

MADRID TRAFFIC ACCIDENTS EXPLORATORY ANALYSIS

IRONHACK Data Analytics Project

by Elena Salgueiro



WORLD FACTS....

1.35 M

deaths each
year

8 th

leading cause of
death in the
world

#1

cause for death for
children and young
adults 5-29 years of
age



03

IN SPAIN...

ACCIDENTS WITH VICTIMS

44% urban

▲ 22
%

vs - 5% intercity

MORTAL ACCIDENTS

28% urban

▼ 10
%

vs -20% intercity

*Data source: DGT Spain





THE CITY

MADRID

2nd city in Spain with the highest number of city accidents with victims.

Highest traffic density

SOLUTION APPROACH



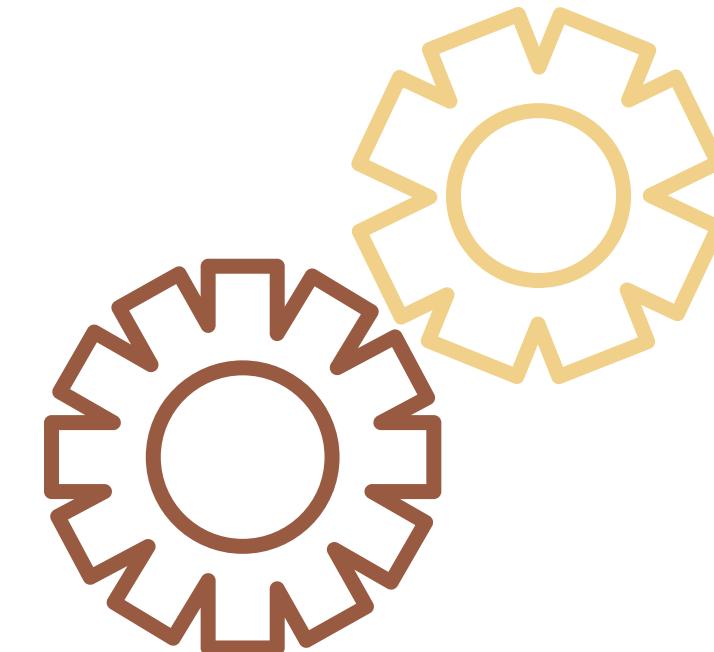
COLLECT & PROCESS DATA

City Council Open Data
DGT



DATA ANALYSIS

Detect patterns and key
drivers of accidents



ACTION PLAN

Key recommendations for
the intervention

DATA

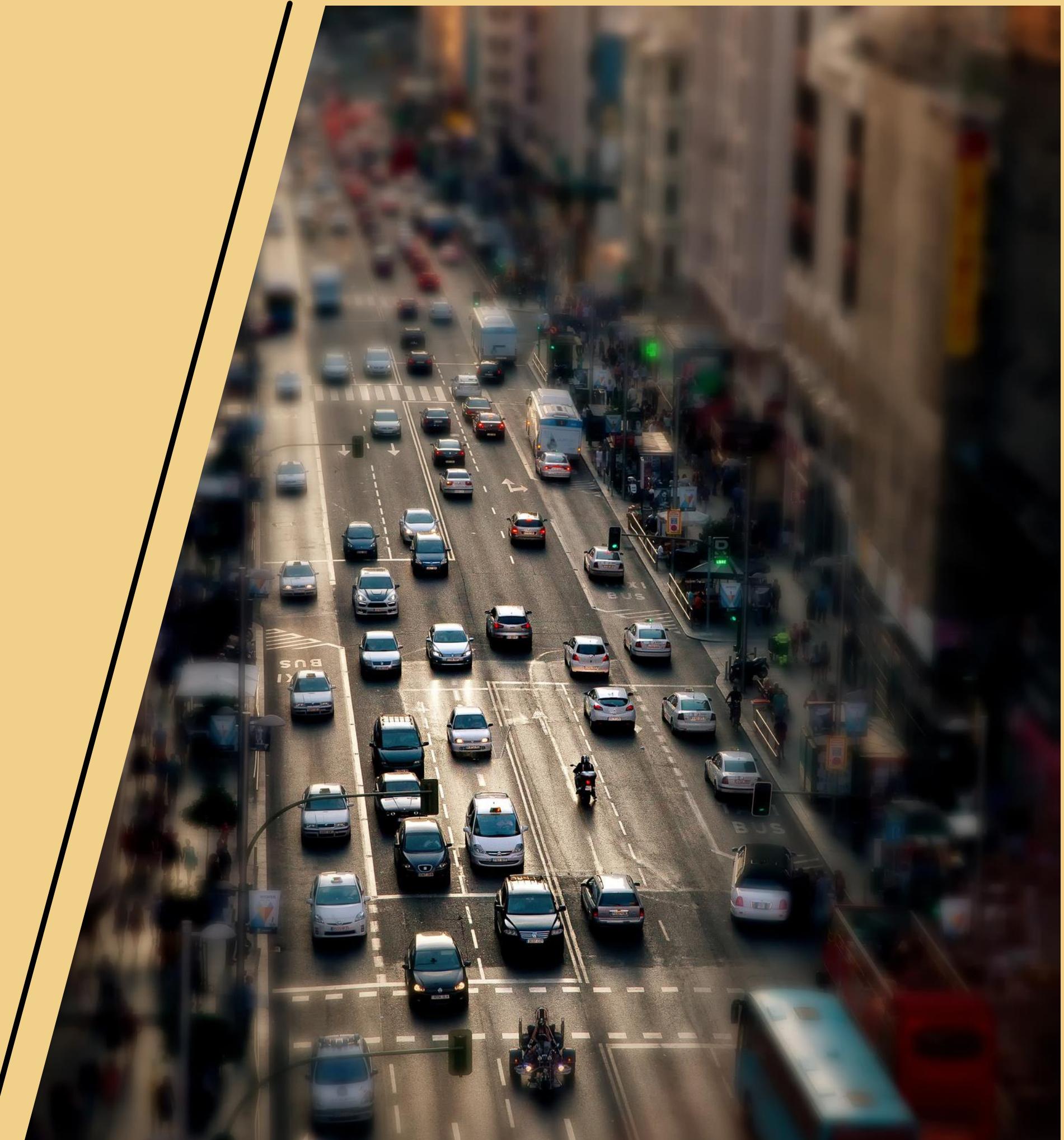


252.998 POLICE RECORDS FROM PEOPLE INVOLVED IN TRAFFIC ACCIDENTS

86.817 ACCIDENTS IN MADRID FROM 2010 TO 2018

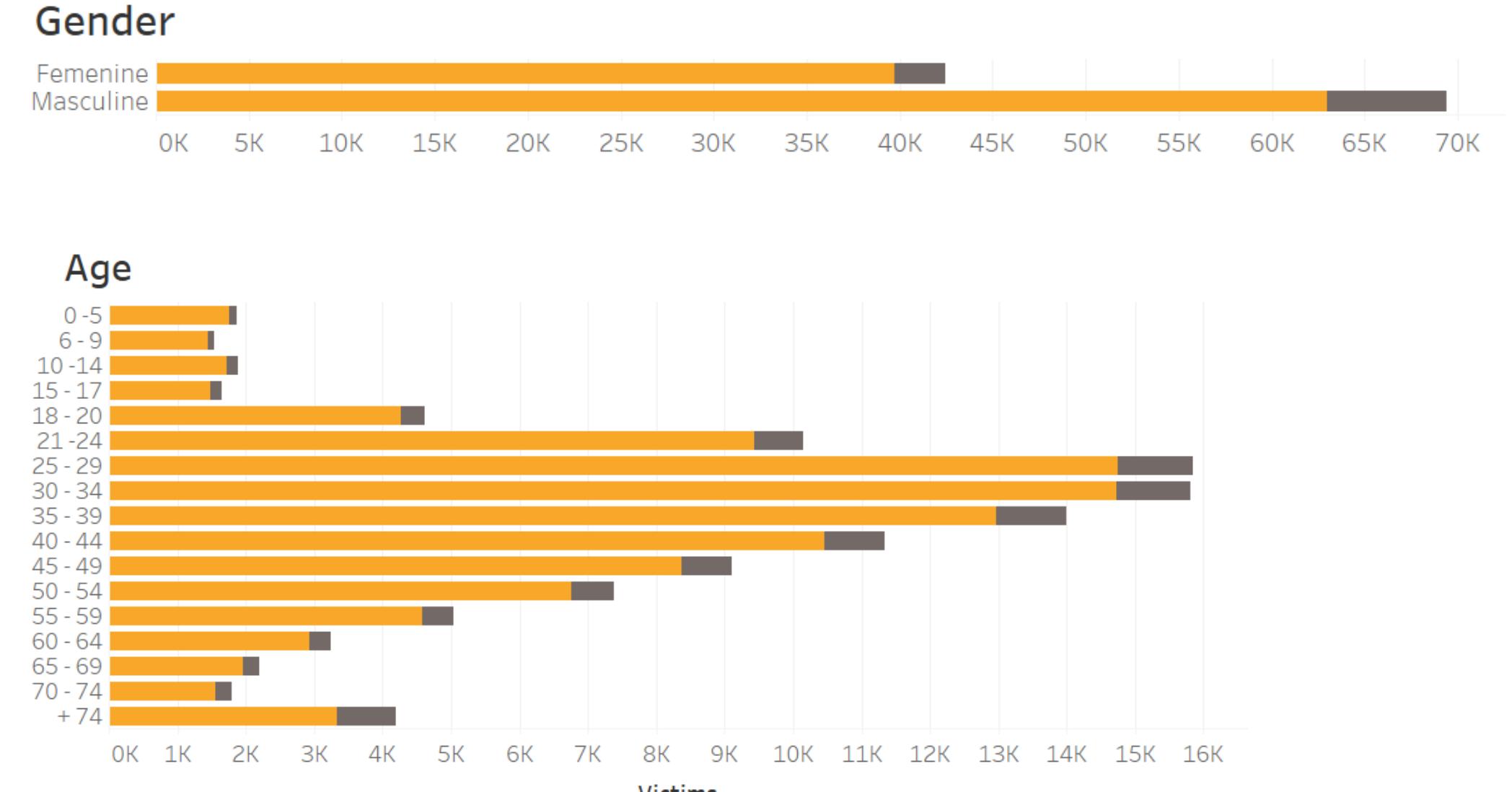
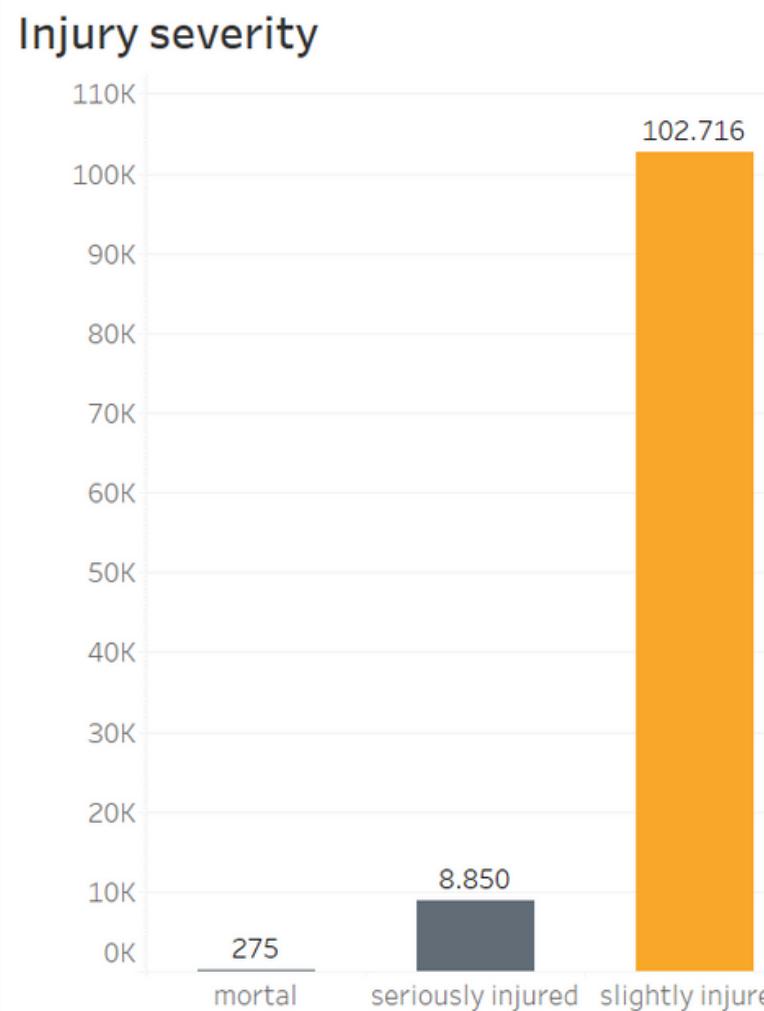
111.841 TOTAL VICTIMS

OVERALL DATA INSIGHTS



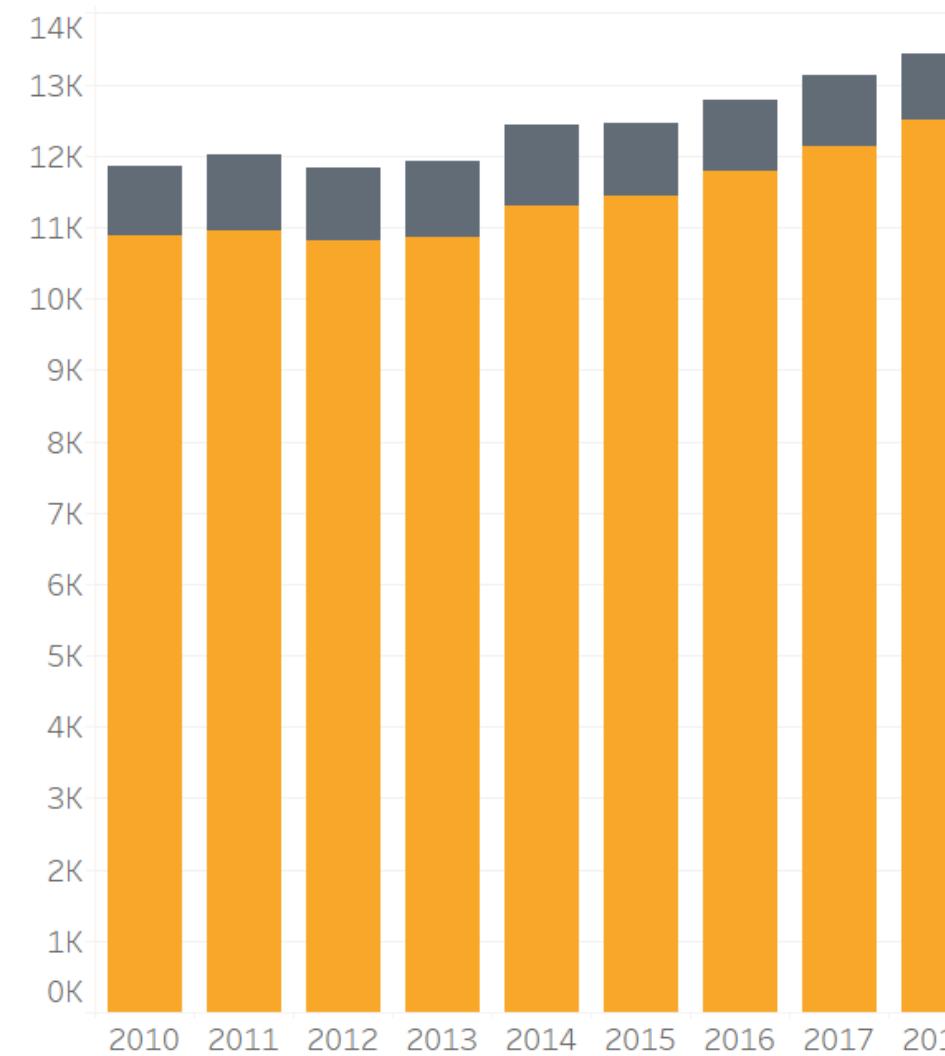
OVERALL DATA

WHO ARE THE VICTIMS?

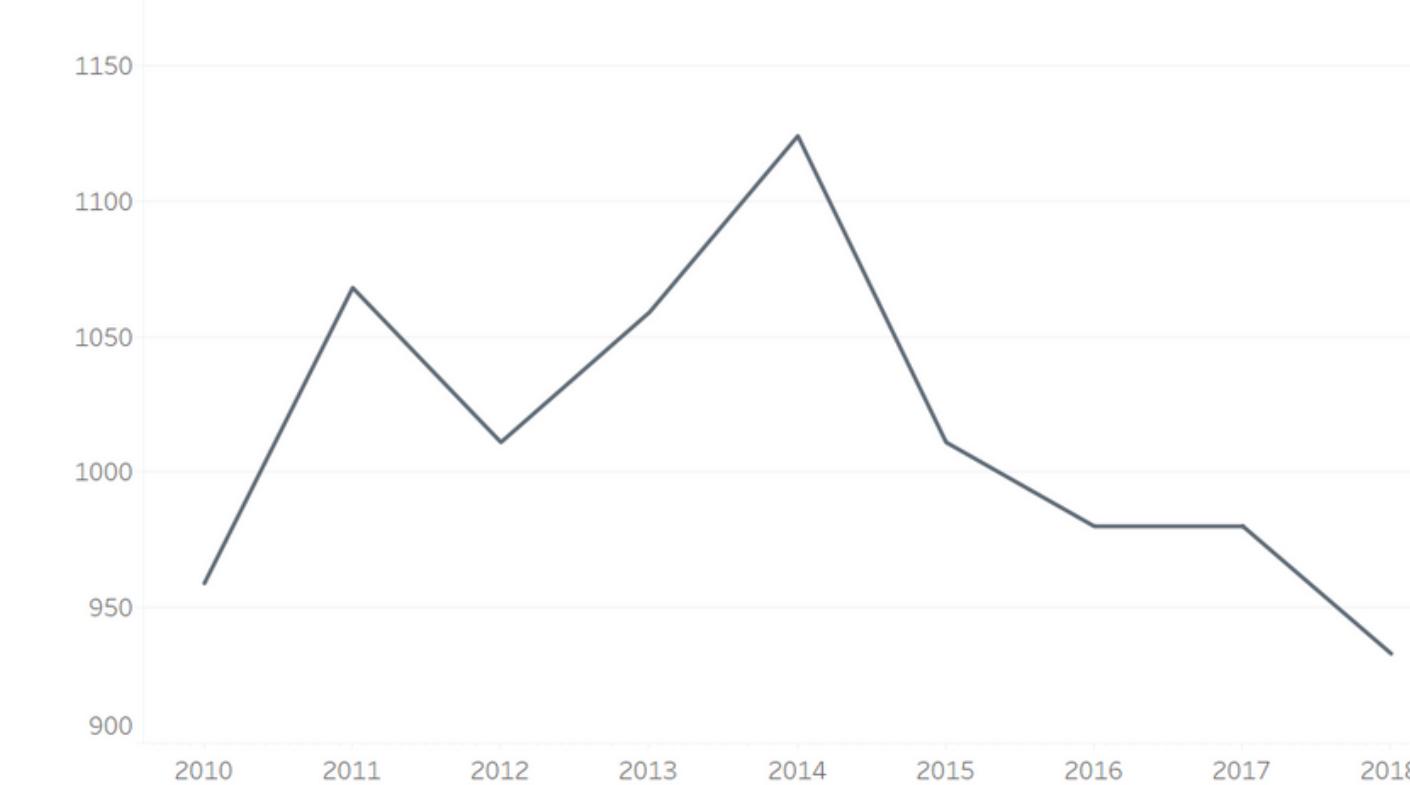


OVERALL DATA TIME EVOLUTION

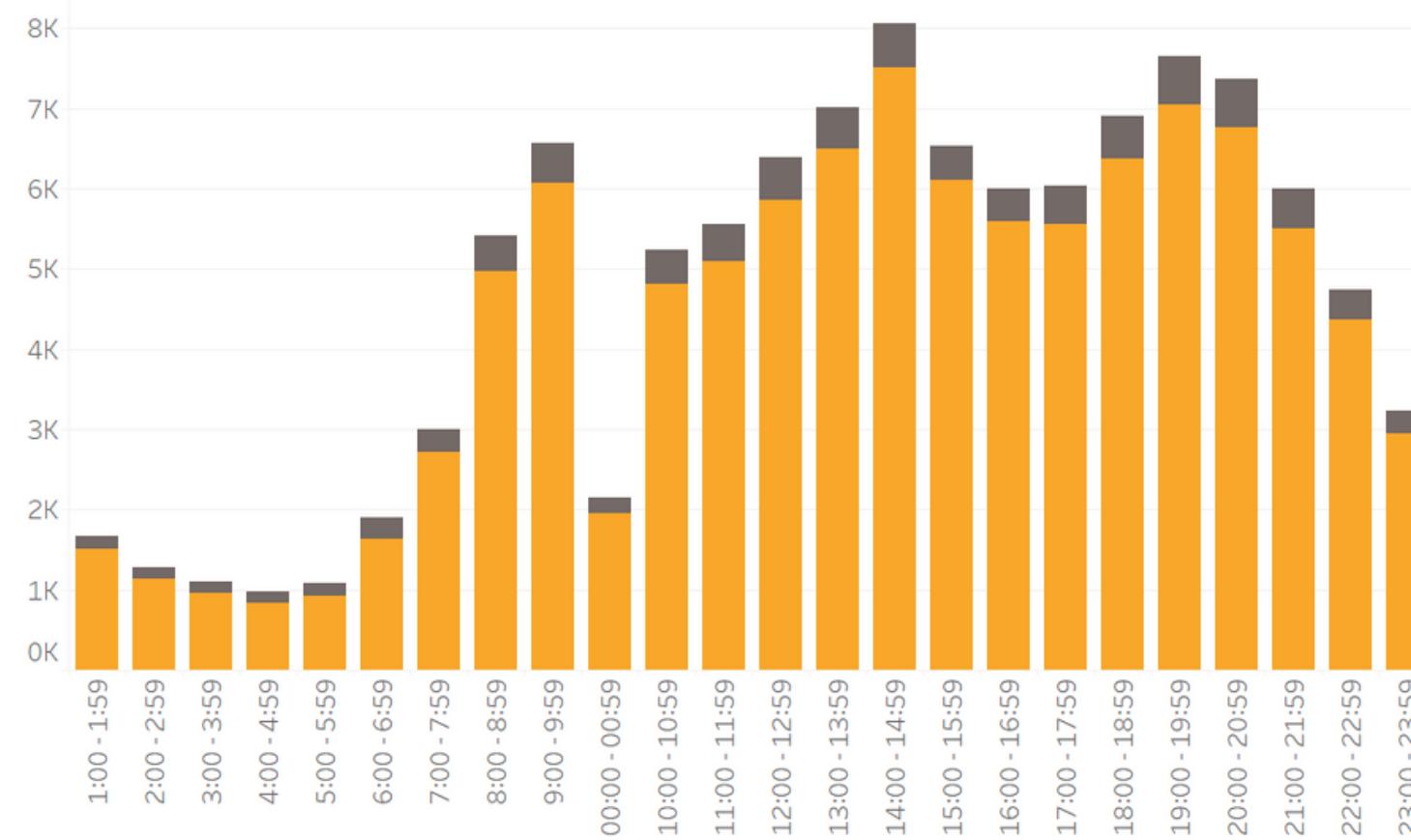
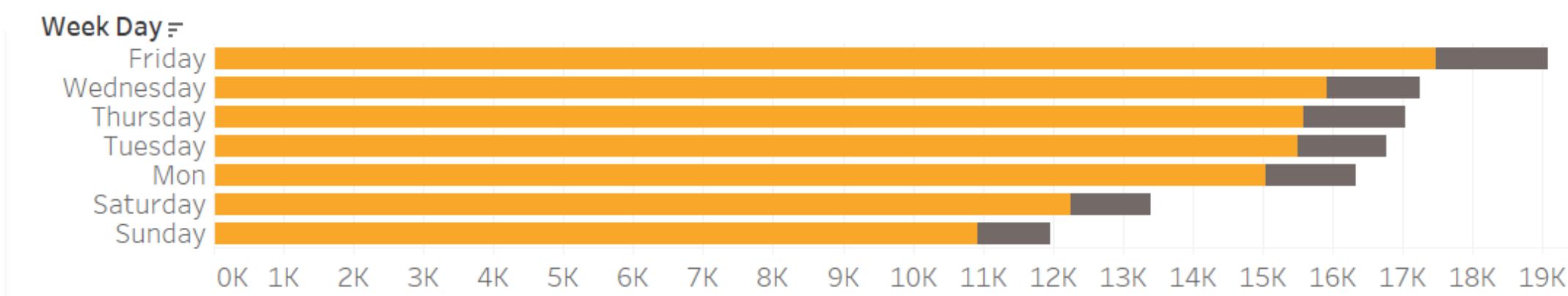
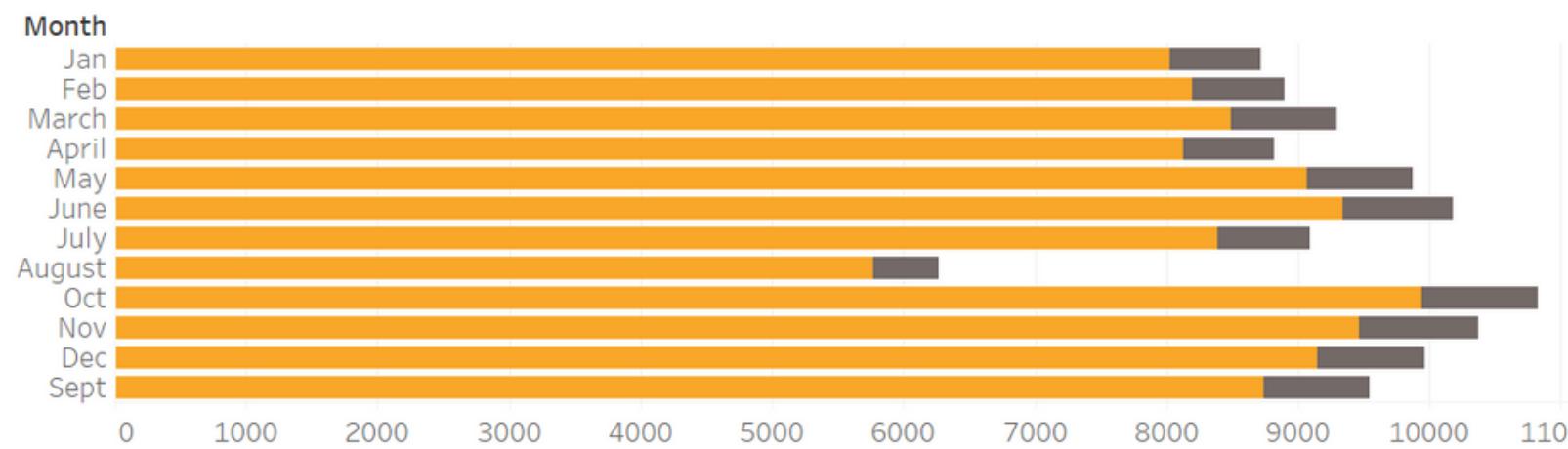
Victims per year



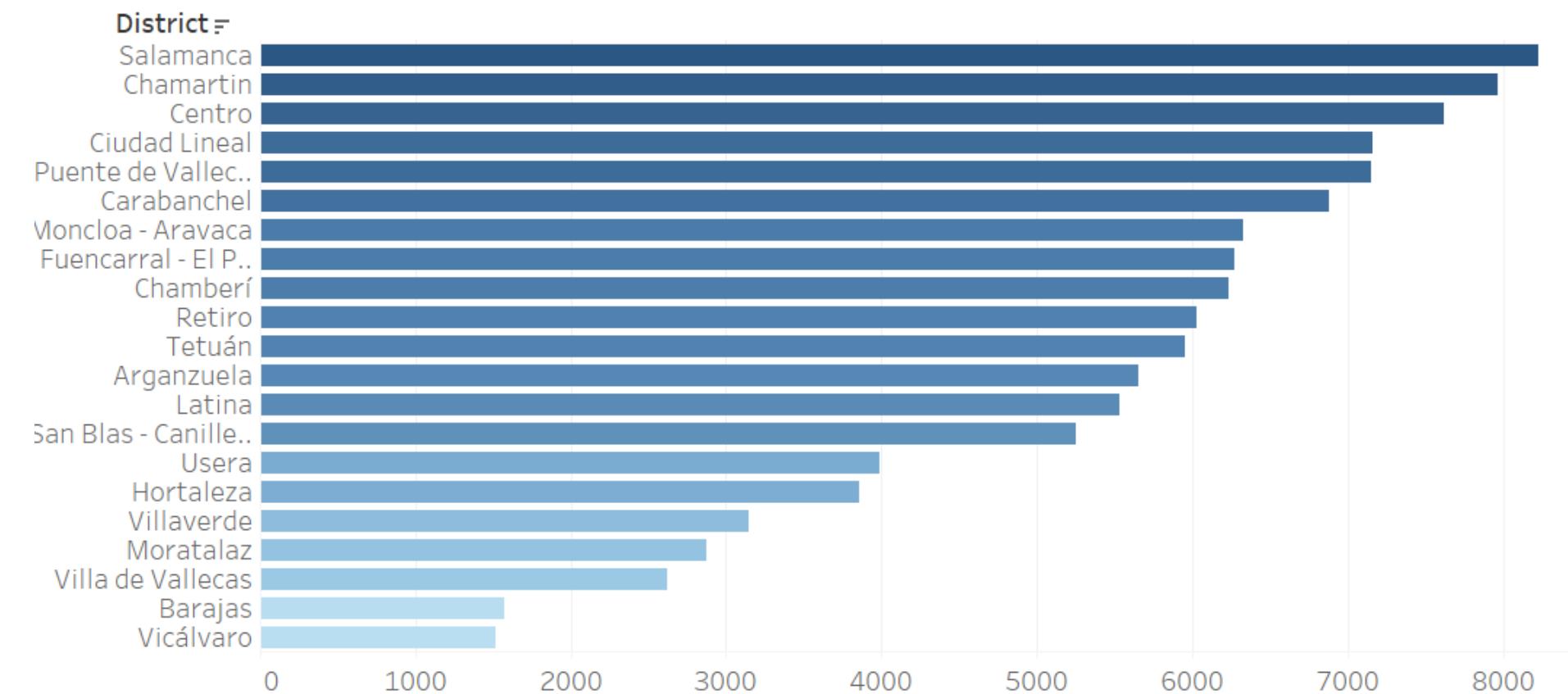
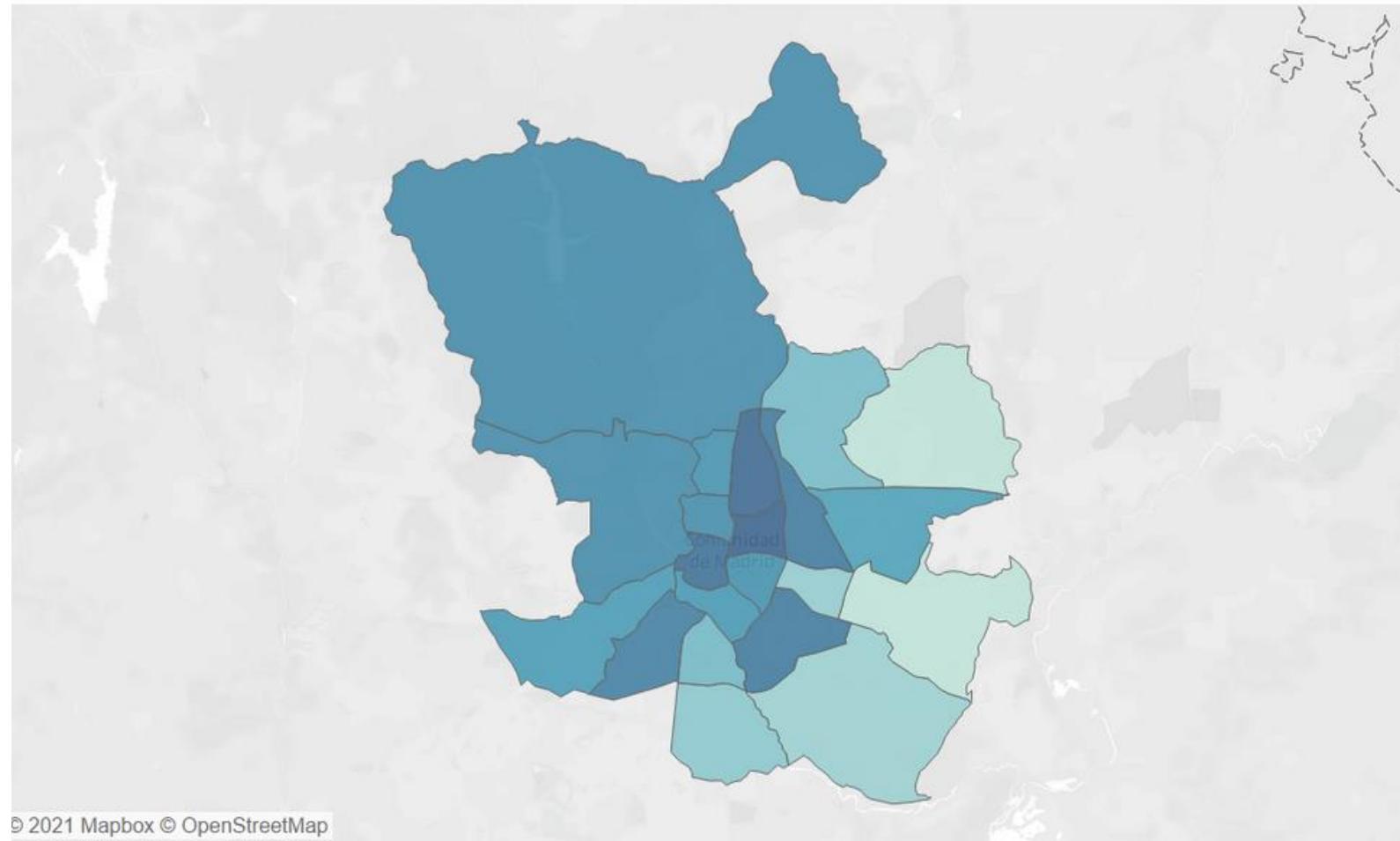
High severity/mortal per year



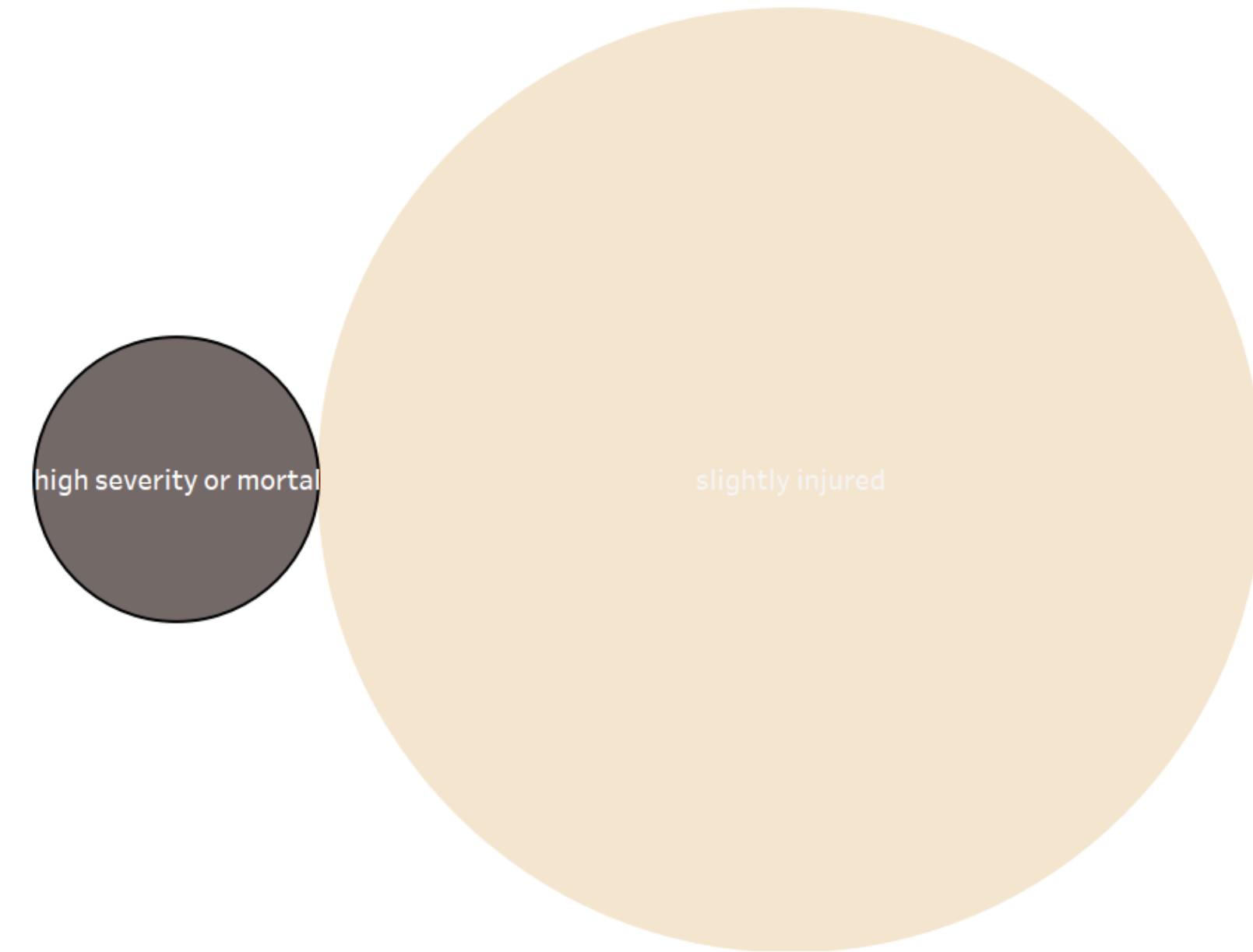
OVERALL DATA WHEN?



OVERALL DATA WHERE?



ANALYSIS FOCUS

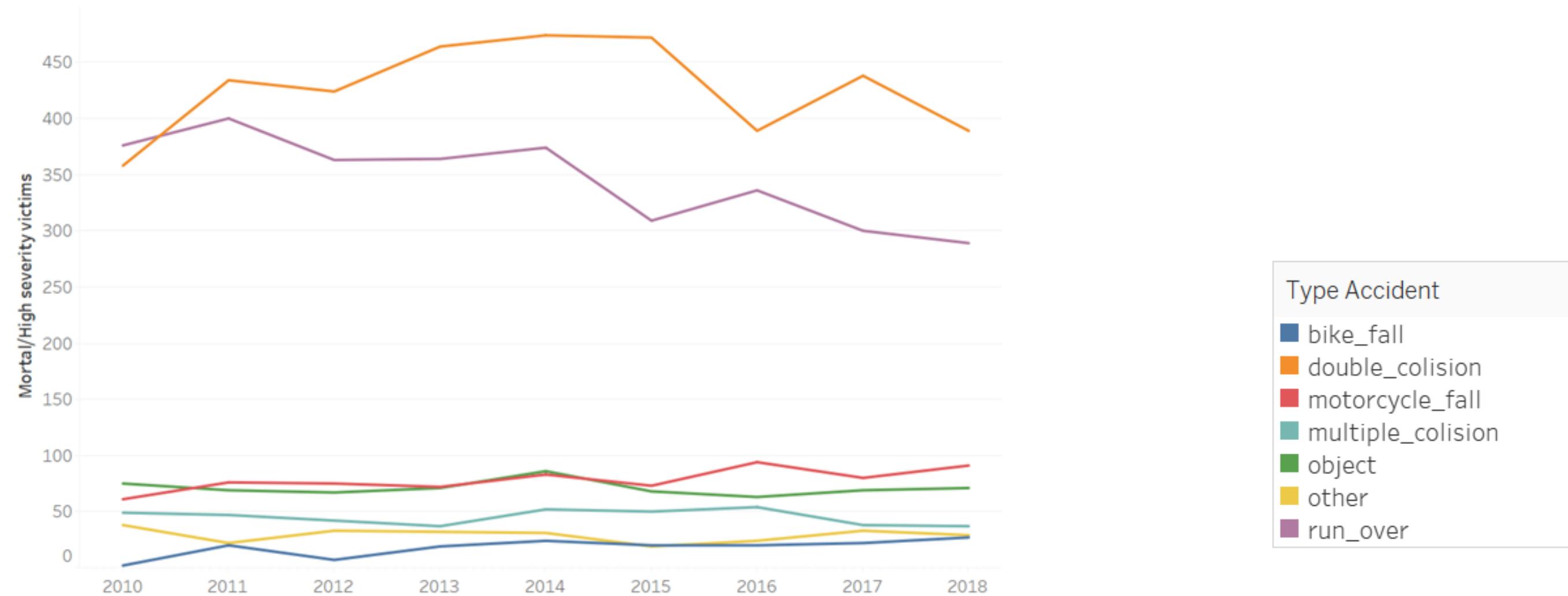


**MORTAL
AND HIGH
SEVERITY**



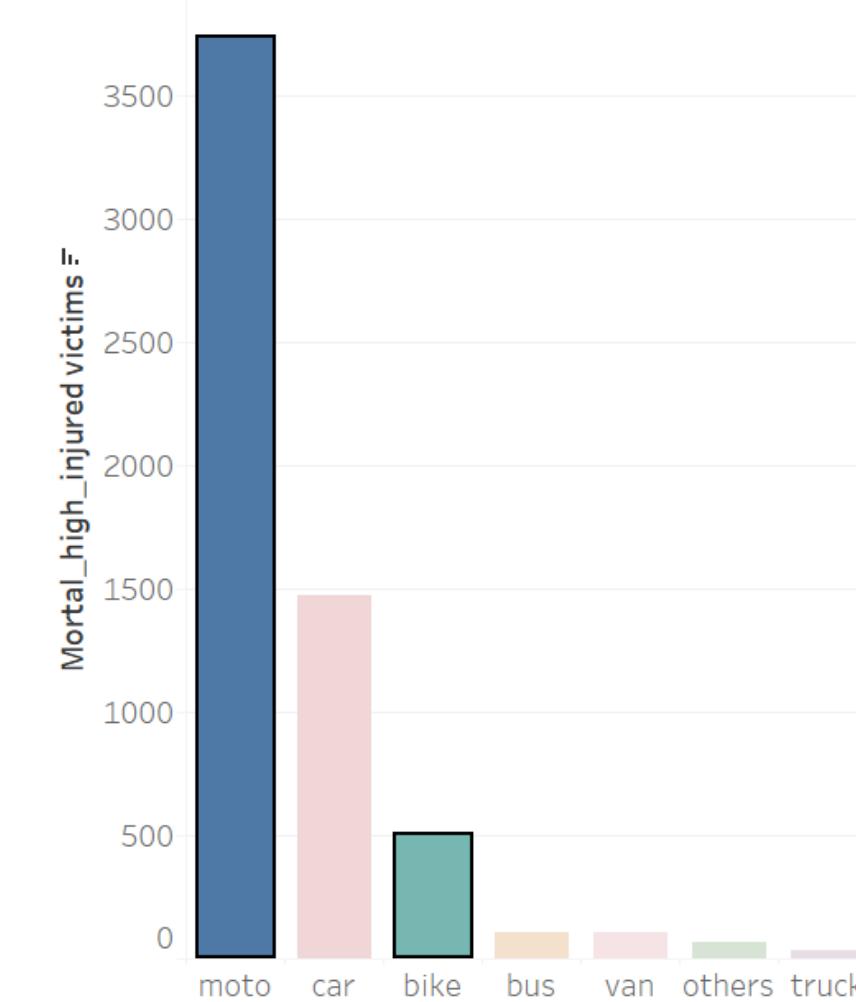
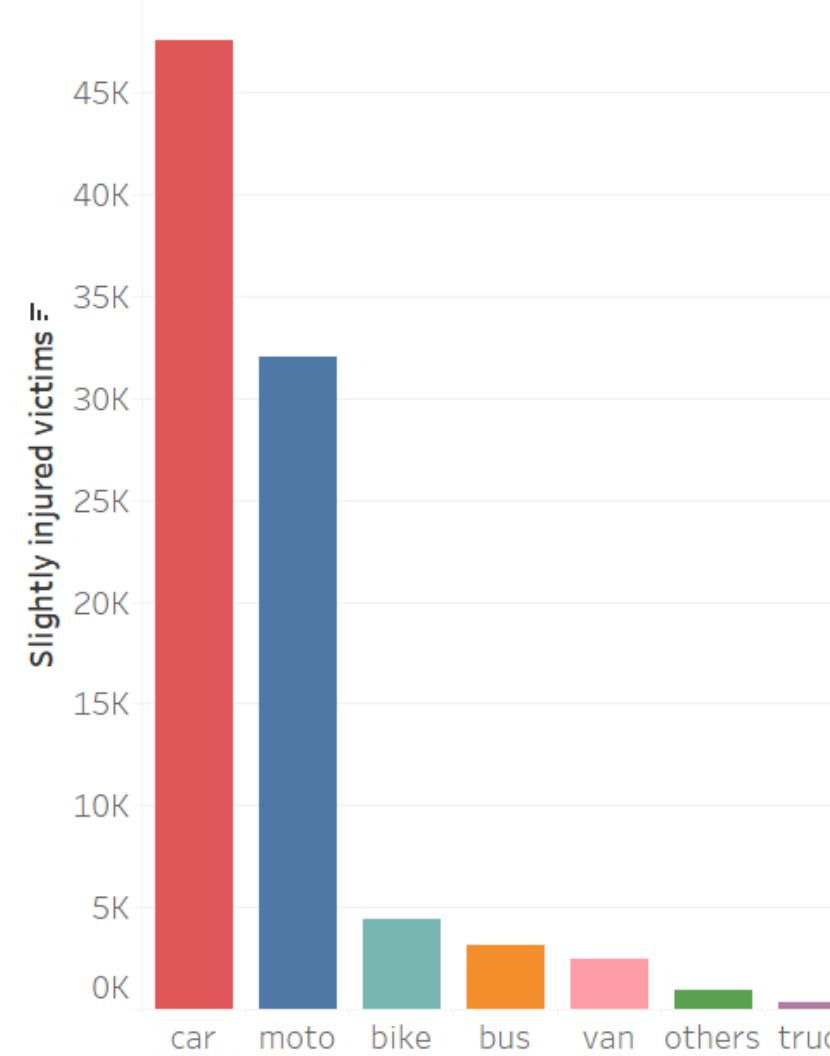
MORTAL AND HIGH SEVERITY

Type of accident

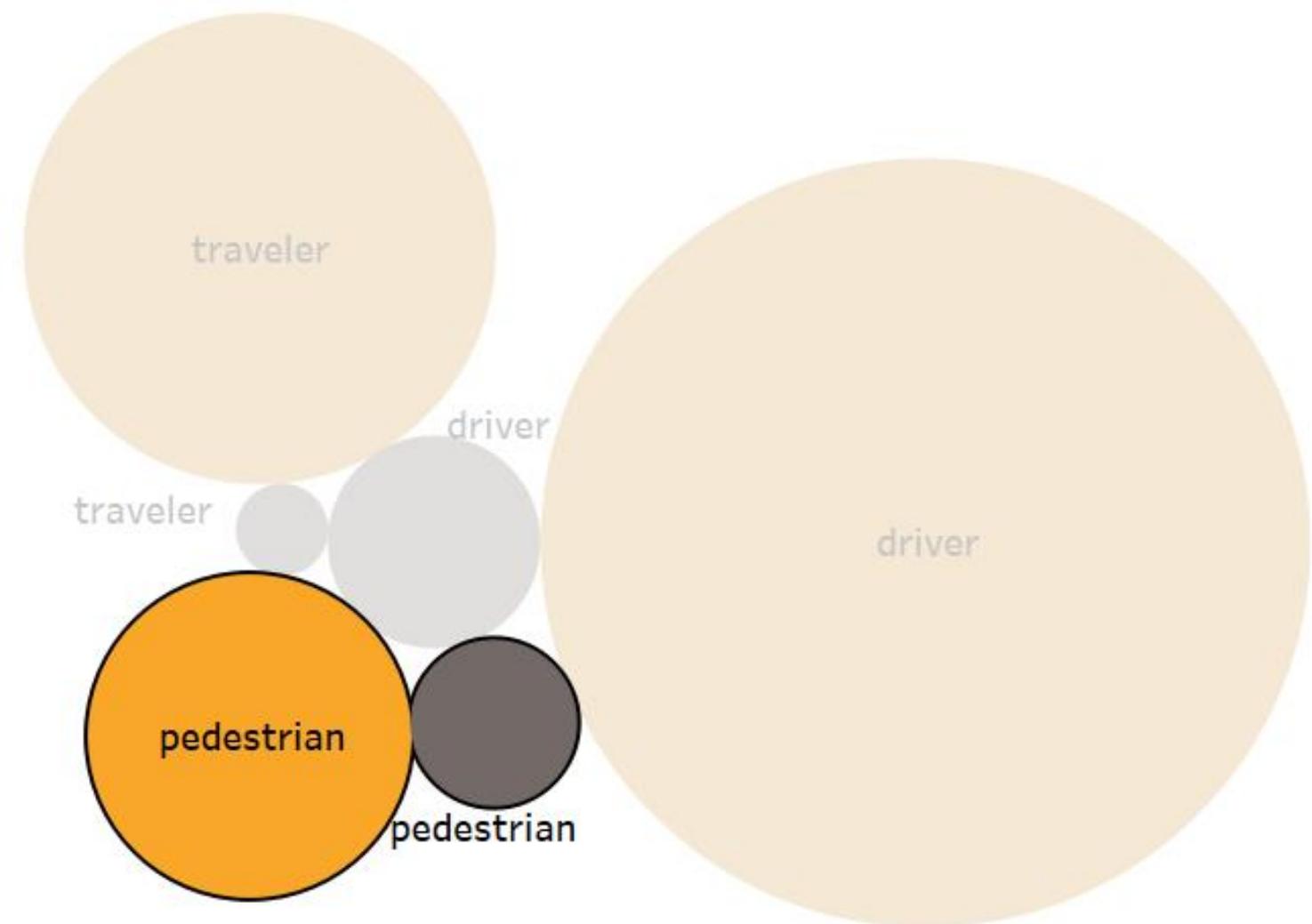


MORTAL AND HIGH SEVERITY

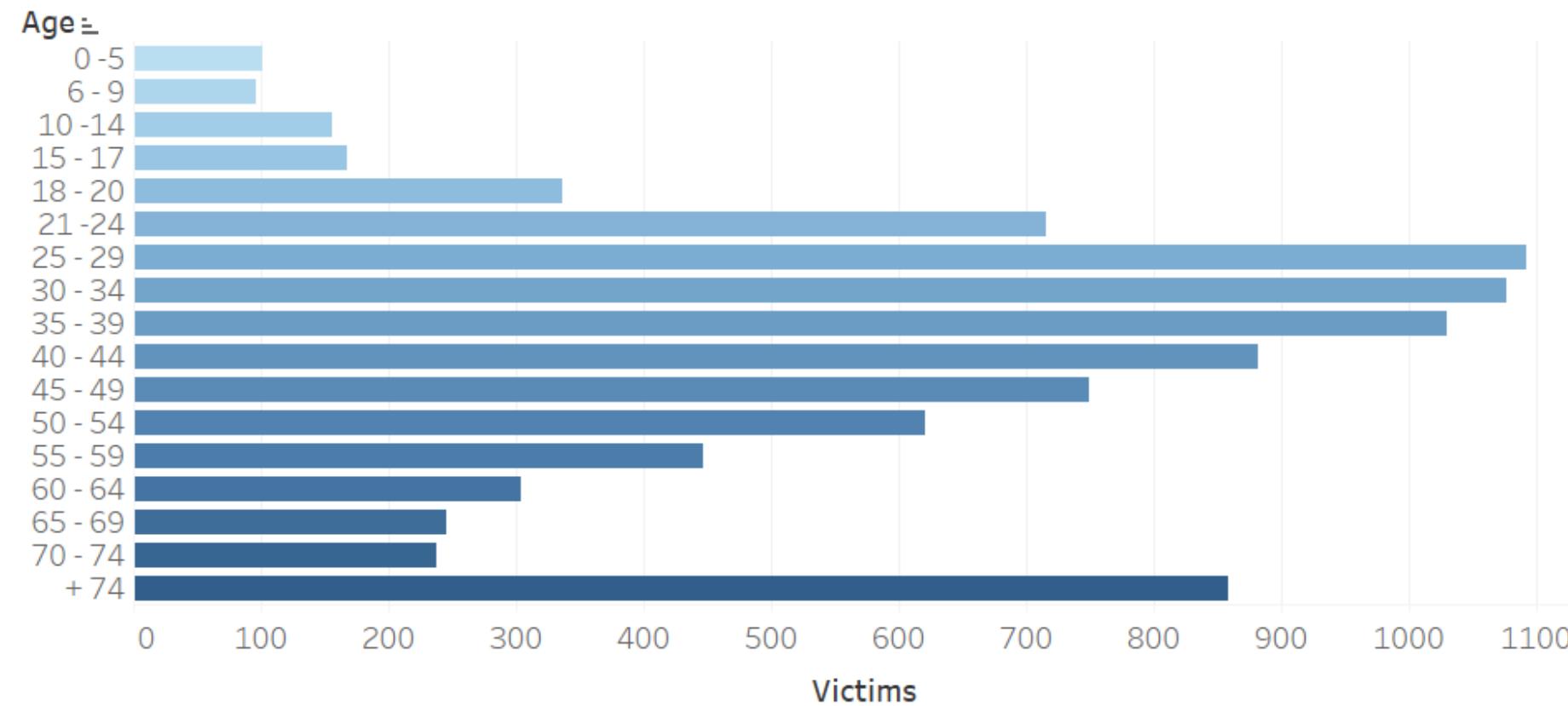
Type of vehicle



MORTAL AND HIGH SEVERITY TYPE OF VICTIM



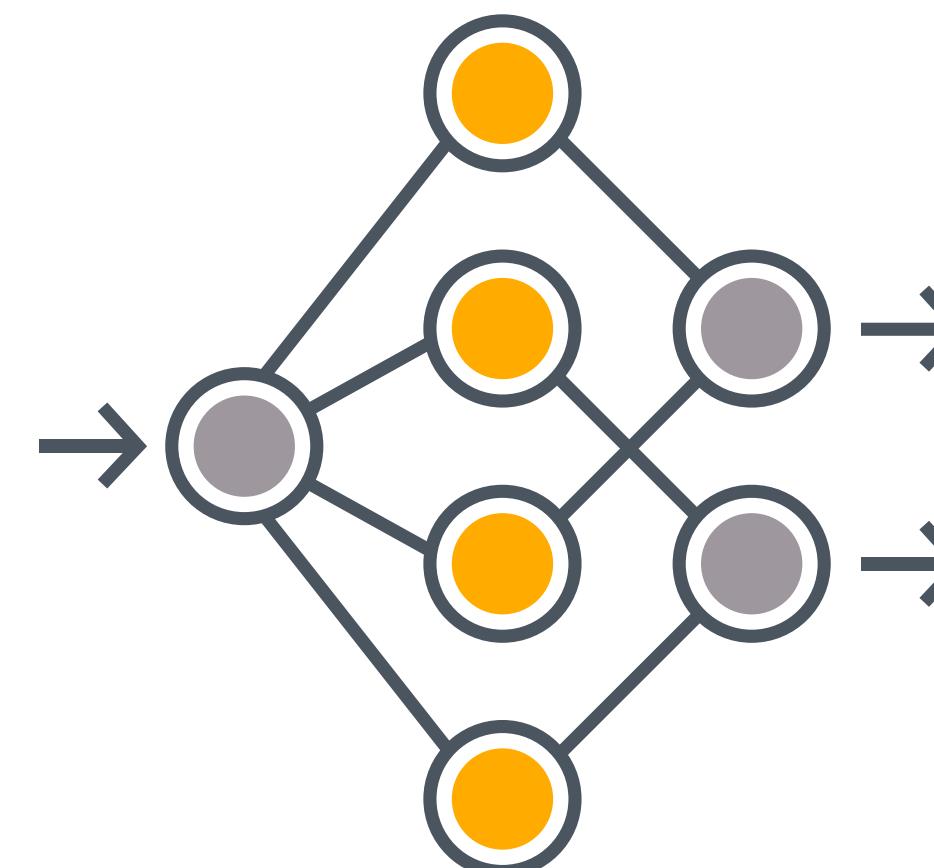
MORTAL AND HIGH SEVERITY PEDESTRIAN RUN OVER



IMPORTANT FEATURES FOR SEVERITY PREDICTION

Classification Model

Severity prediction
103 features



- Car : 28%
- Pedestrian: 15%
- Run_over: 11%
- Moto: 7%

WHERE TO
FOCUS
ON



DOUBLE COLLISION

Most frequent and with the highest cumulated mortal/severity victims.

AGE

25-34 years old
+70 years old pedestrian

MOTO AND BIKE

Vehicles with highest rates of mortal and high severity victims.

RUN OVER

20% of run- over accidents cause deaths or serious injuries.



DISTRICTS

Salamanca

Chamartín

Centro

WEEKDAY

Friday

DAY TIME

2:00-3:00H PM

7:00-9:00H PM

RECOMMENDED ACTIONS FOR PREVENTION





AWARENESS CAMPAIGN FOCUSED ON
VULNERABLE GROUPS

REINFORCE HOSPITAL SERVICES AT RISK
DAY AND TIMES

INCREASE ALERT AND SURVEILLANCE
SIGNALS AT POINTS WITH THE HIGHEST
ACCIDENT CONCENTRATION

Thank you

and drive
safe!