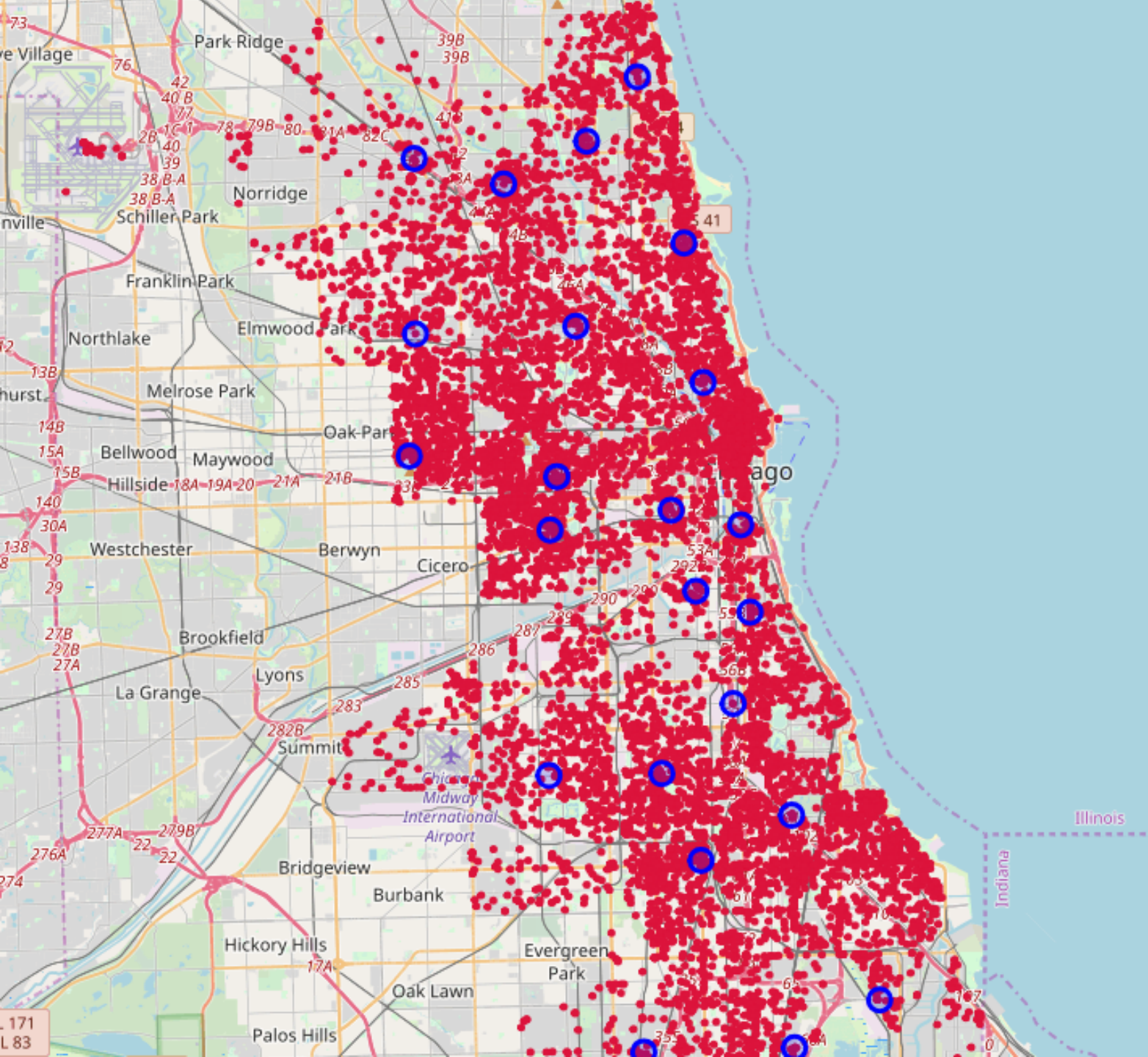


CHICAGO CRIMES

KAMIL KANDZIA

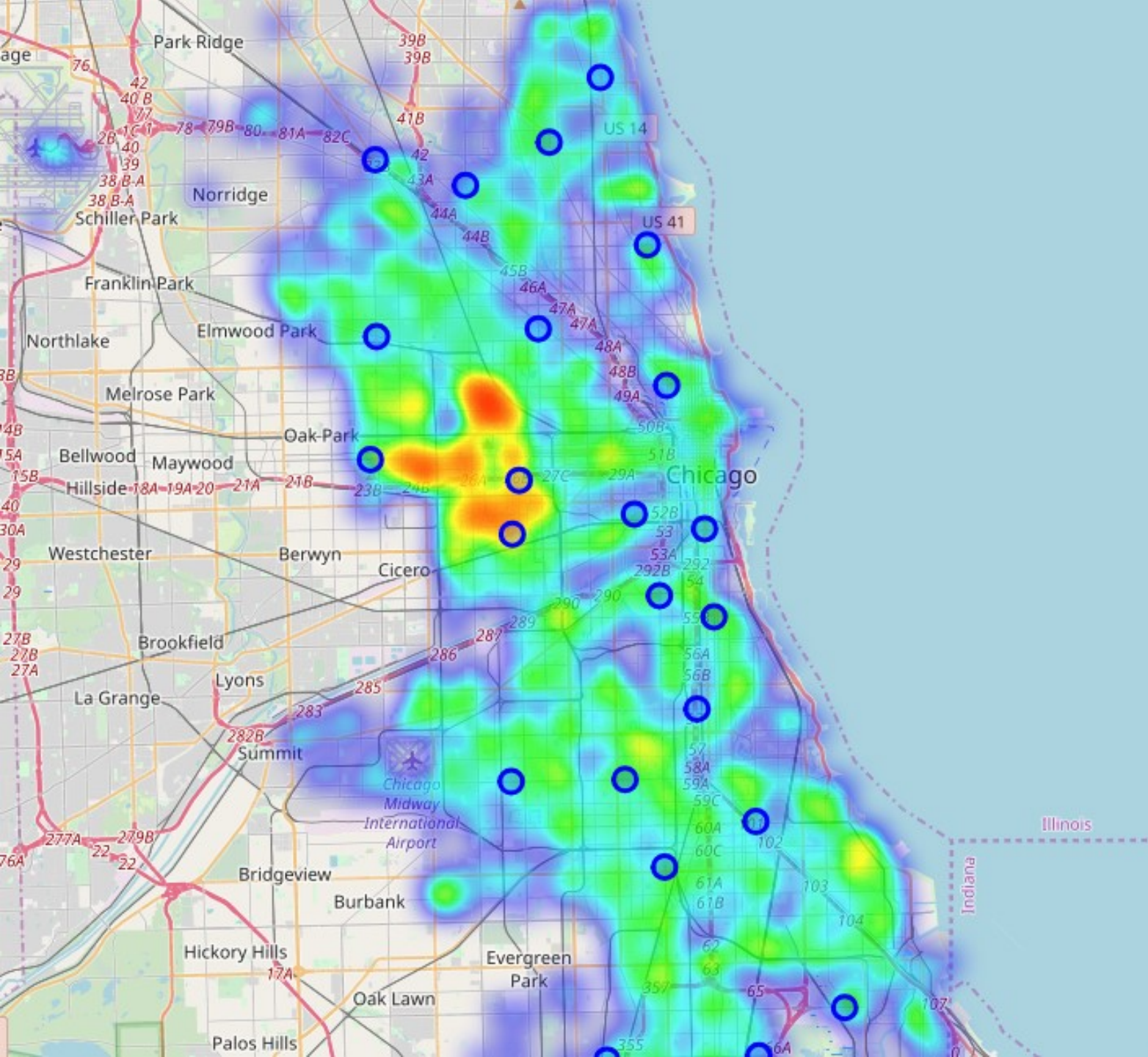


CRIMES IN CHICAGO SCATTER

- Too much data to properly view as scatter points,
- Un-readable

RELOCATE POLICE STATION BY KMEAN

- Take account only 2019 year to be up to date
- Current data: 23 police stations in Chicago (with one headquarter)
- Divide police stations into two types: main and quick response station
- Our goal: get higher ratio of arrested people in criminal reports



NARCOTIC RELATED CRIMES 2018

- Now we can clearly see which area is most problematic

```

> crimes <- read.csv("month_to_crime1.csv")
>
> crimes2019<-crimes[crimes$Year>2018,]
> summary(crimes2019)

```

Year	Crimes.Amount	Arrest	Domestic
Min. :2019	Min. :1	Min. :0.0000	Min. :0.0000
1st Qu.:2019	1st Qu.:1	1st Qu.:0.0000	1st Qu.:0.0000
Median :2019	Median :1	Median :0.0000	Median :0.0000
Mean :2019	Mean :1	Mean :0.2109	Mean :0.1669
3rd Qu.:2019	3rd Qu.:1	3rd Qu.:0.0000	3rd Qu.:0.0000
Max. :2019	Max. :1	Max. :1.0000	Max. :1.0000

Latitude	Longitude	Primary.Type
Min. :36.62	Min. : -91.69	THEFT :51894
1st Qu.:41.77	1st Qu.: -87.71	BATTERY :42053
Median :41.86	Median : -87.66	CRIMINAL DAMAGE :22723
Mean :41.84	Mean : -87.67	ASSAULT :17608
3rd Qu.:41.90	3rd Qu.: -87.63	DECEPTIVE PRACTICE :14516
Max. :42.02	Max. : -87.52	OTHER OFFENSE :14133
NA's :1096	NA's :1096	(Other) :54396

INVESTIGATE
DATASET BY
2019 YEAR

REMOVE NA'S IN
LATITUDE AND
LONGITUDE

REMOVE OUTLIER IN LONGITUDE AND LATITUDE

Year	Crimes.Amount	Arrest	Domestic
Min. :2019	Min. :1	Min. :0.0000	Min. :0.0000
1st Qu.:2019	1st Qu.:1	1st Qu.:0.0000	1st Qu.:0.0000
Median :2019	Median :1	Median :0.0000	Median :0.0000
Mean :2019	Mean :1	Mean :0.2119	Mean :0.1677
3rd Qu.:2019	3rd Qu.:1	3rd Qu.:0.0000	3rd Qu.:0.0000
Max. :2019	Max. :1	Max. :1.0000	Max. :1.0000

Latitude	Longitude	Primary.Type
Min. :36.62	Min. : -91.69	THEFT :51266
1st Qu.:41.77	1st Qu.: -87.71	BATTERY :42016
Median :41.86	Median : -87.66	CRIMINAL DAMAGE :22654
Mean :41.84	Mean : -87.67	ASSAULT :17591
3rd Qu.:41.90	3rd Qu.: -87.63	DECEPTIVE PRACTICE:14247
Max. :42.02	Max. : -87.52	OTHER OFFENSE :14114
		(Other) :54339

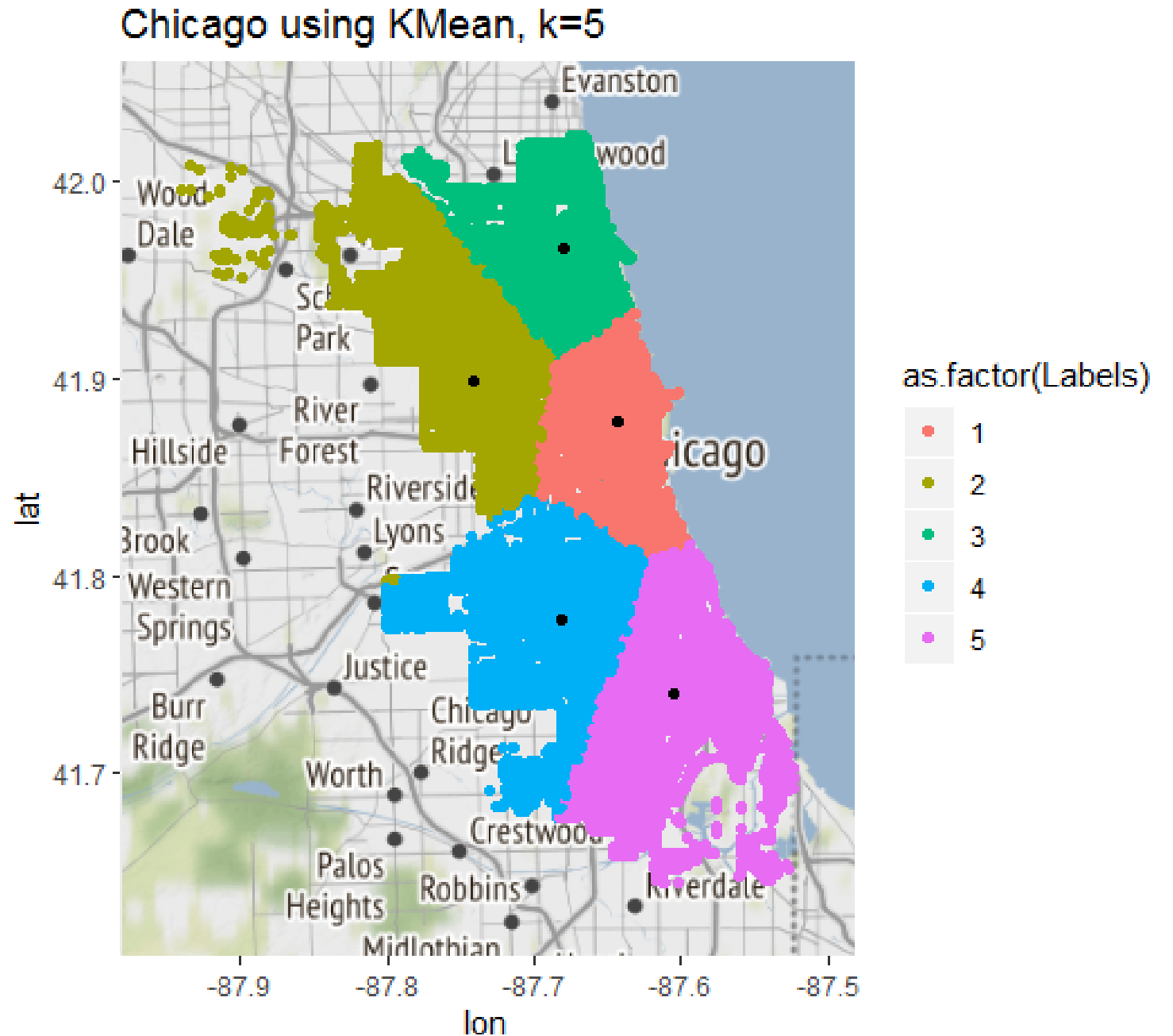
PREPARED DATASET IS READY TO ANALYZE

```
> cleanedcrimes<-cleanedcrimes[cleanedcrimes$Longitude>-91.68,]  
> summary(cleanedcrimes)
```

	Year	Crimes.Amount	Arrest	Domestic
Min.	:2019	Min. :1	Min. :0.0000	Min. :0.0000
1st Qu.	:2019	1st Qu.:1	1st Qu.:0.0000	1st Qu.:0.0000
Median	:2019	Median :1	Median :0.0000	Median :0.0000
Mean	:2019	Mean :1	Mean :0.2119	Mean :0.1676
3rd Qu.	:2019	3rd Qu.:1	3rd Qu.:0.0000	3rd Qu.:0.0000
Max.	:2019	Max. :1	Max. :1.0000	Max. :1.0000

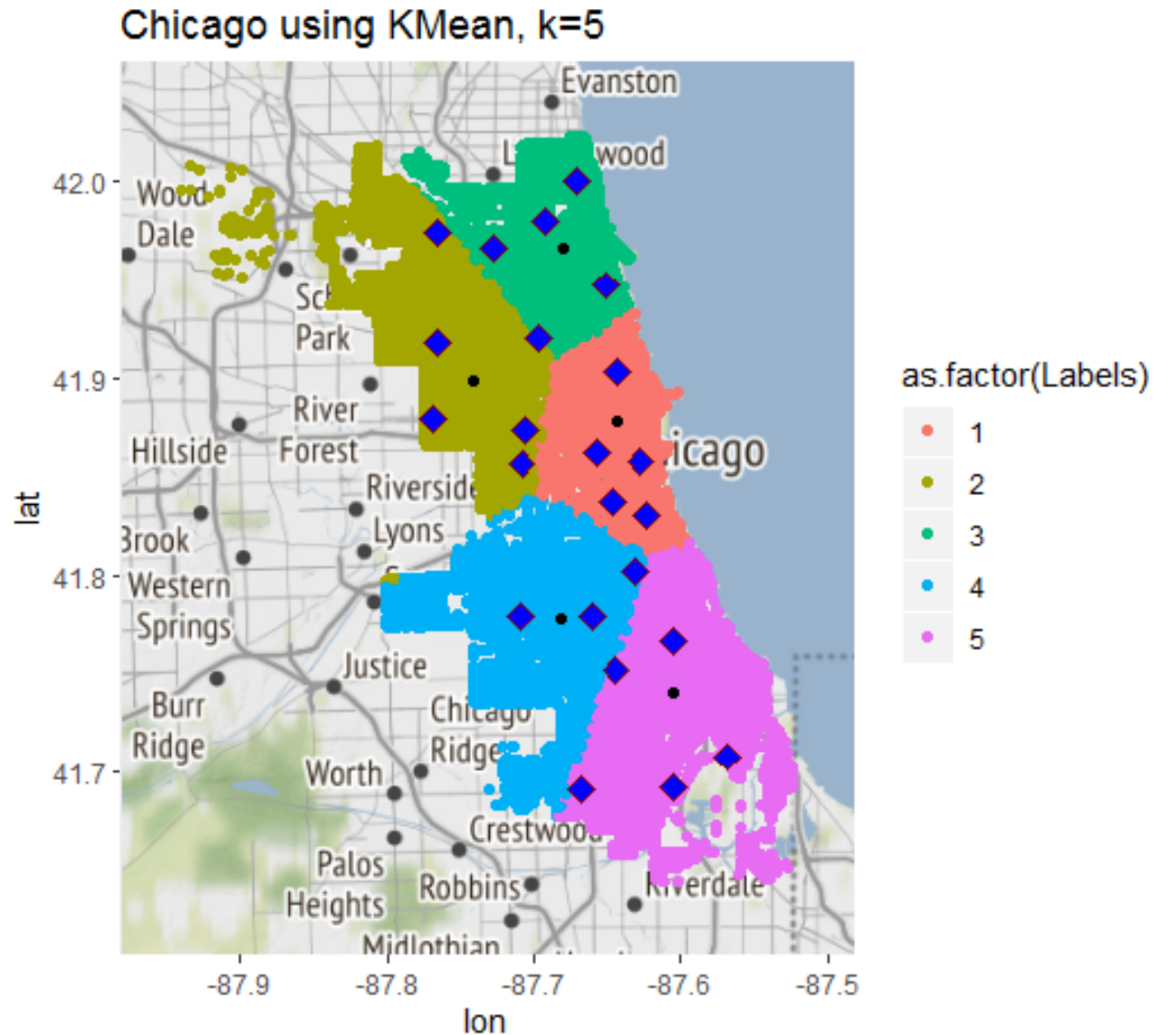
	Latitude	Longitude	Primary.Type
Min.	:41.64	Min. : -87.94	THEFT :51266
1st Qu.	:41.77	1st Qu.: -87.71	BATTERY :42015
Median	:41.86	Median : -87.66	CRIMINAL DAMAGE :22654
Mean	:41.84	Mean : -87.67	ASSAULT :17591
3rd Qu.	:41.90	3rd Qu.: -87.63	DECEPTIVE PRACTICE:14247
Max.	:42.02	Max. : -87.52	OTHER OFFENSE :14114
			(Other) :54339

SET 5 MAIN POLICE STATION BASED ON ALL CRIMINAL REPORTS

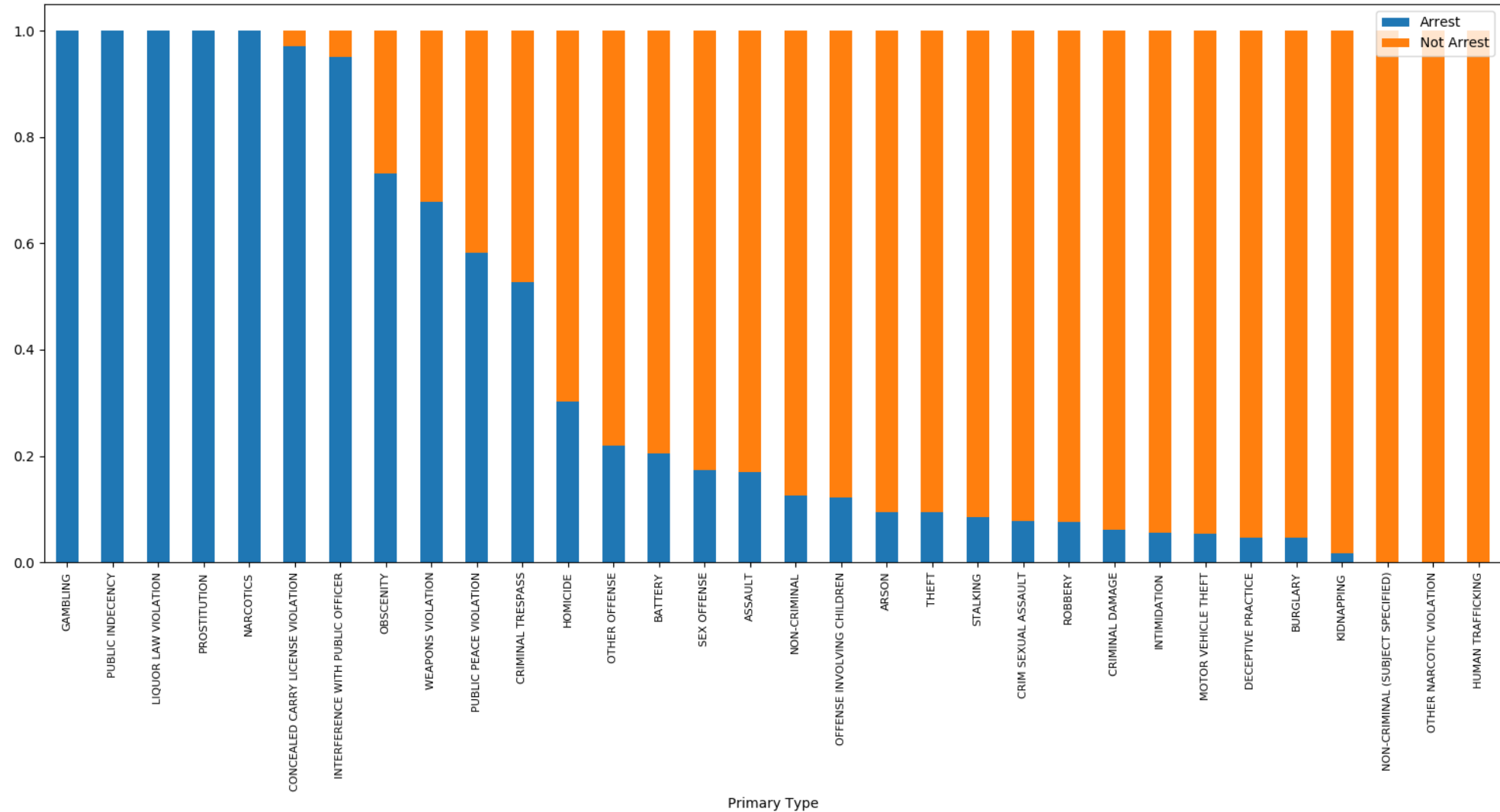


SET 5 MAIN POLICE
STATIONS BASED
ON ALL CRIMINAL
REPORTS

BLUE DIAMONDS:
CURRENT POLICE
STATIONS



NORMALIZATION OF DATASET BY PRIMARY TYPE



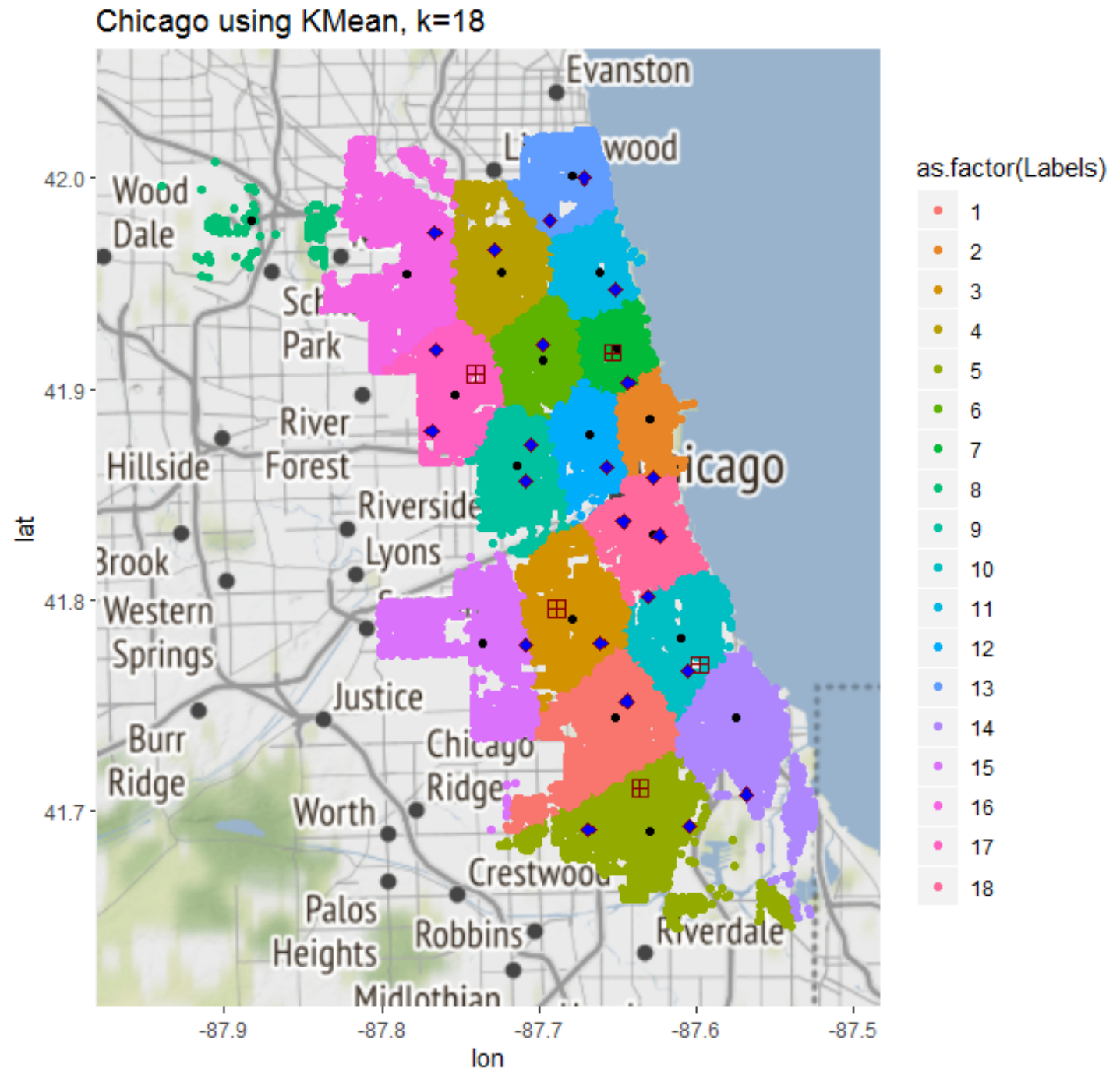
TAKE 6 PRIMARY
TYPE WITH THE
LOWEST RATIO
(WITH CRIMES
AMOUNT>5000)
TO DETERMINE
QUICK RESPONSE
POLICE STATIONS
LOCALIZATION

Year	Primary Type	Crimes Amount	Arrest	Domestic	Ratio [%]
2019	THEFT	51894	5011	1946	9.66
2019	BATTERY	42053	8622	20172	20.50
2019	CRIMINAL DAMAGE	22723	1410	2701	6.21
2019	ASSAULT	17608	3156	4482	17.92
2019	DECEPTIVE PRACTICE	14516	655	116	4.51
2019	OTHER OFFENSE	14133	3125	4471	22.11
2019	NARCOTICS	11758	11750	5	99.93
2019	BURGLARY	7996	410	142	5.13
2019	MOTOR VEHICLE THEFT	7506	406	120	5.41
2019	ROBBERY	6603	530	146	8.03
2019	CRIMINAL TRESPASS	5782	3215	292	55.60
2019	WEAPONS VIOLATION	5372	3598	13	66.98

“WINDOWS” – MAIN
POLICE STATIONS

BLUE DIAMONS –
CURRENT POLICE
STATIONS

BLACK DOT –
CENTROID BY KMEAN



MAKE CHICAGO SAFE AGAIN!