Crime analysis in Baltimore

Finding a new home for InfoDyne Corp

InfoDyne wants to move to Baltimore

- Tax advantages to move
- What crime exists in the city
- Where is a good location that is low on robberies
- Where would local food and gas be located
- Will we be close to Baltmore shipping ports

Note: InfoDyne is a fictious company

Data Acquistion and Cleansing

- Baltimore Open Data has a good data set https://data.baltimorecity.gov/
- Crime Data, broken out by location (lat/Long) and types of crimes from 2014 to present
- Data dirty.. Missing fields, irrelevant old data exists, Date split

```
In [4]: baltimoredata.head()
```

Out[4]:

	CrimeDate	CrimeTime	CrimeCode	Location	Description	Inside/Outside	Weapon	Post	District	Neighborhood	Longitude	Latitude	Location 1	Premise	vri_name1	Total Incidents
0	10/19/2019	15:17:00	6J	6500 OLIV	LARCENY	O	NaN	NaN	SOUTHEAST	NaN	NaN	NaN	NaN	OTHER - OUTSIDE	NaN	1
1	10/19/2019	10:45:00	7A	3000 EASTERN AVE	AUTO THEFT	O	NaN	221	SOUTHEAST	BALTIMORE-LINWOOD	-76.574312	39.286411	NaN	STREET	NaN	1
2	10/19/2019	21:25:00	3B	2700 DILLON ST	ROBBERY - STREET	O	NaN	214	SOUTHEAST	CANTON	-76.577923	39.281131	NaN	STREET	NaN	1
3	10/19/2019	21:51:00	4E	2400 SHIRLEY AVE	COMMON ASSAULT	I	NaN	533	NORTHERN	GREENSPRING	-76.659335	39.335694	NaN	ROW/TOWNHOUSE-OCC	NaN	1
4	10/19/2019	16:40:00	6G	600 WYNDHURST AVE	LARCENY	I	NaN	521	NORTHERN	WYNDHURST	-76.629834	39.353382	NaN	OTHER - INSIDE	NaN	1

Clean up data

- Combine date fields, remove records with missing lat/long

Out[6]:

	CrimeCode	Location	Description	Inside/Outside	Weapon	Post	District	Neighborhood	Longitude	Latitude	Location 1	Premise	vri_name1	Total Incidents	CrimeDateTime
1	7A	3000 EASTERN AVE	AUTO THEFT	O	NaN	221	SOUTHEAST	BALTIMORE-LINWOOD	-76.574312	39.286411	NaN	STREET	NaN	1	2019-10-19 10:45:00
2	3B	2700 DILLON ST	ROBBERY - STREET	O	NaN	214	SOUTHEAST	CANTON	-76.577923	39.281131	NaN	STREET	NaN	1	2019-10-19 21:25:00
3	4E	2400 SHIRLEY AVE	COMMON ASSAULT	I	NaN	533	NORTHERN	GREENSPRING	-76.659335	39.335694	NaN	ROW/TOWNHOUSE-OCC	NaN	1	2019-10-19 21:51:00
4	6G	600 WYNDHURST AVE	LARCENY	I	NaN	521	NORTHERN	WYNDHURST	-76.629834	39.353382	NaN	OTHER - INSIDE	NaN	1	2019-10-19 16:40:00
5	4C	1900 MCHENRY ST	AGG. ASSAULT	O	OTHER	934	SOUTHERN	CARROLLTON RIDGE	-76.647989	39.284216	NaN	STREET	Tri-District	1	2019-10-19 03:24:00

Analysis

What types of crimes are represented?

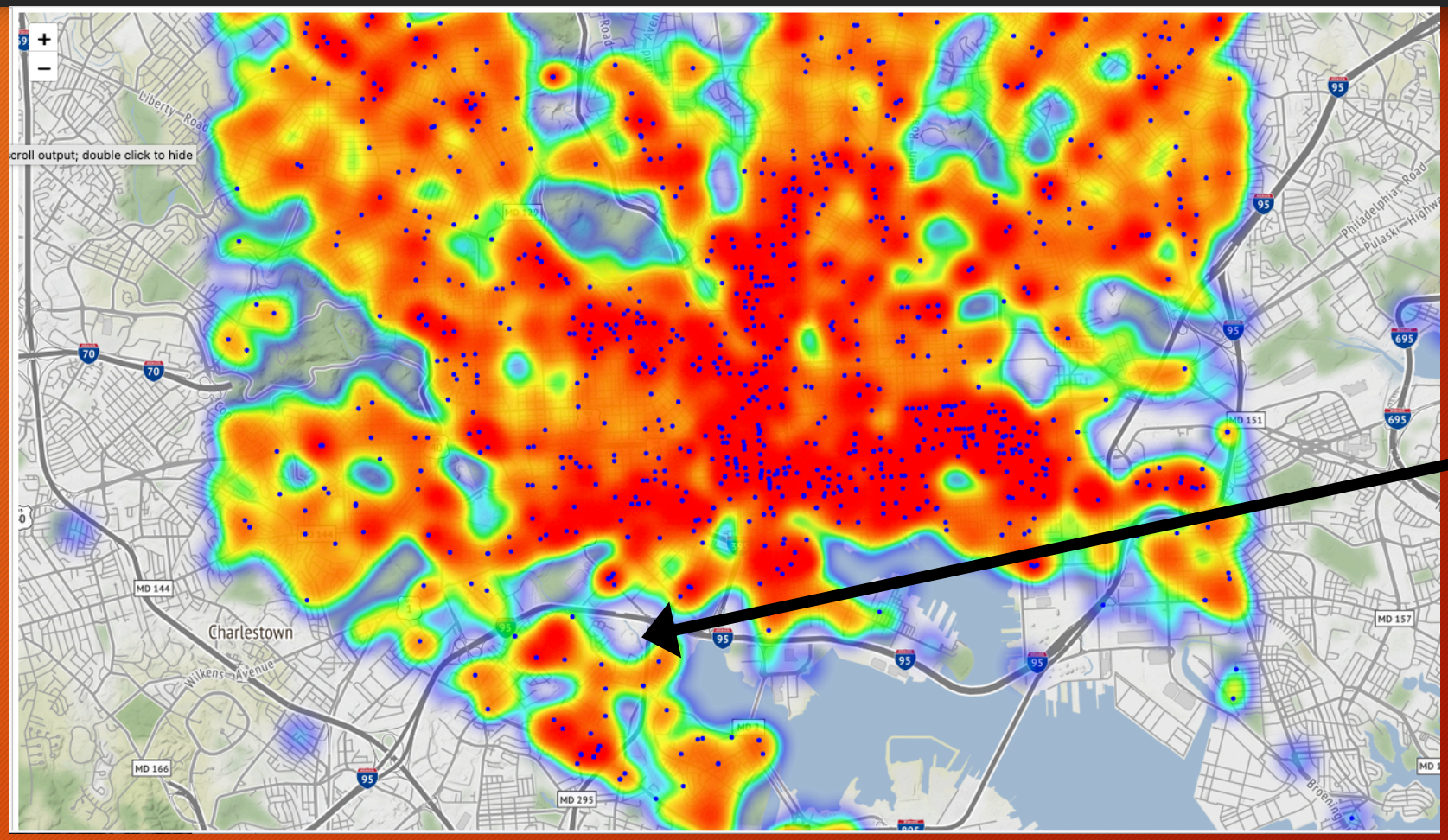
First we count the data by the description category to understand what types of crimes are represented in this data source

In [7]:
```
# Show how many crimes by category
crimedata['Description'].groupby([crimedata.Description]).agg('count')
```

Out[7]:
```
Description
AGG. ASSAULT            30057
ARSON                    1225
AUTO THEFT              24570
BURGLARY                40644
COMMON ASSAULT          45576
HOMICIDE                 1785
LARCENY                 62112
LARCENY FROM AUTO       37024
RAPE                     1738
ROBBERY - CARJACKING     2336
ROBBERY - COMMERCIAL     4965
ROBBERY - RESIDENCE      2802
ROBBERY - STREET        19785
SHOOTING                 3683
Name: Description, dtype: int64
```

Because infodyne is looking for a location where its company and employees can be safe, lets focus on the Commercial Robbery and Street Robbery categories of data

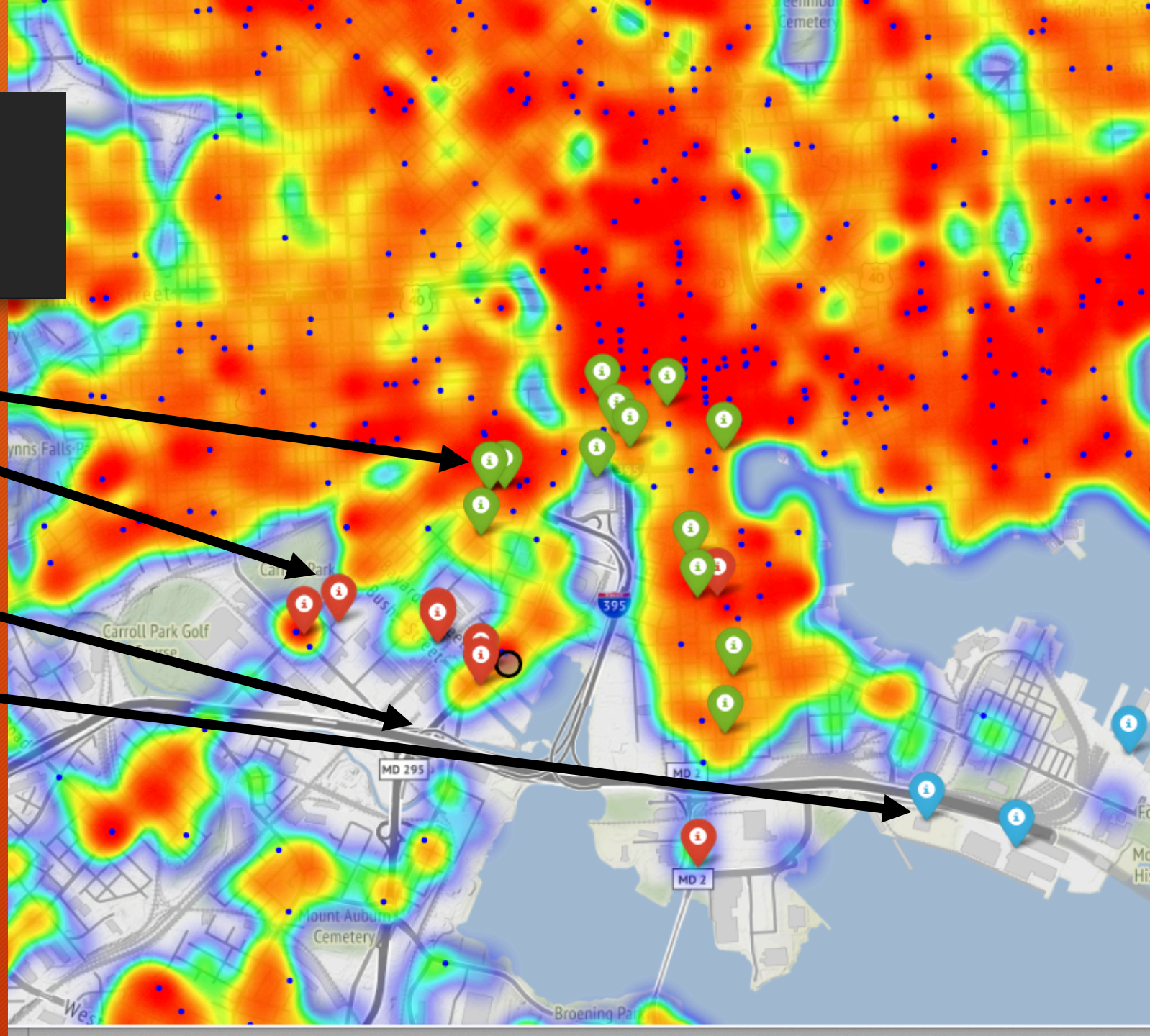
Draw heatmap of Robberies across Baltimore



This area Around the Horseshoe Casino Looks Promising "Lower" robberies

Analyze food, gas, and port facilities

- Food facilites within 1.5km
- Gas facilities within 1.5km
- Easy access to major highways
- Port of Baltimore facilities nearby



Conclusion

- The fictitious InfoDyne Corporate could move its manufacturing operations to the south side of Baltimore.
- Less ”robbery” crime than other areas
- Food and Gas are nearby, but not ideal
- Easy access to highway infrastructure
- Easy access to Port of Baltimore for overseas shipments

Note: Casino distance could be a concern for employees on their lunch hour