

CAFS National Modelling Framework & Glasgow Low Emission Zone

Vincent McNally



Glasgow

- Fewer than half of all households own a car
- Excellent public transport provision
- Air quality generally good – but pollution hotspots within the city remain
- Canyons + older diesel fleet
- Air pollution mortality impact contributes to 300 premature deaths per year.



Air Quality Action Plans

- Actions include :
 - LEZ – feasibility works
 - Emission + Idling enforcement
 - Awareness raising
 - Cycling infrastructure
 - Electric vehicle promotion
 - Eco-stars Fleet Management Program
 - Car Clubs
 - Travel planning
 - City Trees
 - Planning Guidance
 - Monitoring network
- Over £1m invested over the past 3 years

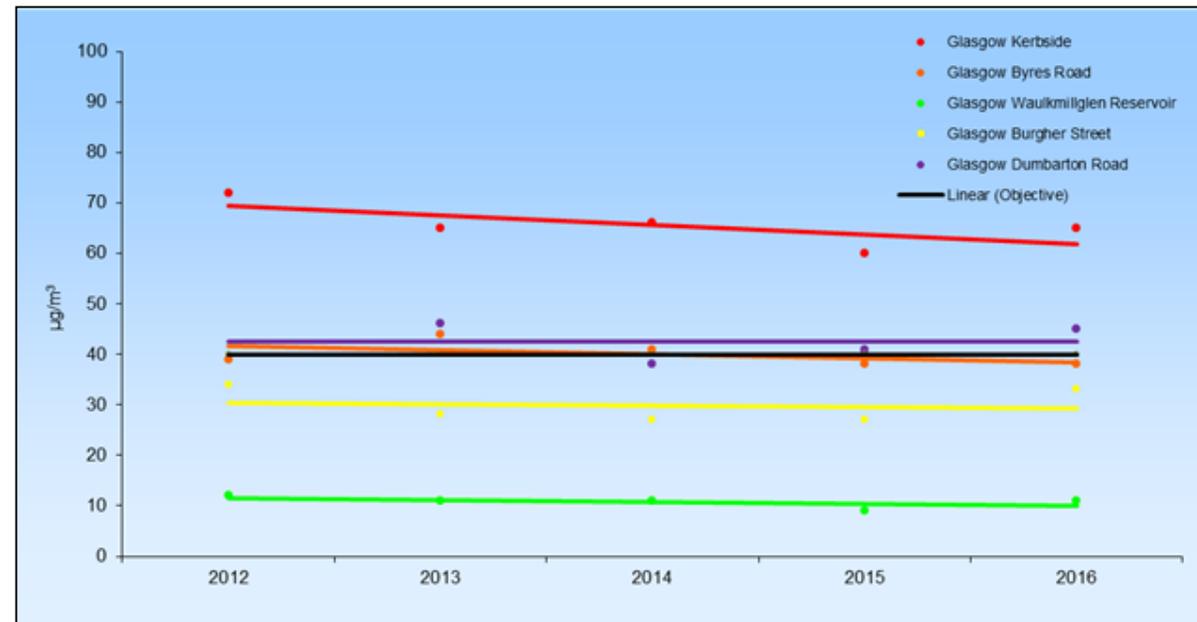
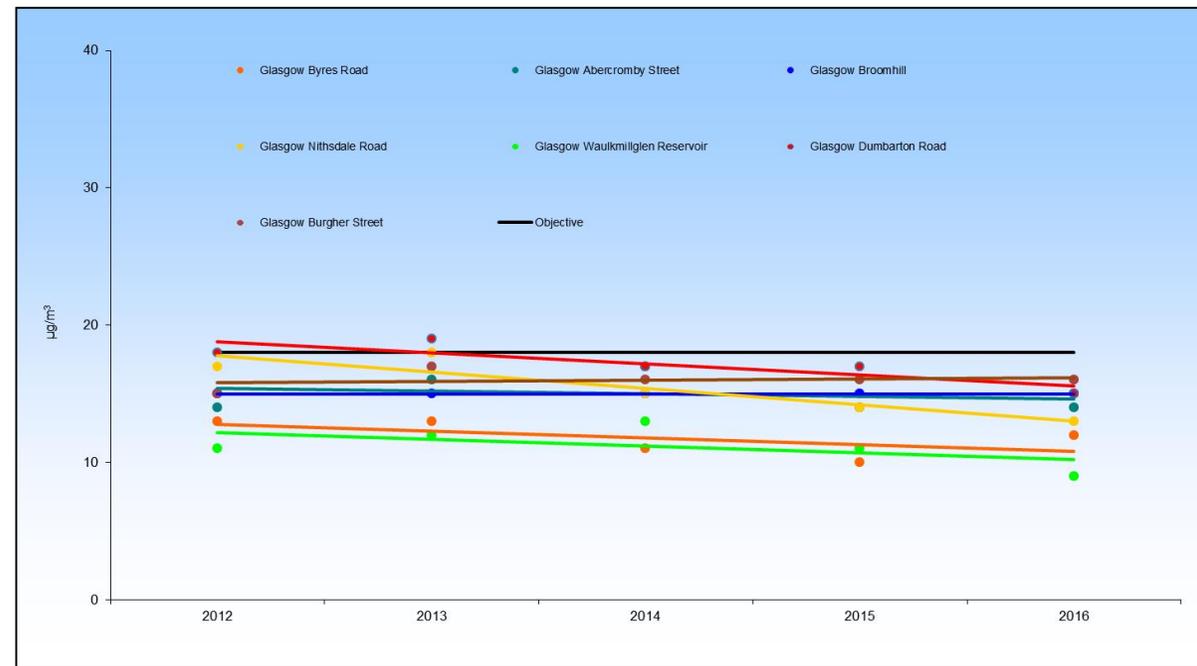


Future roads and public spaces



Air Quality 2016

- PM10 levels not exceeded.
- NO2 1 Hour Mean was not exceeded.
- NO2 Annual Mean Objective exceeded in parts of city centre and small part of Dumbarton Road.
- The trend across the city is generally of air quality continuing to improve, but.....
- **NOT QUICK ENOUGH!**



Low Emission Zones

- National Program for Govt / City Council Committee
- Defined geographical area in which vehicle entry is restricted based on the level of engine emissions.
- Euro VI/6 diesel IV/4 petrol – needed for NO2 reduction.
- Various control options – (ANPR)
- Fixed Penalty Notice for driver / Traffic Commissioner re buses.
- Not revenue generating / road user charging



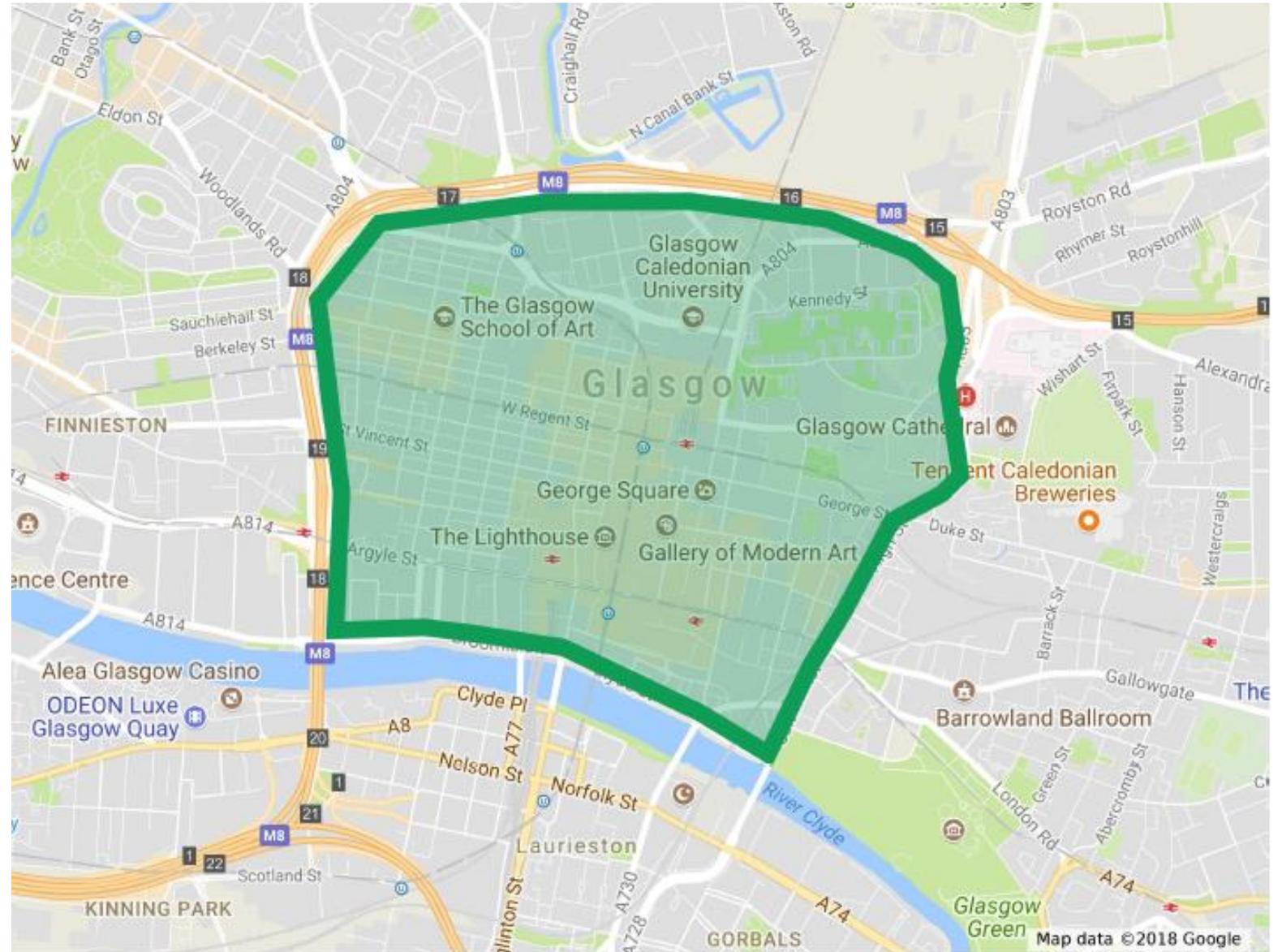
First Minister Nicola Sturgeon and Environment Secretary Roseanna Cunningham with vehicles whose engines would be clean enough for the low emission zones. Picture: John Devlin

LEZ location

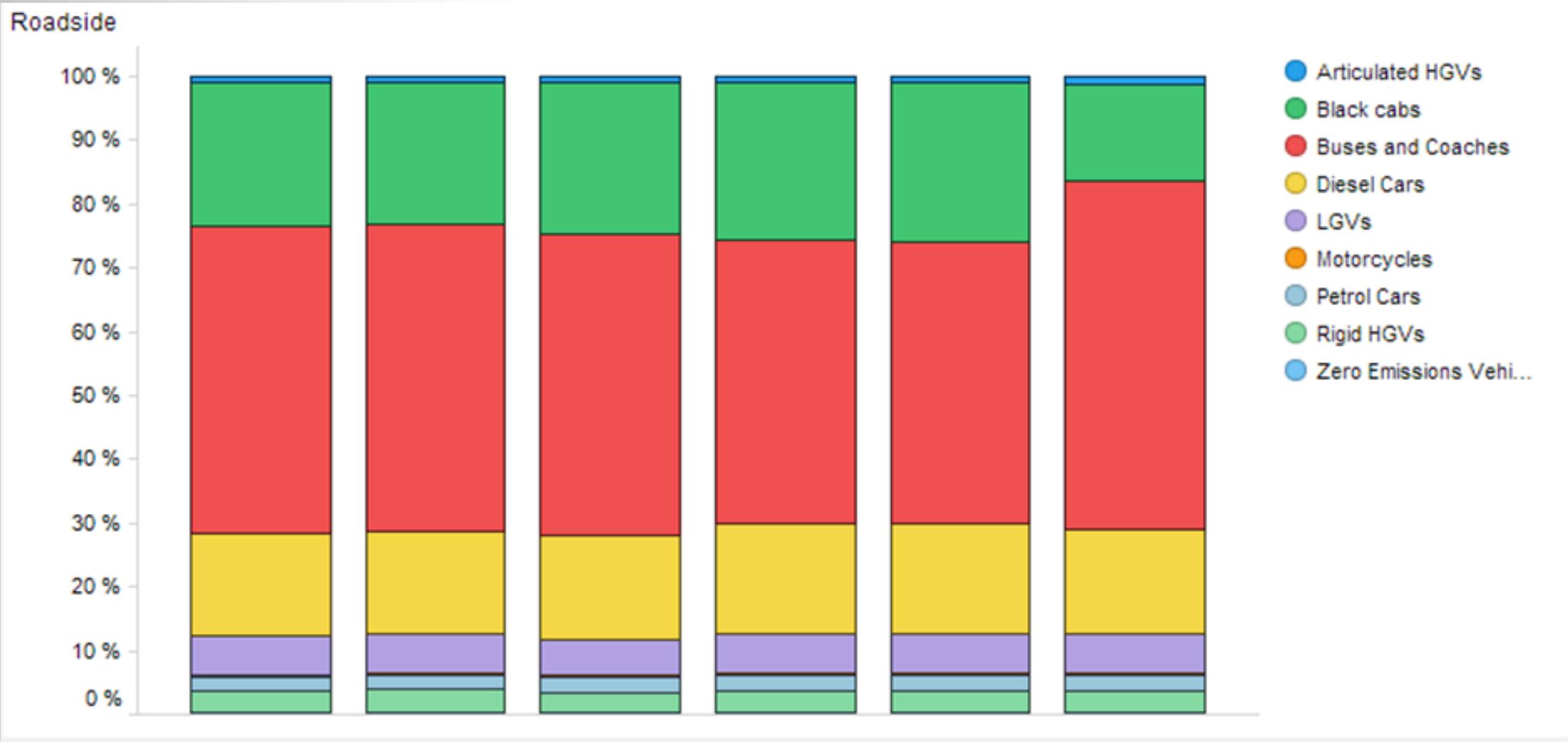
Approx. City
Centre AQMA

AQ data
collection
/modelling and
traffic analysis
undertaken and
ongoing by SEPA
and GCC

NOx source
apportionment
undertaken for
zone

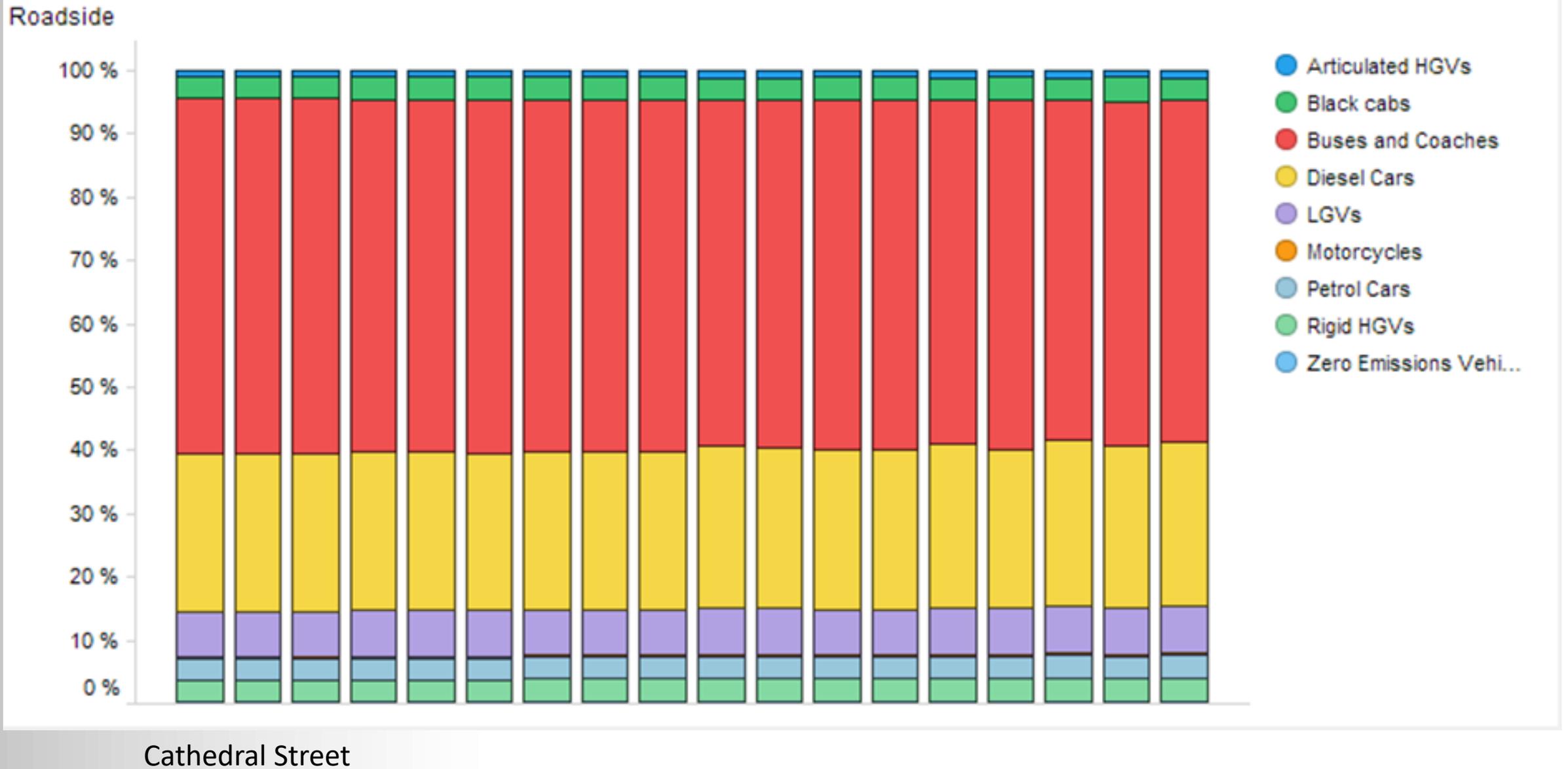


Source apportionment



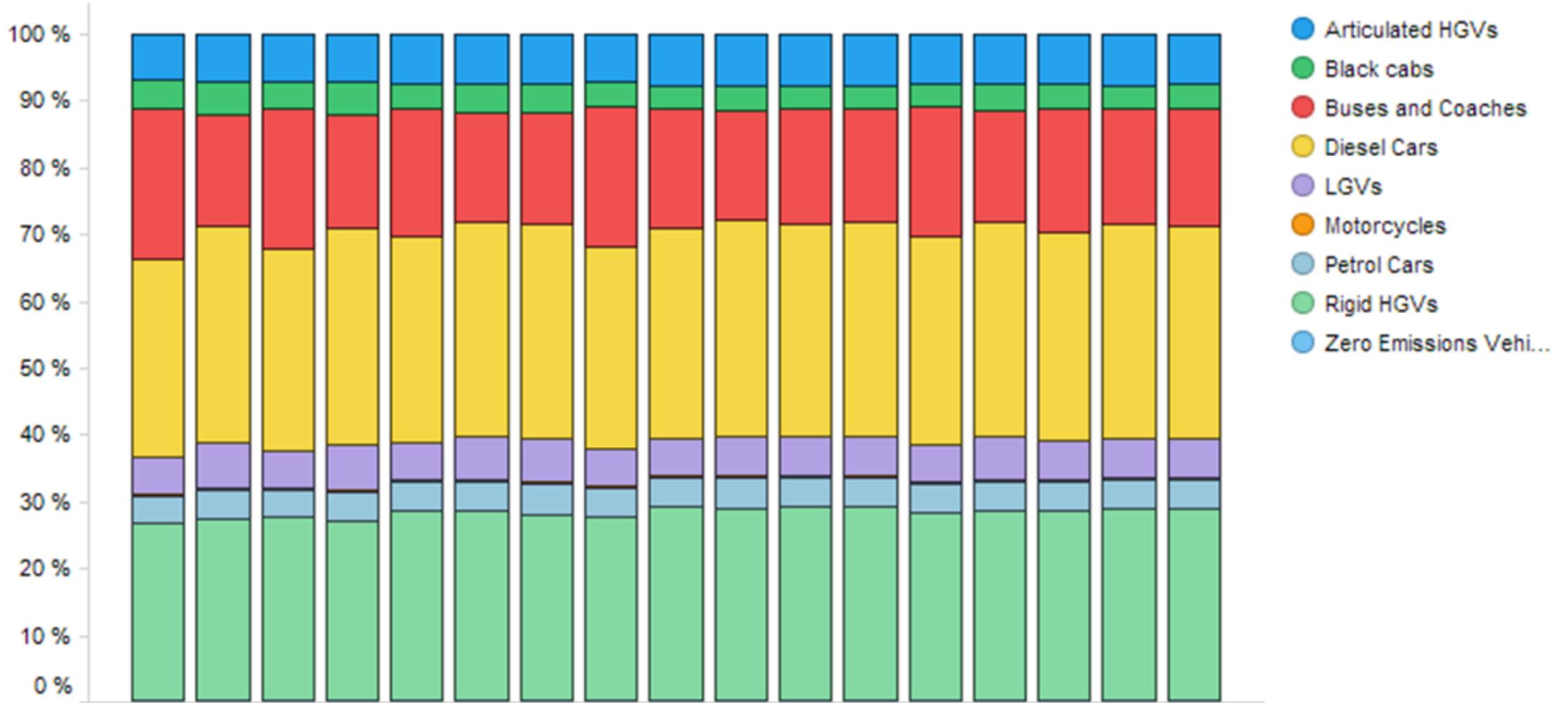
Gordon Street

Source apportionment



Source apportionment

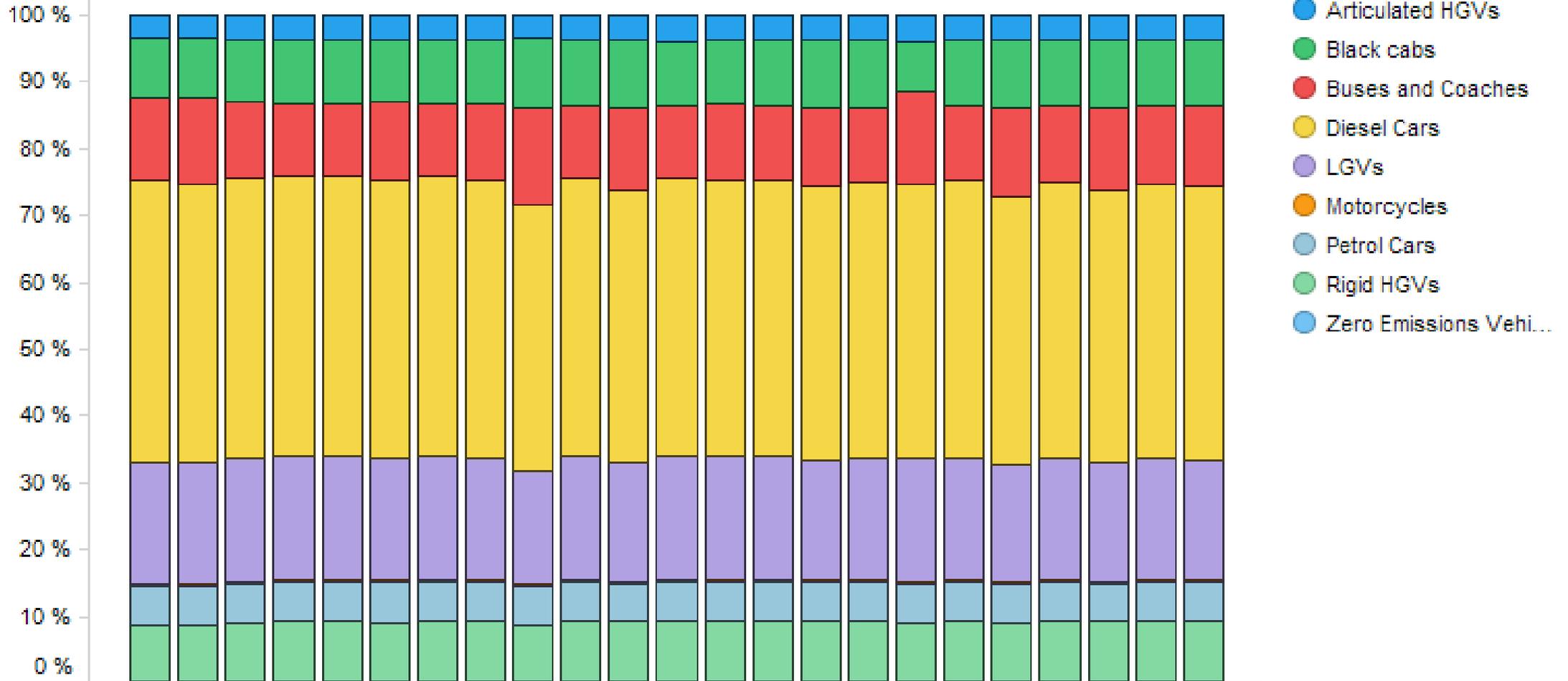
Roadside



Bath Street

Source apportionment

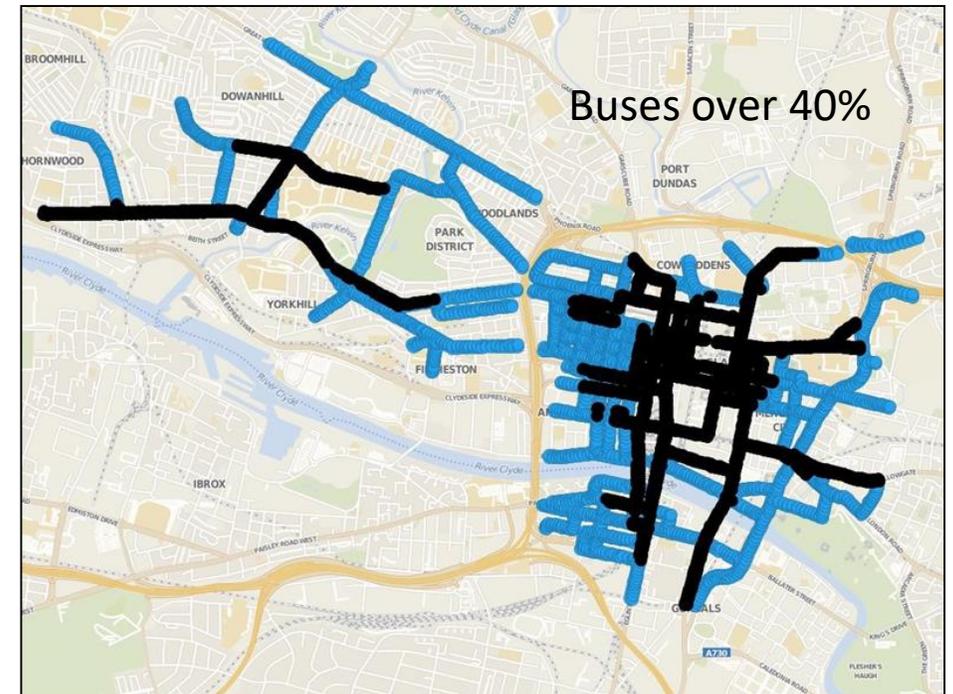
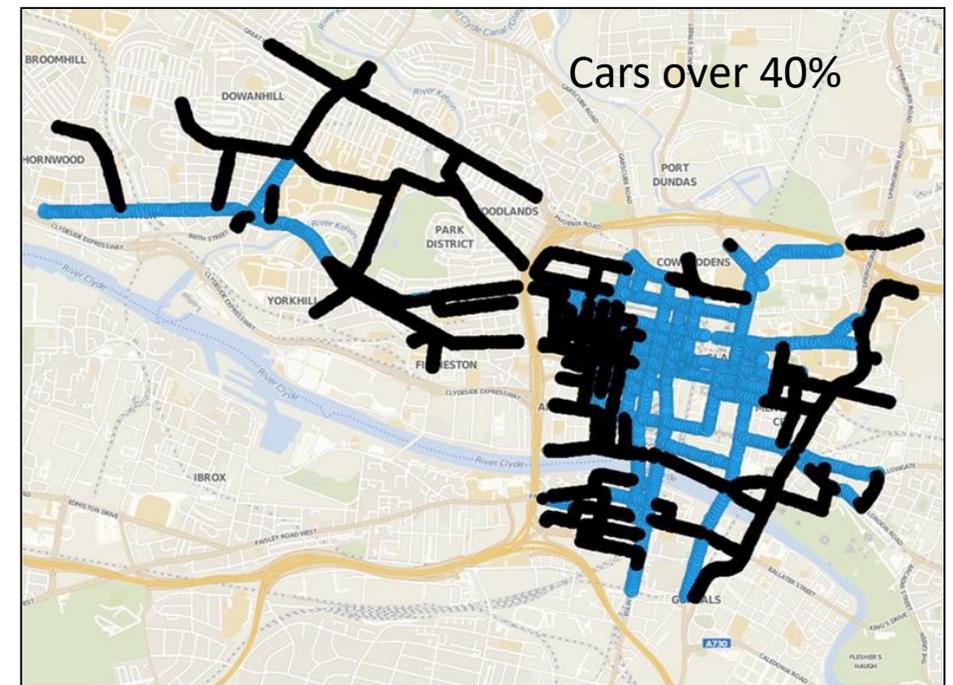
Roadside



Elmbank Street

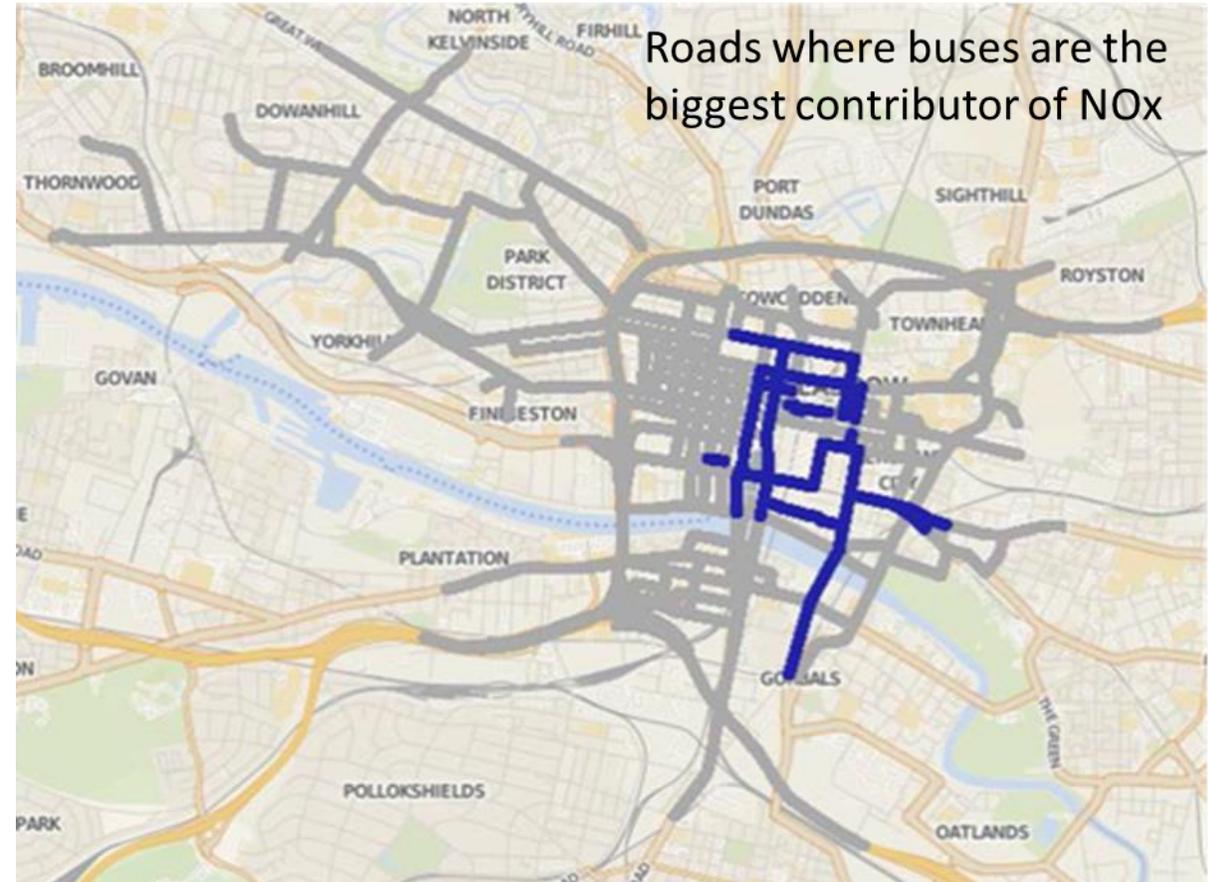
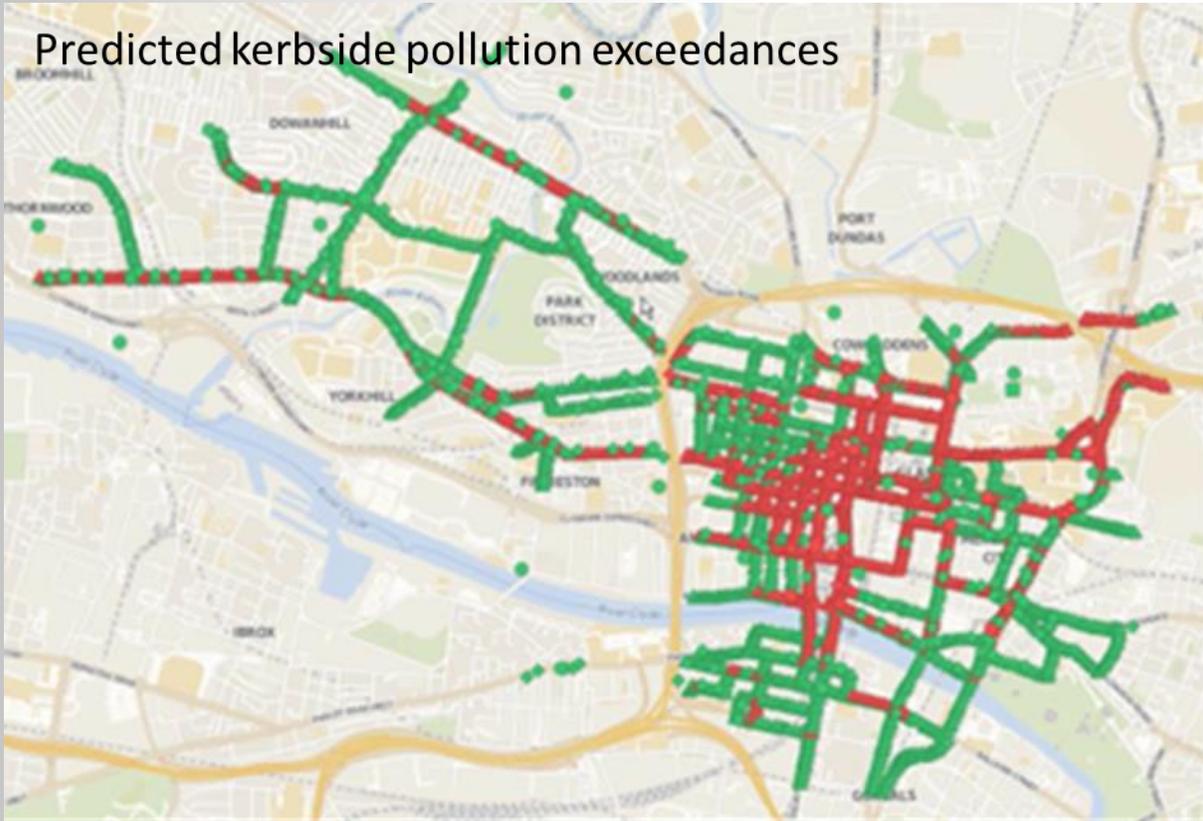
Emissions split

- Defined split within city centre (Bus vs Car)
- Great Western Road, around 70% of NOx emissions from cars.
- Hope St, 70-80% of NOx emissions from buses/coaches.
- Light Goods Vehicles (LGV) - average contributions of around 15%,
- Rigid HGV – average contributions of around 8%
- Artic. (HGV) – average contributions of around 5%.



Concentration link

There is a clear link between areas of increased bus traffic and higher levels of city centre air pollution exceedances



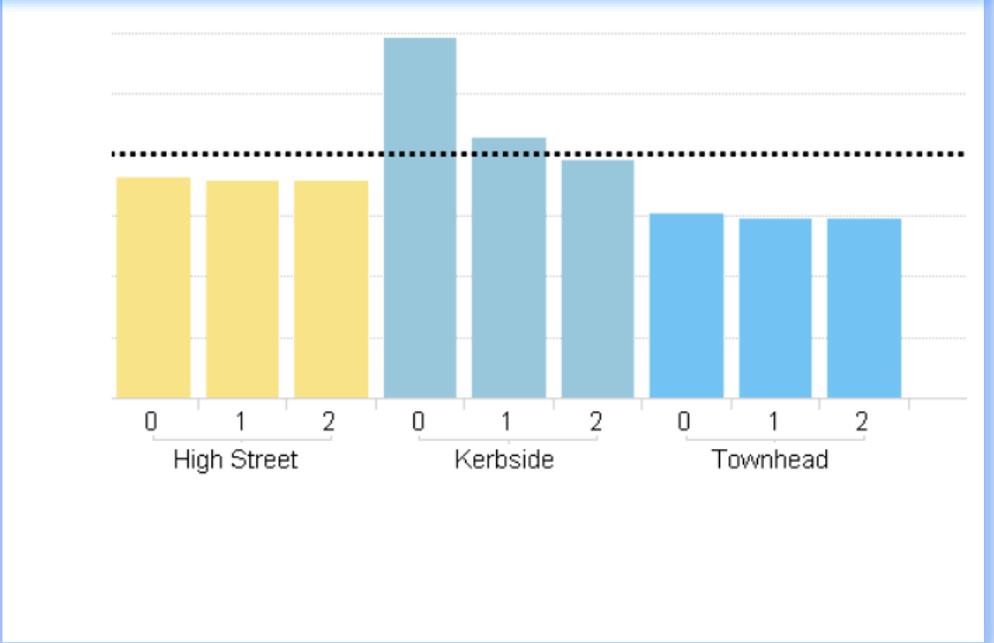
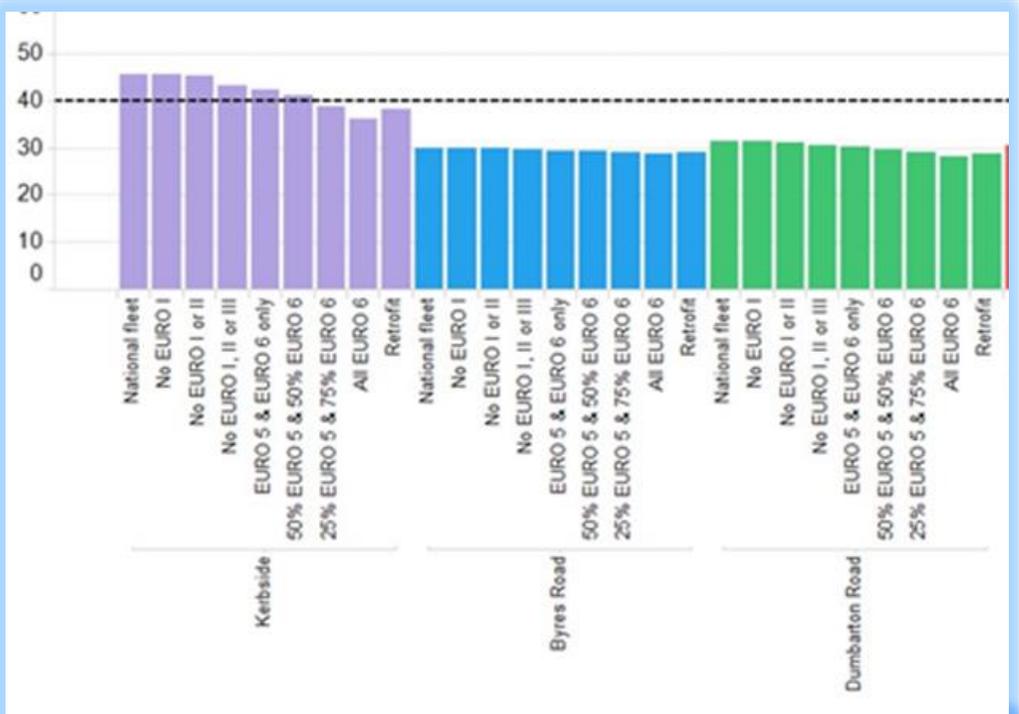
Scenario testing

Significant improvements in areas with high levels of pollution possible.

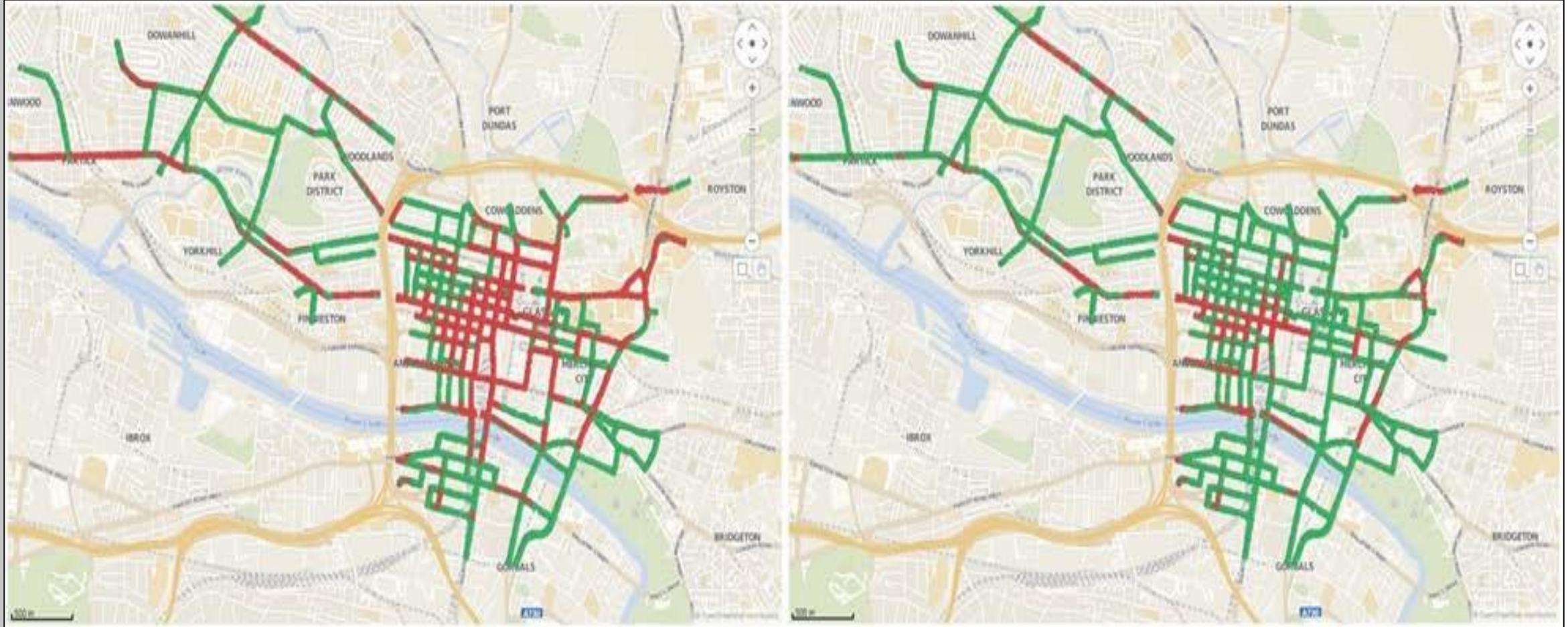
Improving bus emissions phase will have most immediate and significant impact in the worst areas.

Improving buses only will not reduce pollution enough to meet targets.

Further reductions may be possible with reduced congestion.



Modelled impact



Comparison in the changes to modelled NO2 for different traffic scenarios, visualised for all kerbside points. The 2 maps compare kerbside concentrations for the National Fleet, and for improvements if all buses were EURO 6 or retrofitted.

Further modelling

- Evolving with more recent and detailed traffic counts.
- Updated transport model will integrate with the NMF model and allow the more detailed outcomes - for LEZ and other traffic interventions



LEZ consideration/discussion?

Phasing timescales

- First phase 2018 – buses incremental compliance over 5 years (subject to funds)
- 2nd phase HGVs
- 3rd phase LGVs
Taxis
- 4th phase private cars

Costs

- Grant system (bus)
- Loans (taxi)
- Alternatives?
-
-
-

Hours of operation

- 24/7 currently being modelled
- Daytime only
- Weekdays only
-
-
-
-

Exemptions

- Emergency vehicles
- Charities

Sunset periods

- Local businesses
- Residents

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