The Effects of a Low Emission Zone (LEZ) on Urban Traffic-Related Emissions in Glasgow City, Scotland

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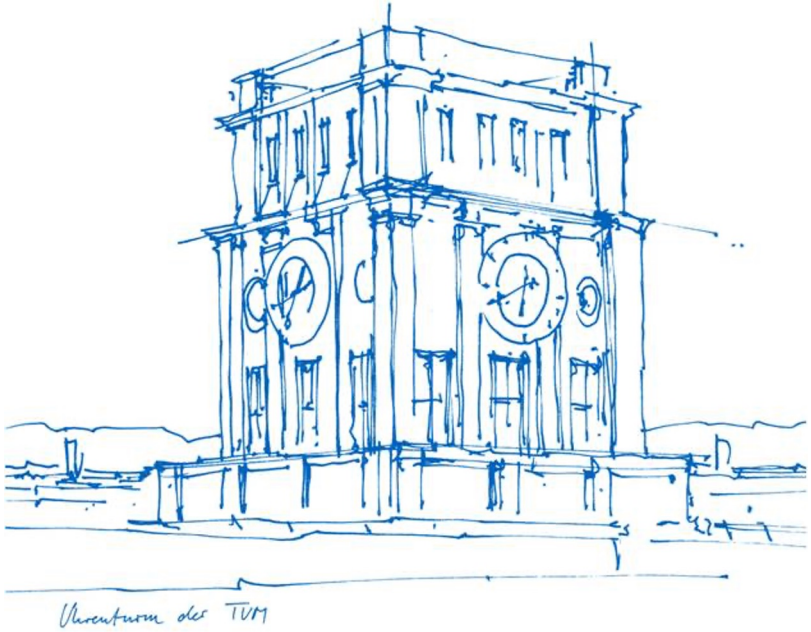
Collabarated with Glasgow University, Scotland

Munich, 24.11.2023

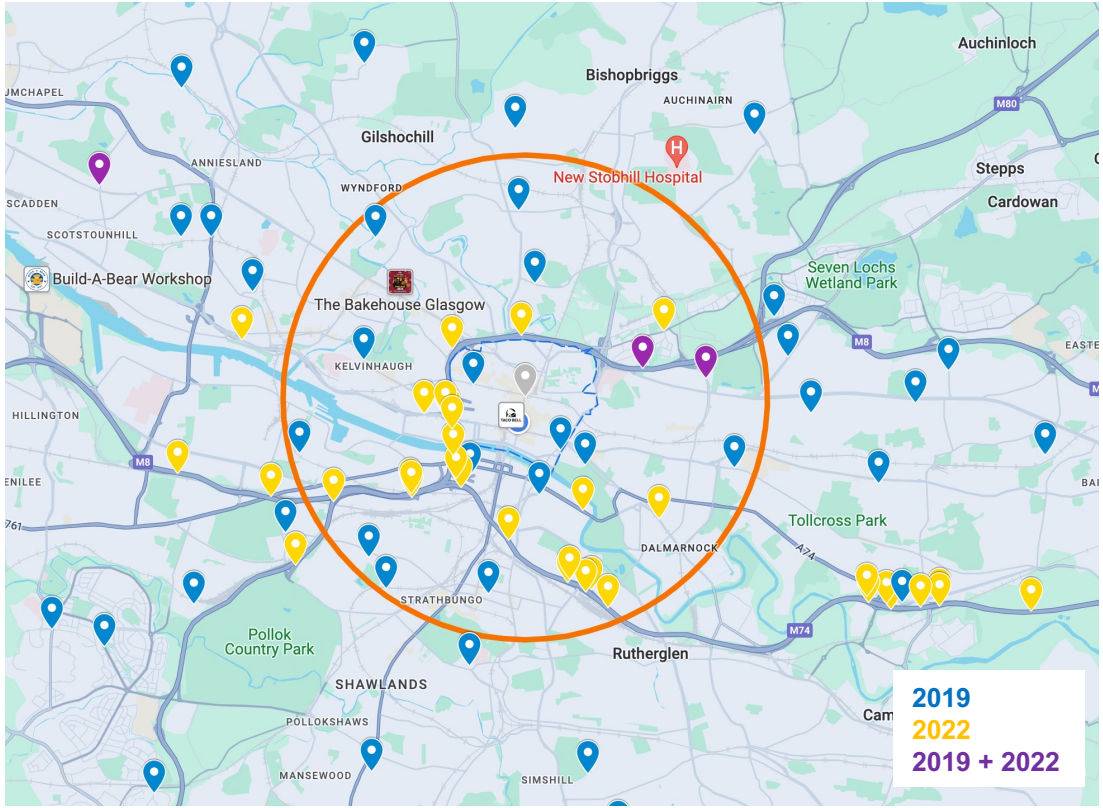


Content

1. Analysis of open source data obtained from Department of Transport, UK (https://roadtraffic.dft.gov.uk/local-authorities/3)

2. Basic Analysis of Collected data

1. Analysis of open source data



2019 and 2022 (Years)

↓

81 Locations

↓

3 km radius

↓

39 Locations

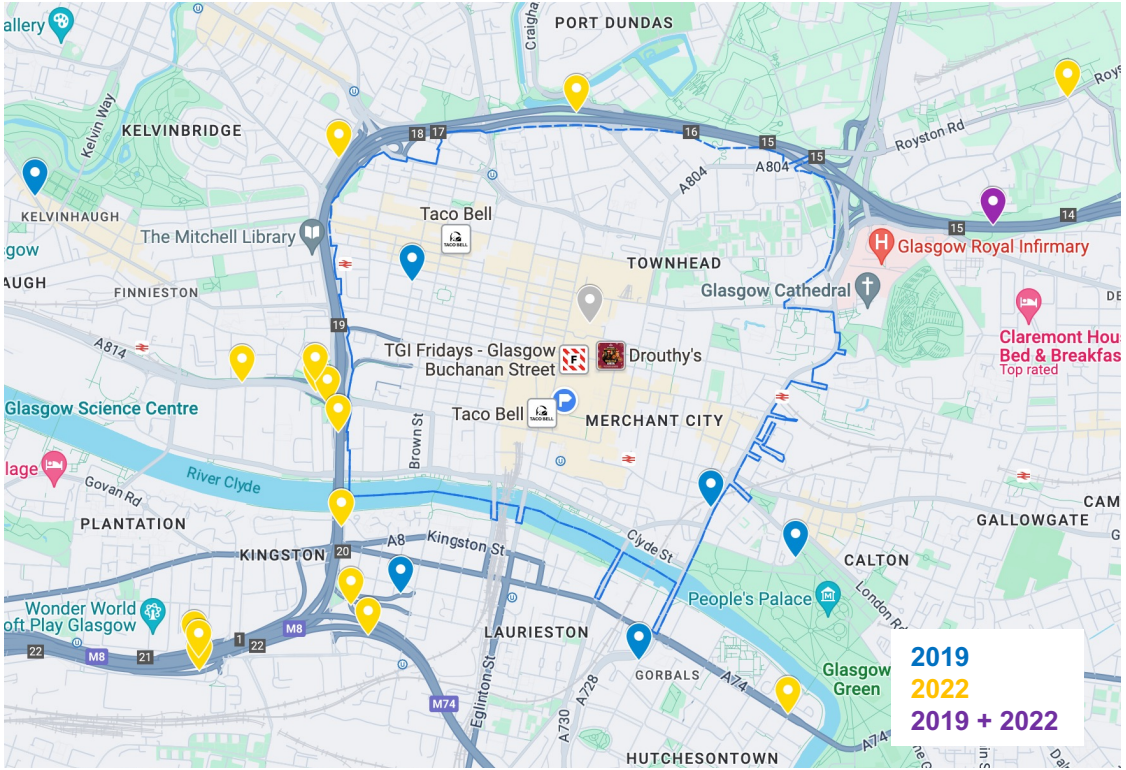
↓

Tuesdays – Thursdays without holidays

↓

19 Locations

1. Analysis of open source data



Inside the LEZ (2 km^2) only 2 locations afetr filteration

↓

Adjacent locations for LEZ boundary

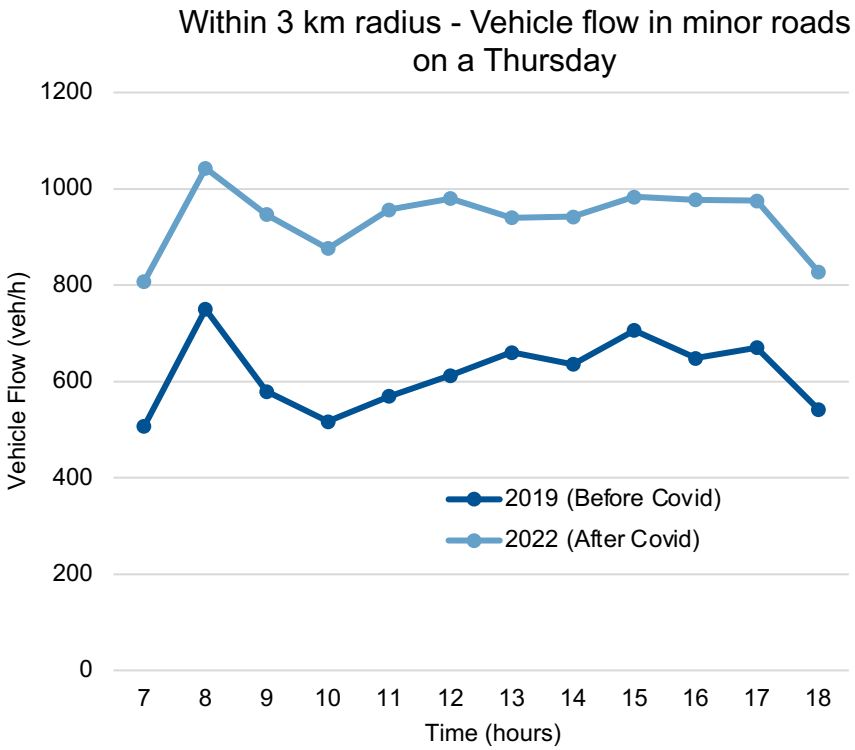
↓

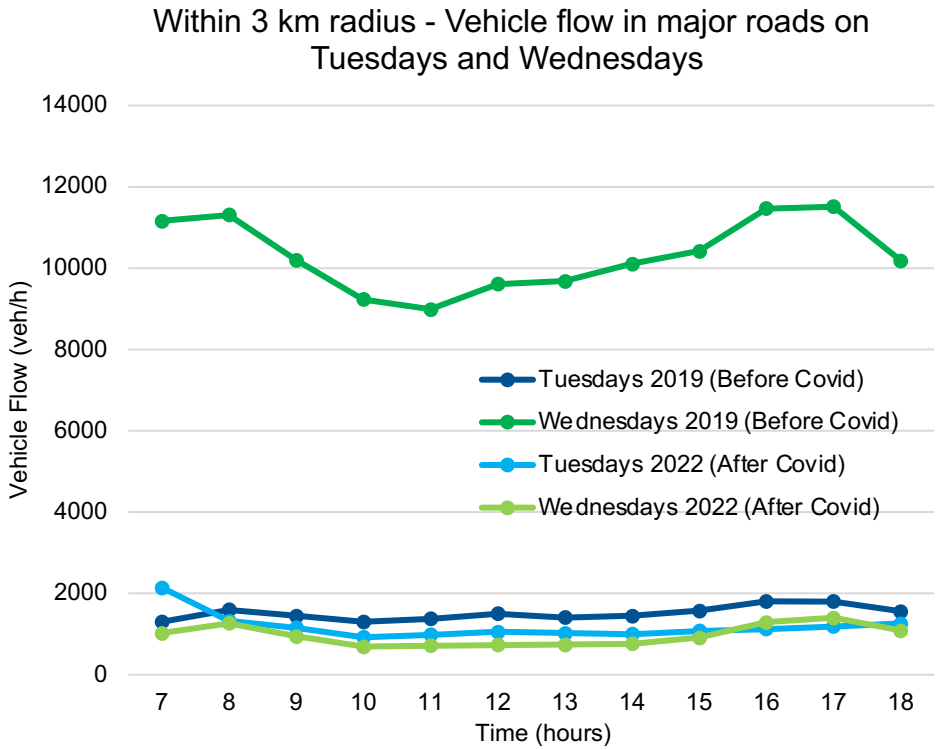
Tuesdays – Thursdays
07:00 - 18:00 hours

↓

10 Locations

1. Analysis of open source data





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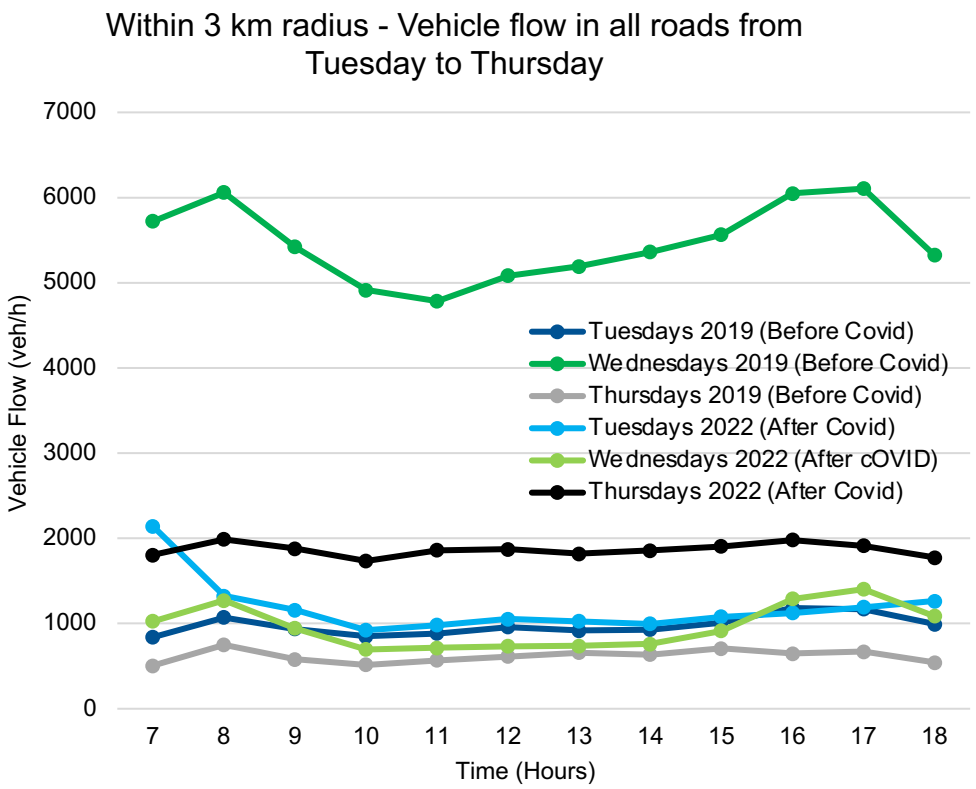
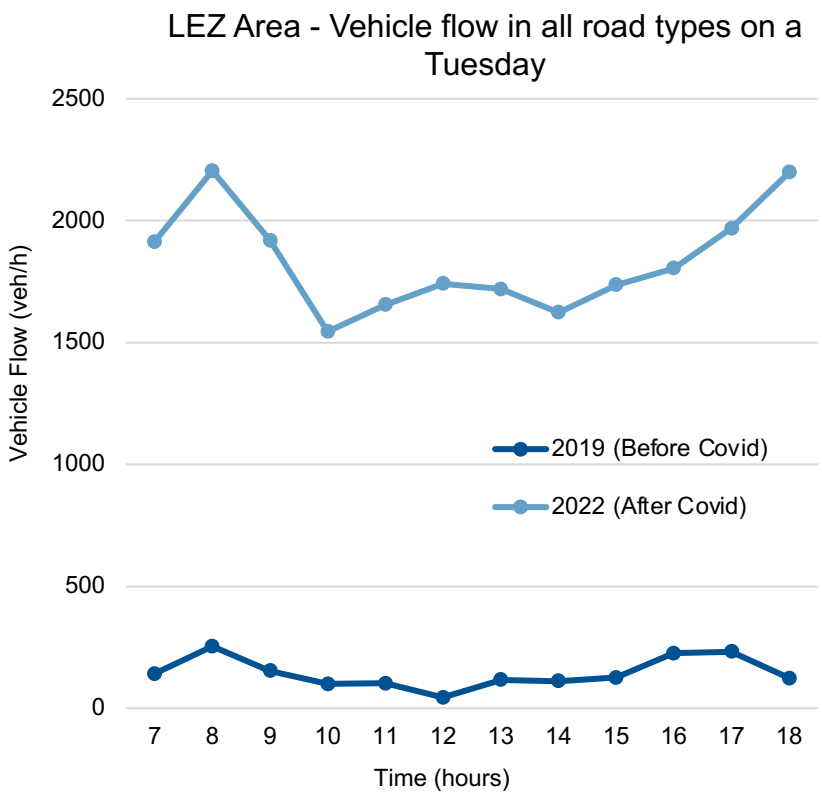




1. Analysis of open source data

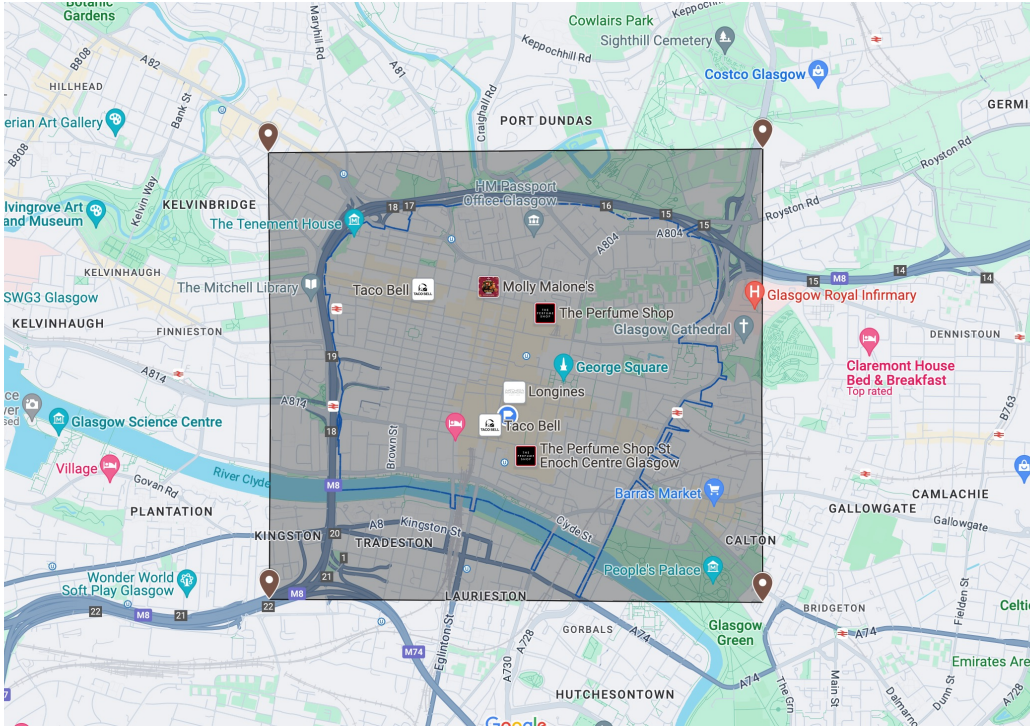
Discussion

1. Very limited locations with the filteration
2. Comparisons are not accurate due to not use of same locations in collecting data during the years 2019 and 2022 (only 3 locations were common)
3. Effect of M8 highway
4. Data had been collected only 16 days per year (11 days when Mondays and Fridays are omited)
5. Mismatches in averaging data due to high vehicle flows in major roads and busy minor roads compared to less used minor roads
6. Unavailability of enough data to compare
7. Unavailability of 2023 data yet to compare before and after LEZ

Key Takeaway: Analysis and comparison is not accurate due to insufficient data

2. Basic analysis of collected data

Scenario 1



Total of 671 Locations

↓

Filtering the LEZ and adjasent area (6.45 km²)

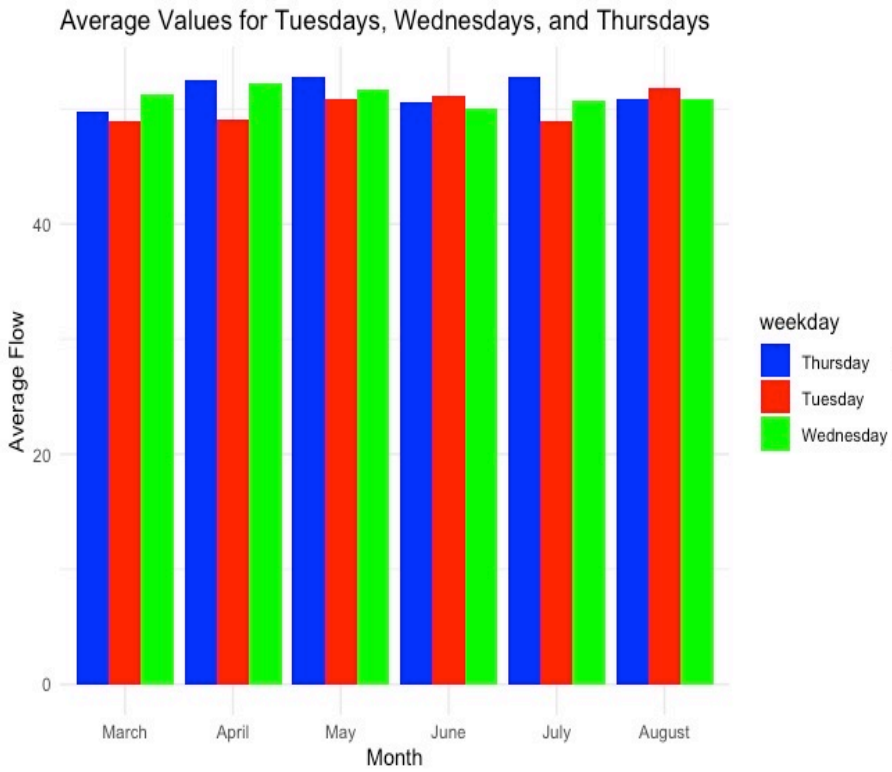
↓

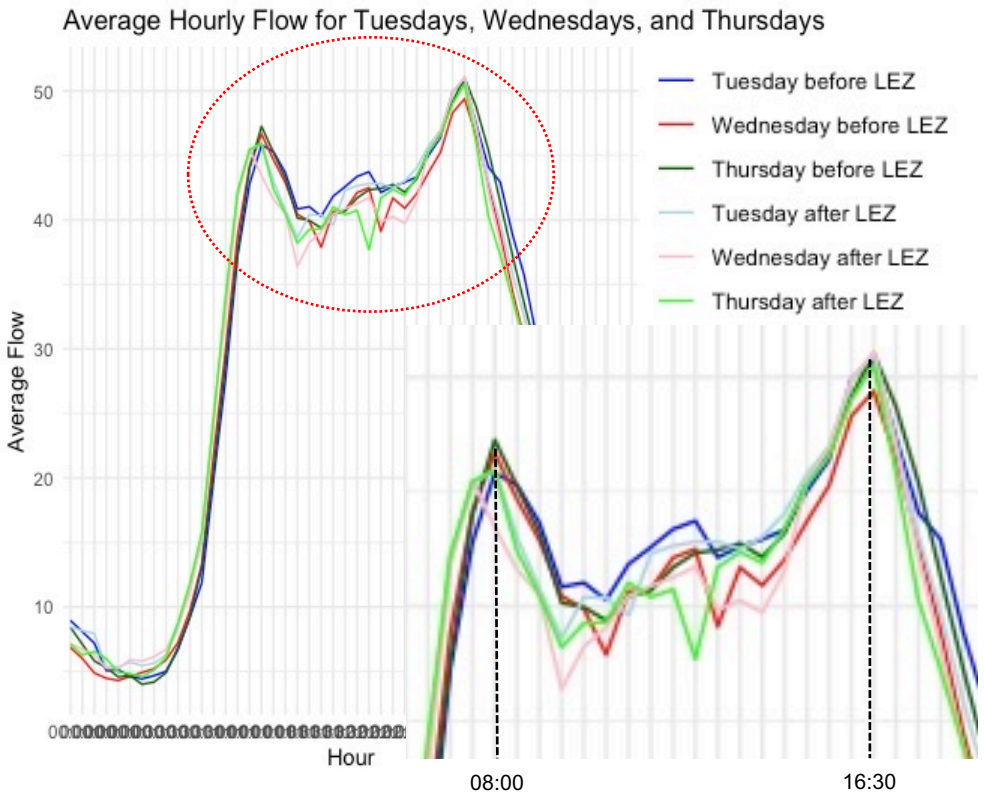
180 Locations

↓

01.03.2023 – 31.08.2023
Tuesdays – Thursdays
without holidays (6 months)
00:00 to 23:30 (half an hour basis)

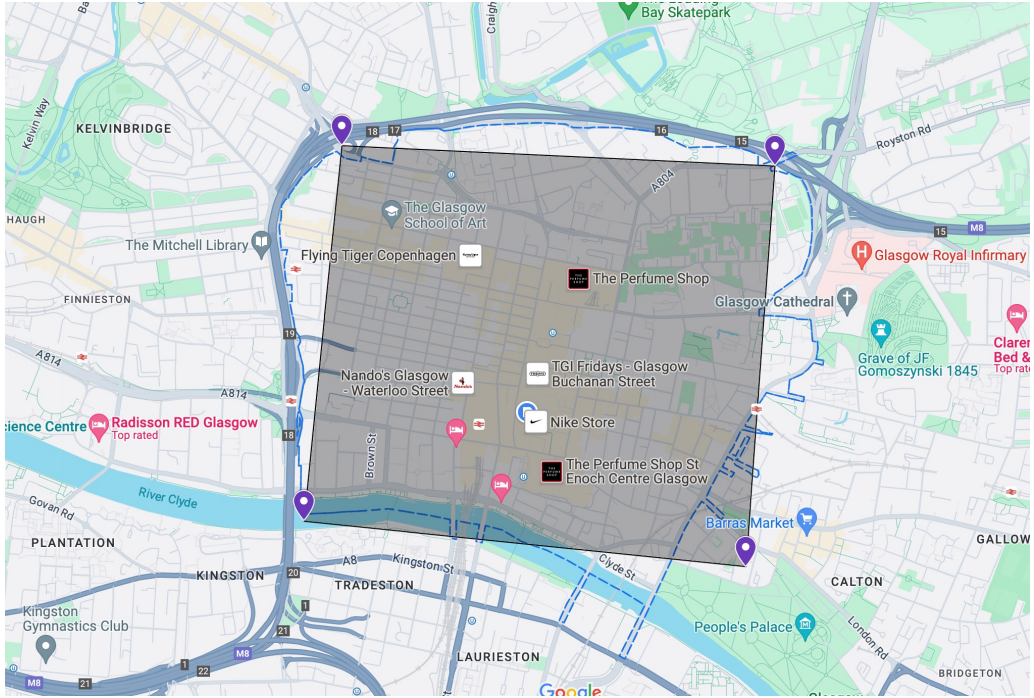
2. Basic analysis of collected data





2. Basic analysis of collected data

Scenario 2



Total of 671 Locations

↓

Filtering the inside of the LEZ
(2.72 km²)

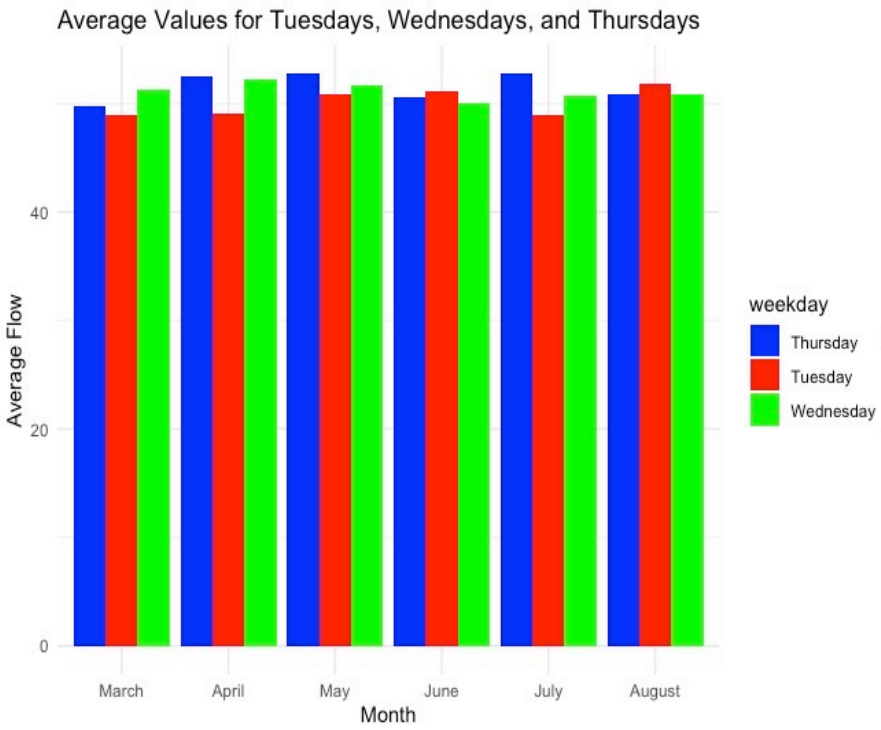
↓

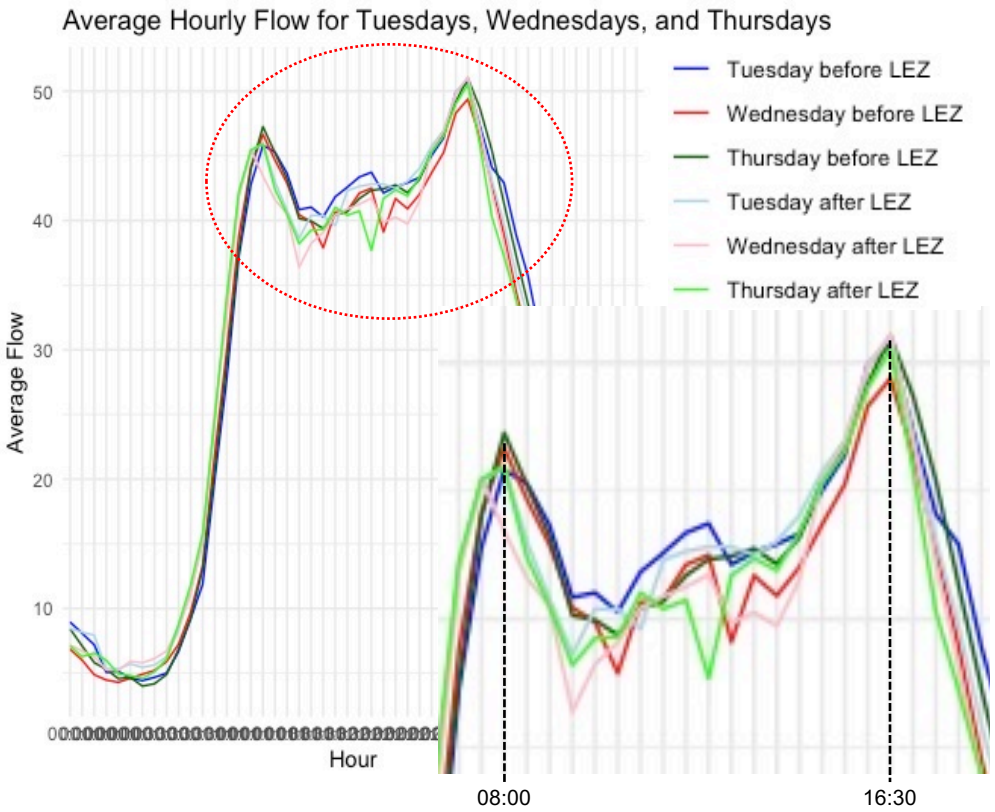
72 Locations

↓

01.03.2023 – 31.08.2023
Tuesdays – Thursdays
without holidays (6 months)
00:00 to 23:30 (half an hour basis)

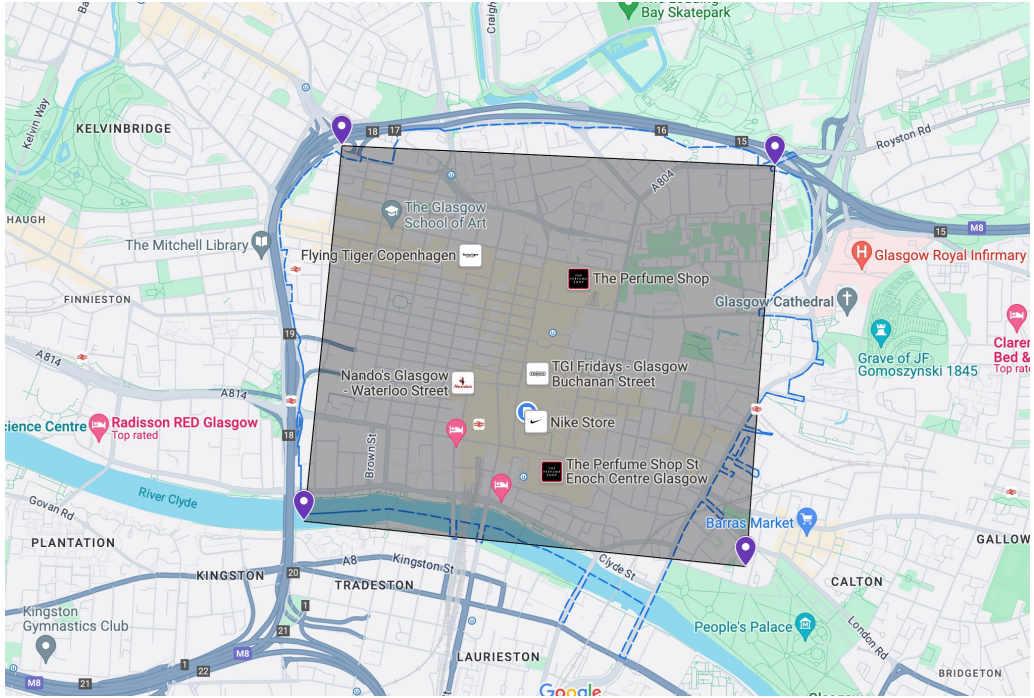
2. Basic analysis of collected data





2. Basic analysis of collected data

Scenario 3



Total of 671 Locations

↓

Filtering the inside of the LEZ
(2.72 km²)

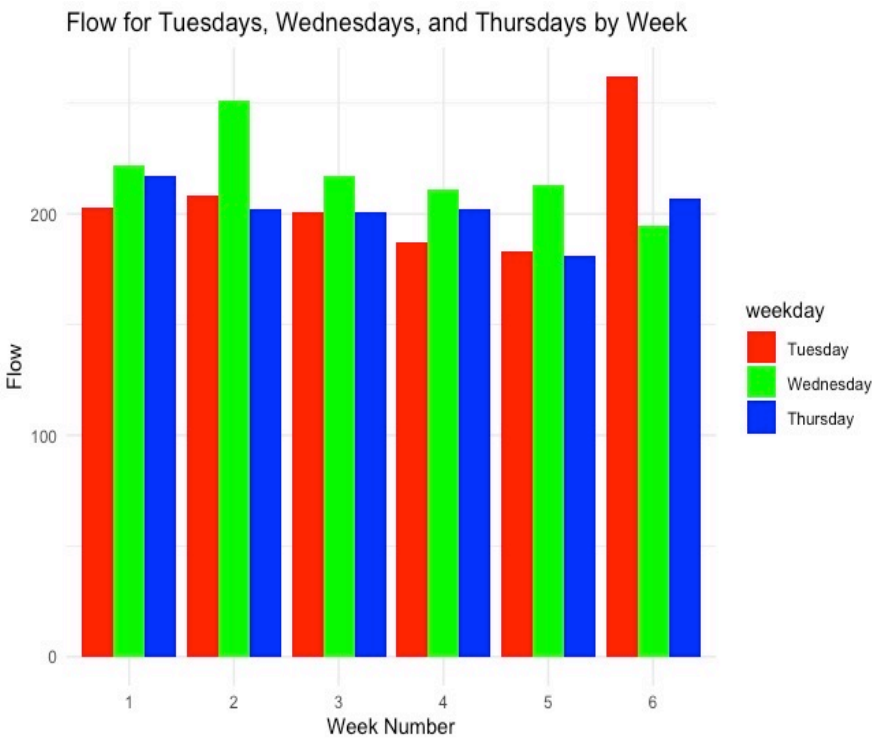
↓

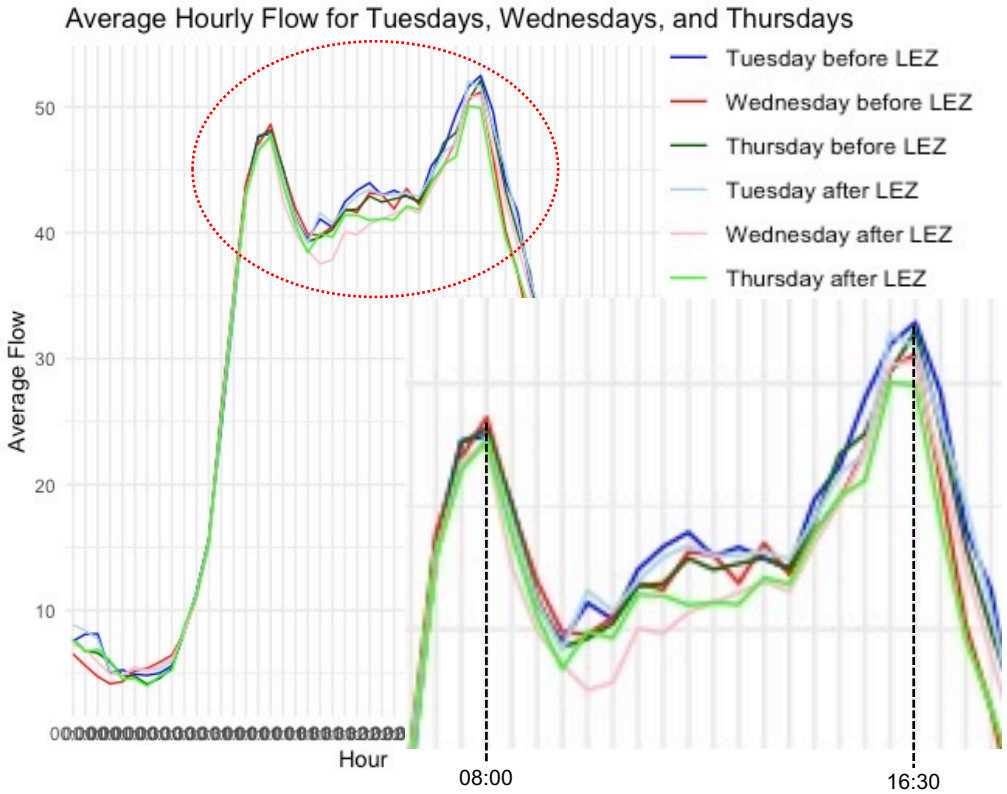
72 Locations

↓

11.05.2023 – 21.06.2023
Tuesdays – Thursdays
without holidays (6 weeks)
00:00 to 23:30 (half an hour basis)

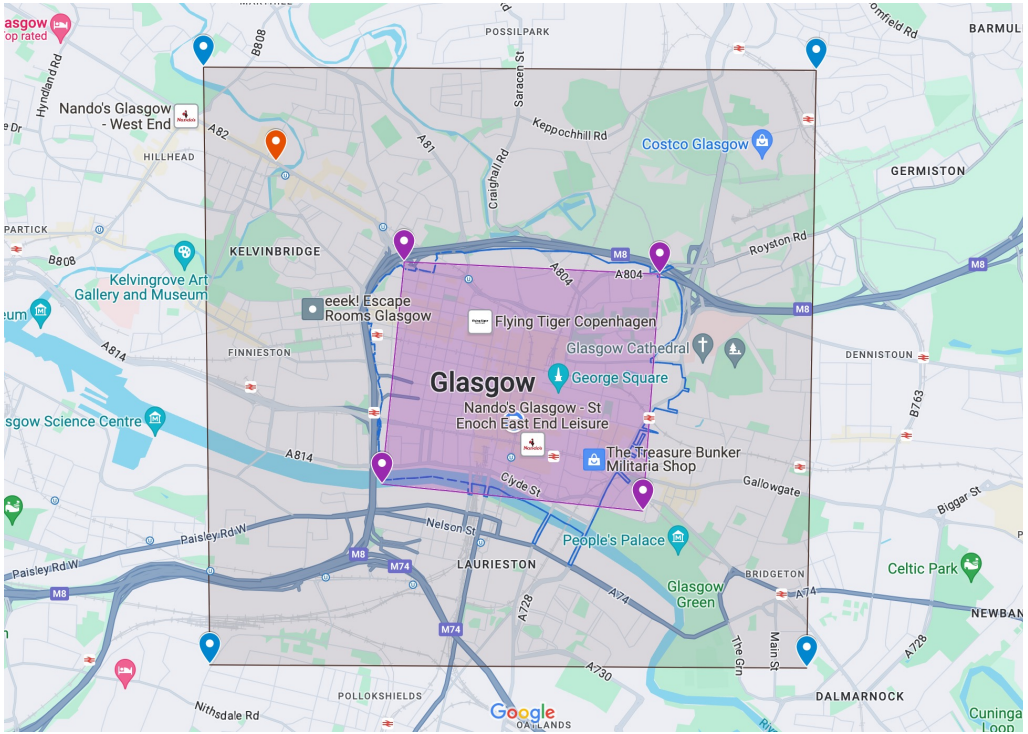
2. Basic analysis of collected data





2. Basic analysis of collected data

Scenario 4



Filtering the inside of the LEZ (2.72 km²) – 72 Locations

Vs

Filtering within 2km from the LEZ (16.5 km²) – 1 out of 268 Locations (GD0201_S)

↓

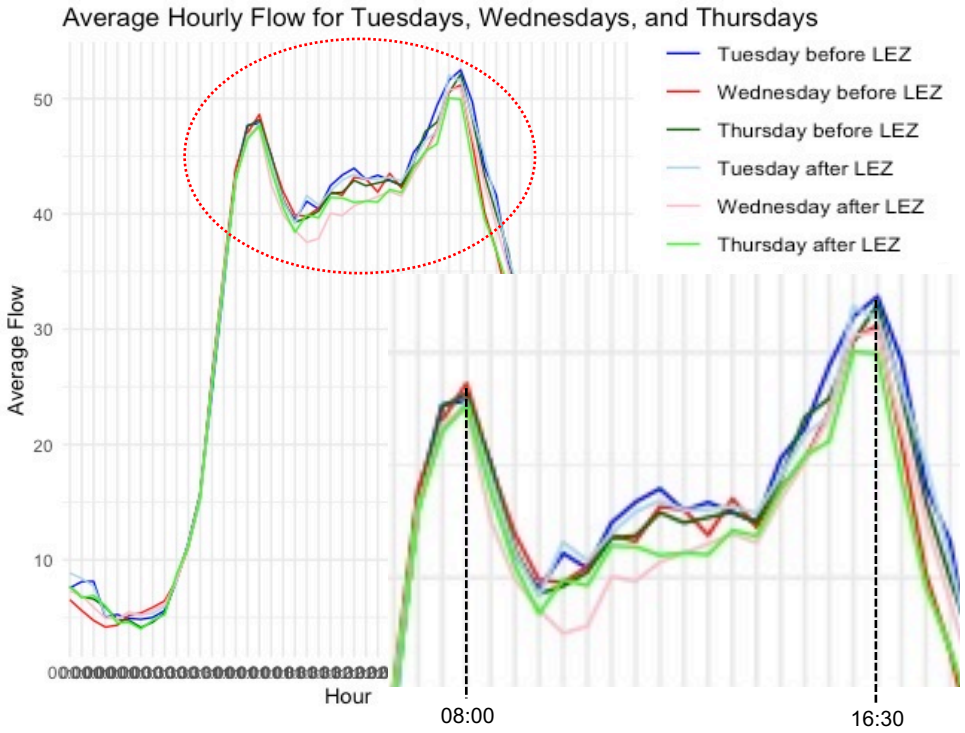
11.05.2023 – 21.06.2023

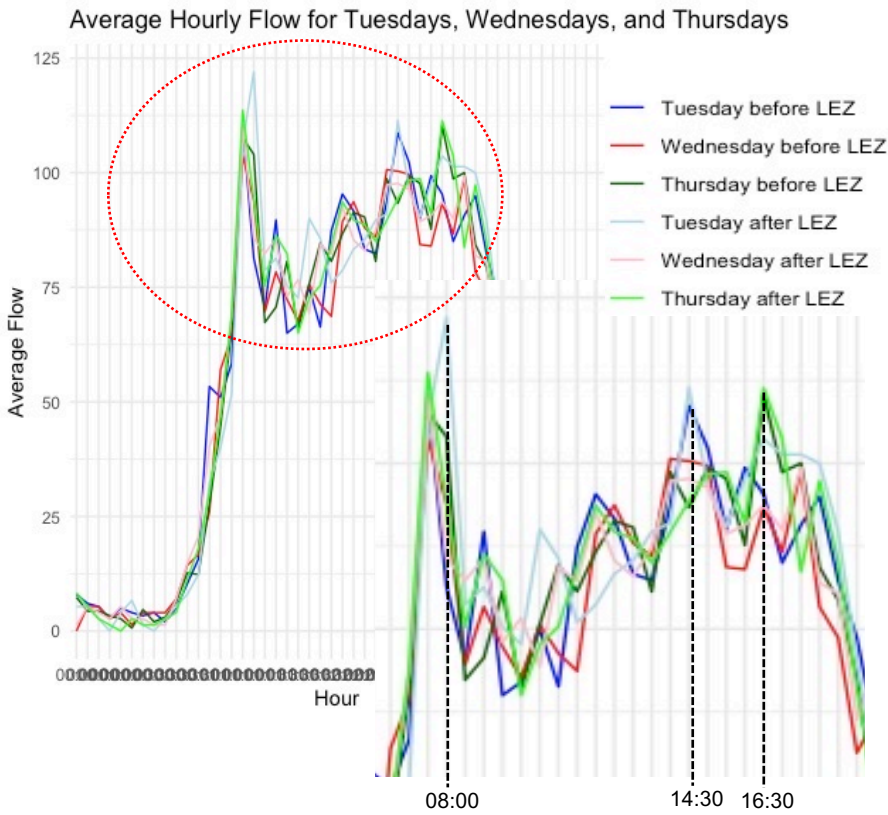
Tuesdays – Thursdays

without holidays

00:00 to 23:30 (half an hour basis)

2. Basic analysis of collected data





2. Basic analysis of collected data

Discussion

1. Mismatches in averaging data due to high vehicle flows in major roads and busy minor roads compared to less used minor roads with less vehicle flows
2. There is a slight drop in vehicle flow after implementing the LEZ in Glasgow city
3. Implementation of LEZ does not show a considerable reduction in vehicle flow during peak hours (8:00 and 16:30 hours)
4. It would be better to analyse minor and major roads separately inside the LEZ to see the real impact on separate road due to LEZ

Thank you

München, 24.11.2023