime incidents continue to rise.

Conclusion and Next Steps

- Retrieve program costs to compare the cost and benefit of the program
- Develop tangible and intangible estimates and incorporate disorderly conduct crimes
- Cost estimates as individual versus government costs to increase accuracy of public savings attributed to the program