

Air pollution in Durham City and its relevance to
climate action.

~~Church~~ 'Choke Street'

Steve Lindsay,
on behalf of Elvet Clean Air

Climate Action Group, Alington House, Durham City
Friday 1st September, 2023

Who are Elvet Clean Air?

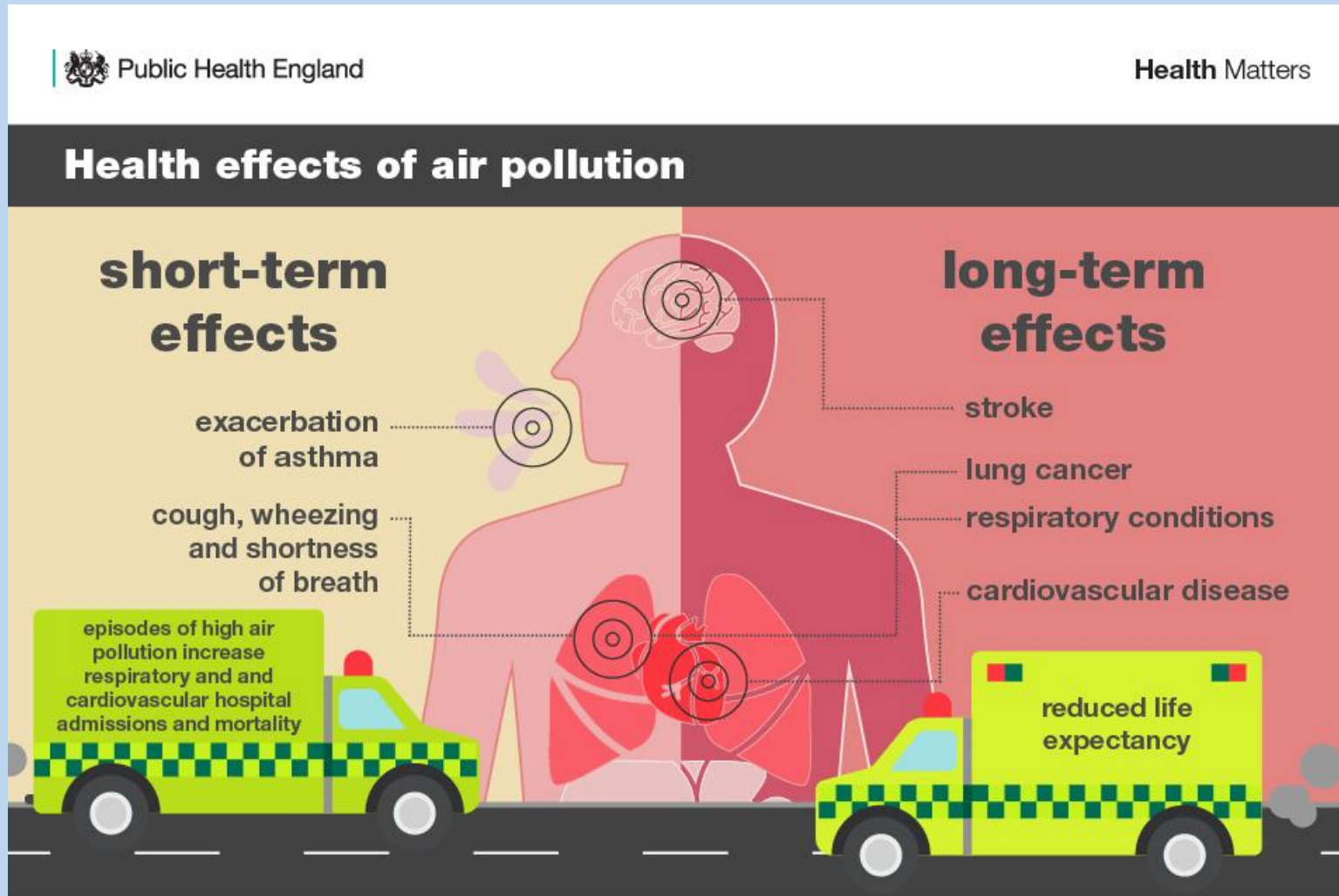
- Local residents living in Elvet– members of Elvet Residents' Association
- Local residents living in Durham City

The World Health Organisation ranks Air Pollution as one of the top six threats to health



- 3.8 million/yr premature deaths annually attributed to outdoor air pollution.
- 80% of deaths are due to heart disease and stroke.
- 20% are from respiratory illnesses and cancers related to exposure to fine particulate matter (PM_{2.5}), the most health-harmful air pollutant.

Air pollution is the greatest environmental risk to public health in the UK





Scale of the problem

It is estimated that **long-term exposure to man-made air pollution in the UK** has an annual effect equivalent to:



28,000 to 36,000 deaths

Over the following 18 years a **1 $\mu\text{g}/\text{m}^3$ reduction in fine particulate air pollution in England** could prevent around:



50,900 cases of coronary heart disease

16,500 strokes



9,300 cases of asthma

4,200 lung cancers

Air pollution affects everyone but there are **inequalities in exposure** and **the greatest impact on the most vulnerable**

older people
(65 and older)



pregnant women



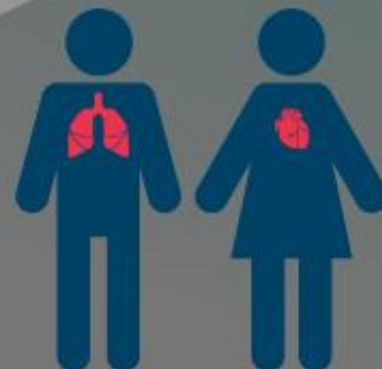
communities with poorer air quality
(eg. those situated closer to main roads)



children



those with cardiovascular disease and/or respiratory disease



Air pollution & motor vehicles



Choke Street

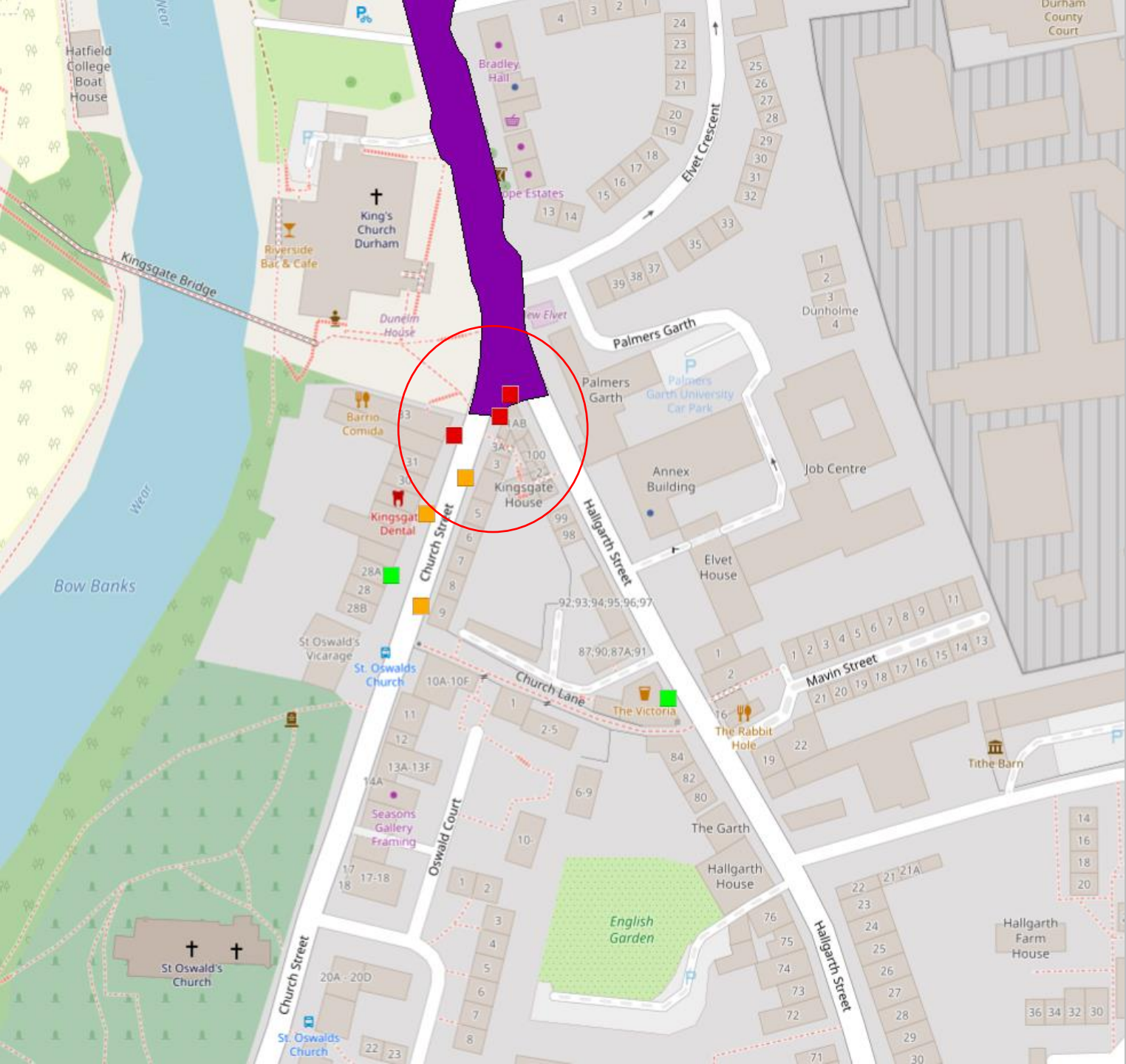
- The major threat to clean air is now posed by traffic emissions.
- Petrol and diesel motor vehicles emit a wide variety of pollutants,
 - principally carbon monoxide (CO),
 - oxides of nitrogen (NO_x),
 - volatile organic compounds (VOCs) and
 - particulate matter (PM_{2.5}),
 - pollutants from these sources may not only prove a problem in the immediate vicinity of these sources, but can be transported long distances.
- Transport is largest source of CO₂ emissions in the UK, accounting for 34% of emissions in 2022 – 112.5 million tonnes
- The large majority of emissions from transport are from road transport.

Sources: DEFRA. UK Air Information Resource, and Department for Energy Security & Net Zero, accessed 22.08.23

Durham County Council Air Quality Action Plan for Durham City - Approved 15 June 2016.

- Durham County Council has declared an Air quality management area (AQMA) in Durham City due to elevated concentrations of nitrogen dioxide (NO₂) near to major roads, in excess of the annual mean air quality objective.
- Action:
 1. Reduce congestion of vehicles through a network of junctions
 2. Retrofitting of emissions abatement systems on diesel engines
 3. Development of cycle ways
 4. Implementation of car sharing and pooling

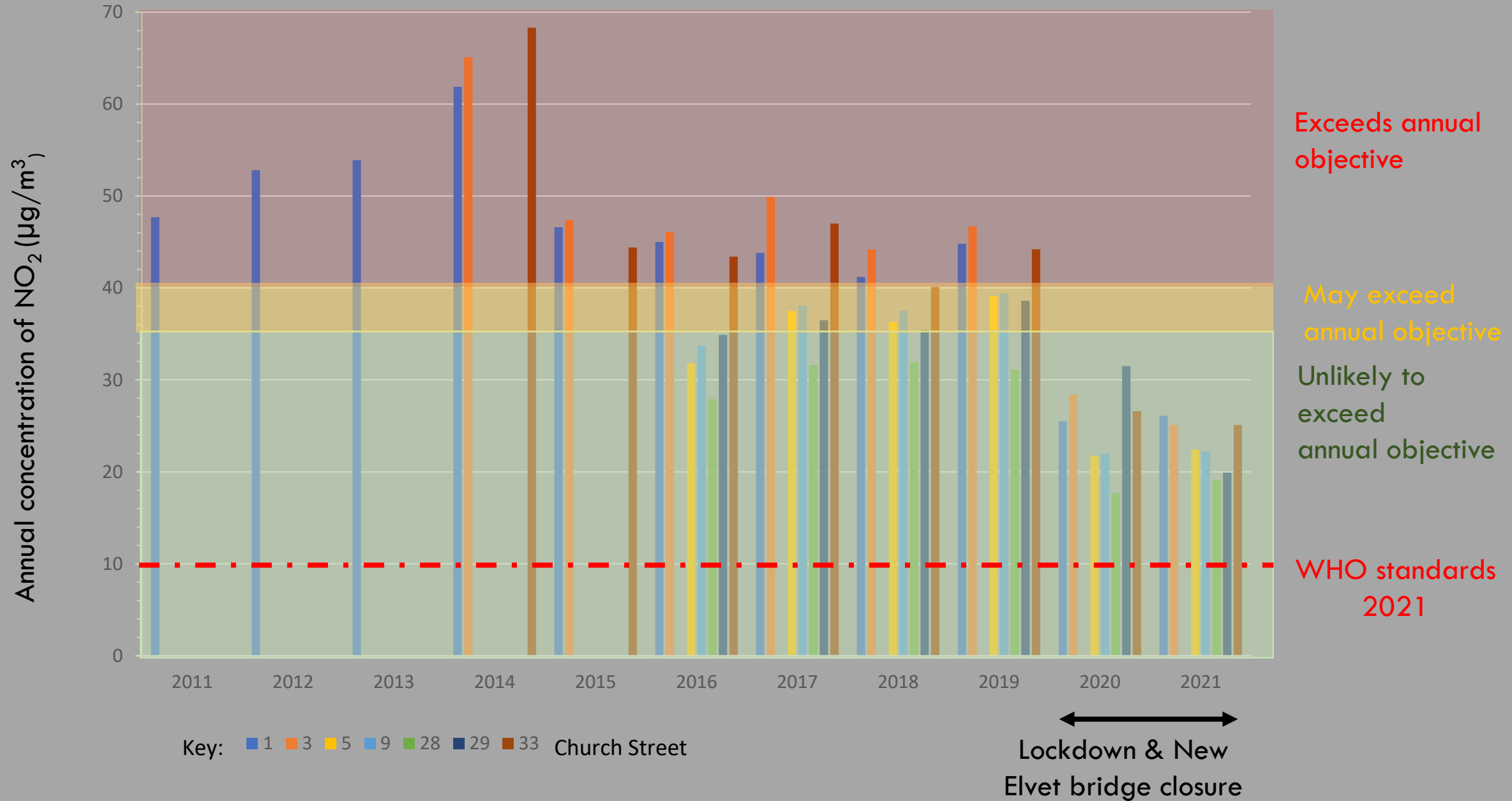
The case of Church Street or 'Choke Street'



**Persistently
dangerous air
quality has
been
measured
since 2011**

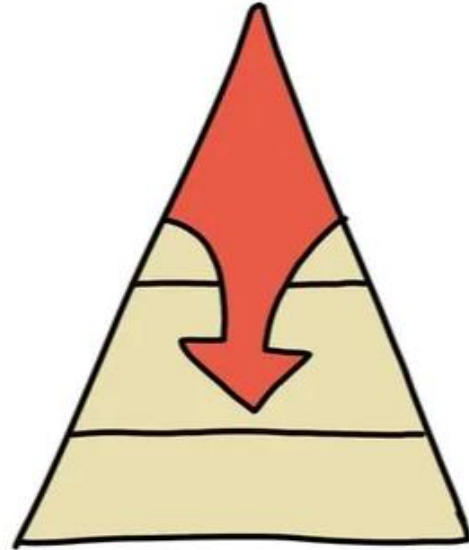
Diagram from Durham City Air Quality Monitors

Annual mean concentrations of Nitrogen dioxide ($\mu\text{g}/\text{m}^3$) in Church Street, Durham City

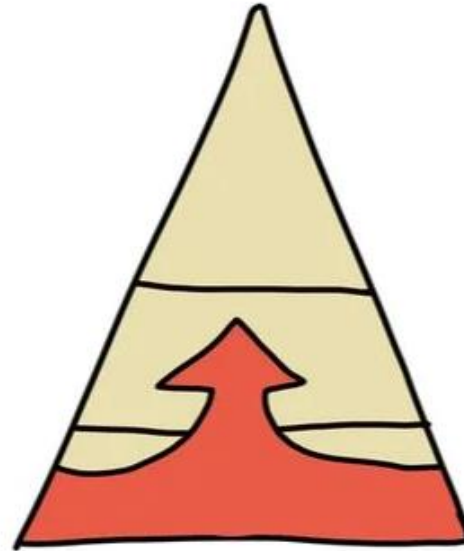


So what should we do?

Our approach:



top-down



bottom-up



Two ways of gathering opinions of the community

1. Community meeting on 14th Jan (**25 people present**) - funding by members of Elvet Clean Air, Parish Council and City of Durham Trust.
2. Street event on 15th May, asking people to complete a questionnaire & give their thoughts (**56 respondents**) – cakes provided by members of Elvet Residents Association.

Findings from the Community meeting

Improving Air quality

- Improving air quality is a useful approach to improve the Elvet triangle.
Majority in support, but spread of opinions
- Reduction of vehicle numbers in the city centre to improve air quality and safety.
Electric car charging points needed (perhaps subsidised by congestion charges?).
Very strong support
- All buses and taxis to be electric.
- More regular & subsidised bus services.
- Congestion charge for vehicles transiting through Durham (permits required for visitors). Charges based upon vehicle emissions.
- Enforcement of banning heavy goods vehicles (7.5t weight limit) entering Durham.

Improving street safety

- Introduction of a one-way system provided that traffic speed was kept low.

Majority in support (approximately 70%) – note: this was a contentious issue with fears of increased motor speed a significant concern.

- A 20 mph speed limit, possibly with speed bumps.
- Widening pavements for pedestrians.
- Dedicated cycle lanes.

Greening

- Planting of more trees, especially Hallgarth Street
Many in support – note: concerns raised about potential damage to houses caused by roots and the question of who would be responsible for the maintenance of the trees.

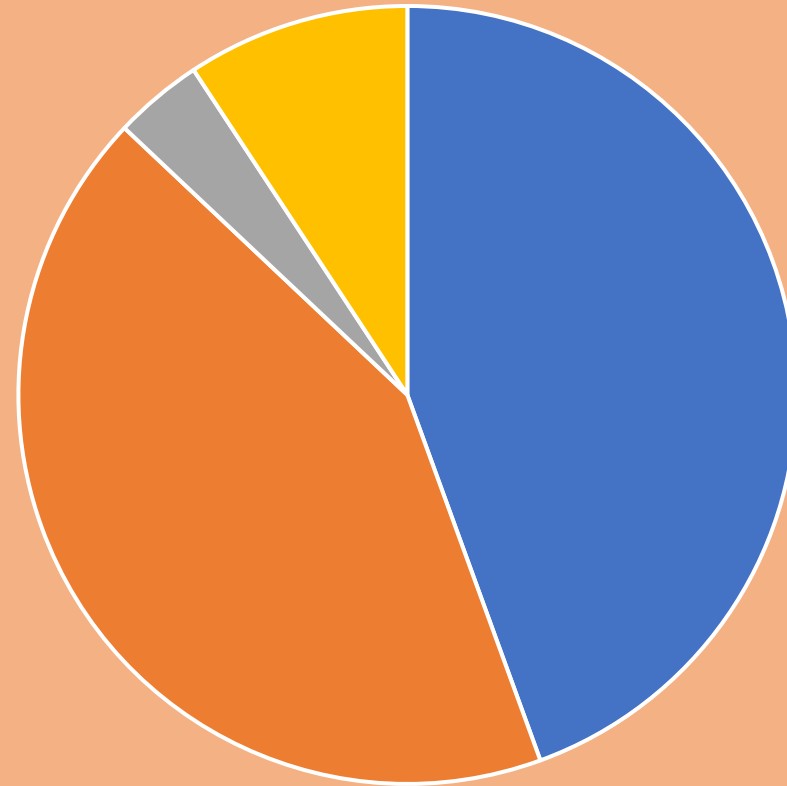
Car parking

- Stopping students parking in the city
Very strong support

Summary of questionnaire survey

Who responded?

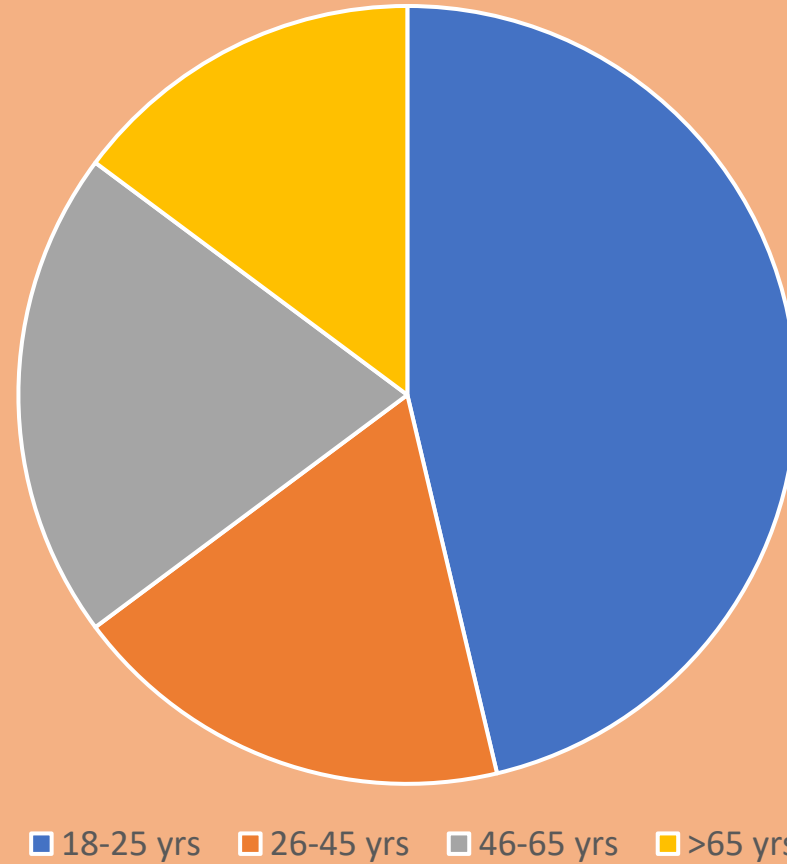
1. Relationship with the area.



Number of responses = 54

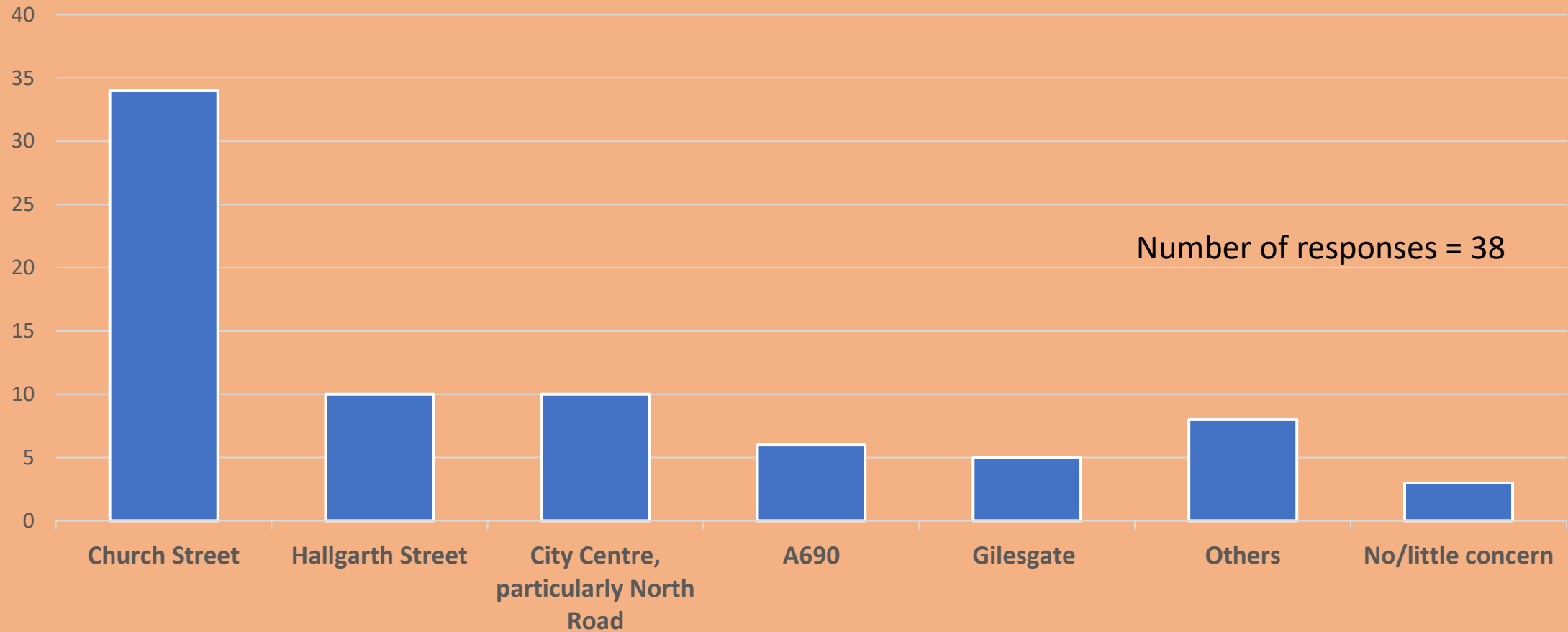
■ Students ■ Permanent residents ■ Temporary residents ■ Non-resident

2. Age of respondent



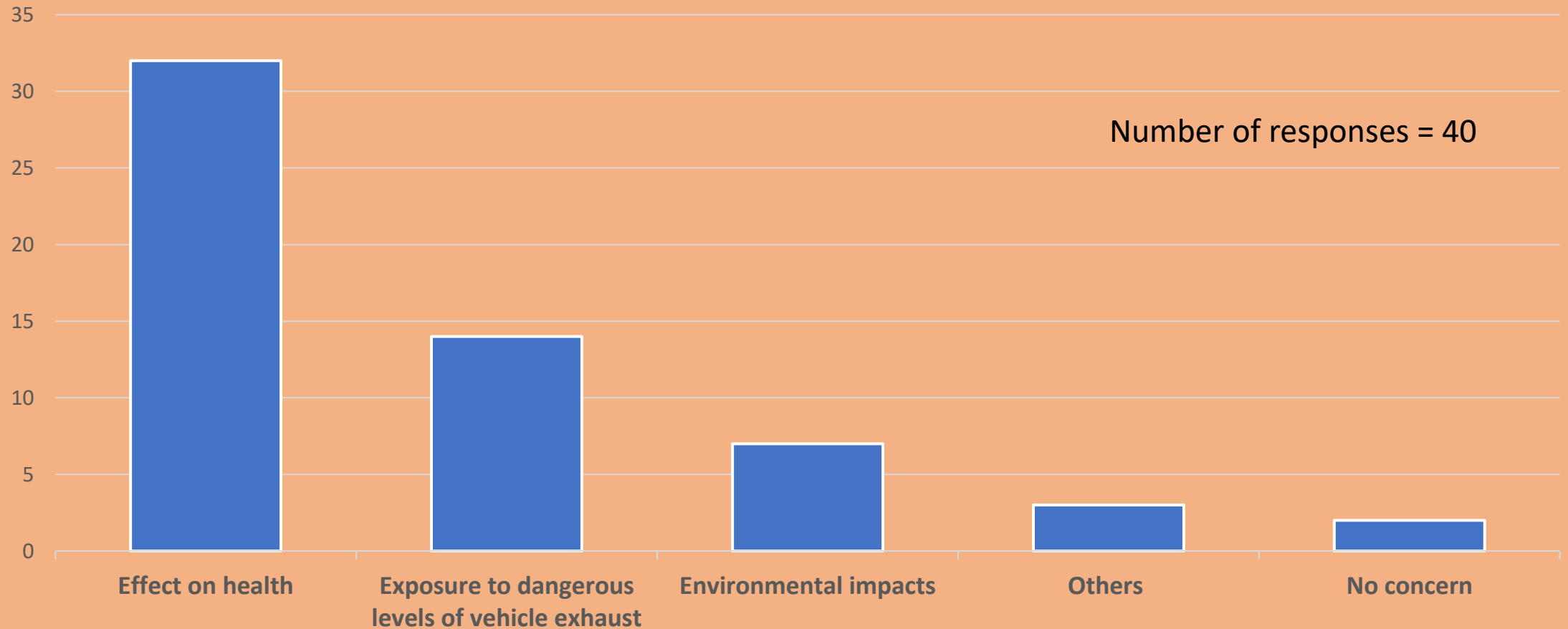
Number of responses = 54

Where are the "hot spots" for poor air quality?



Particular issues were at intersection with Church St/Hallgarth St and Stockton Road/Quarryheads Lane

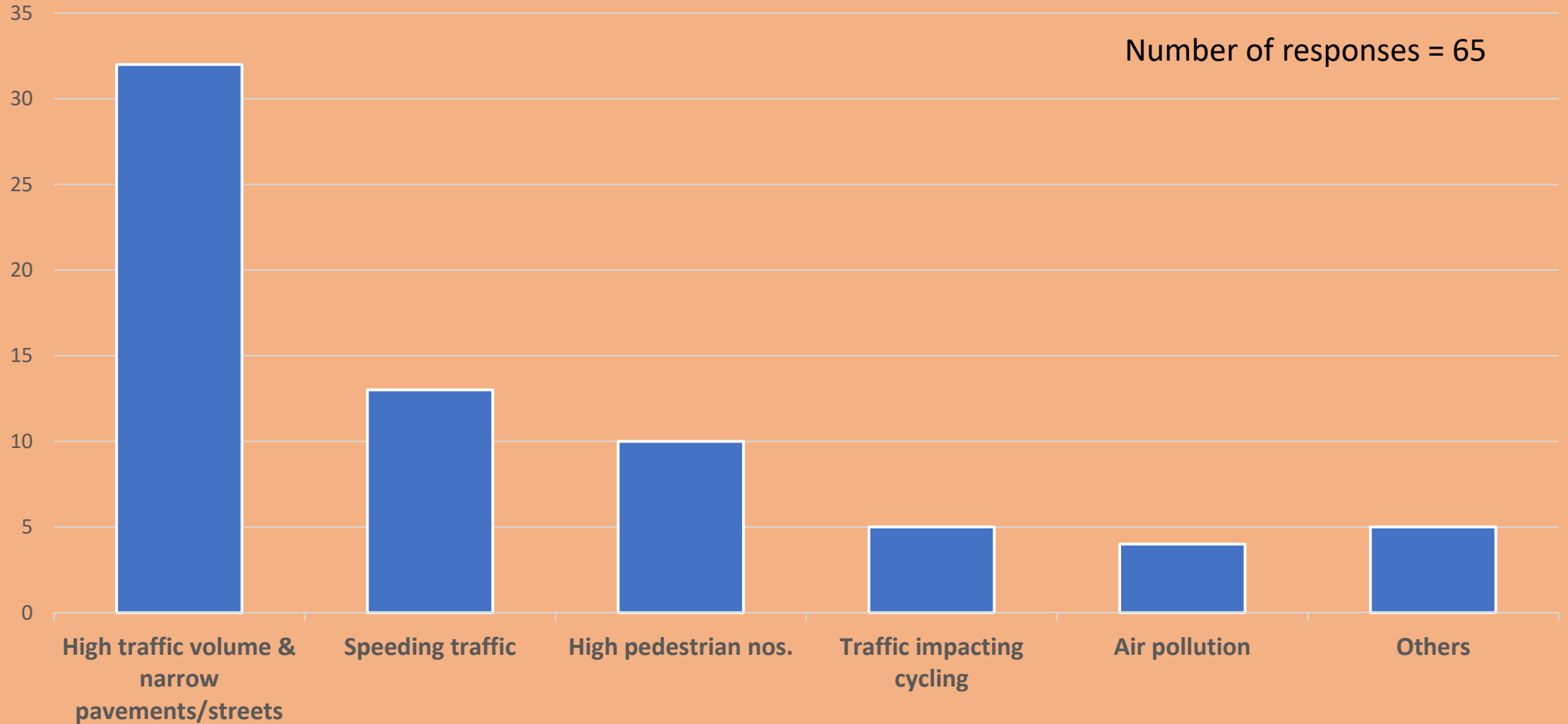
What are your biggest concerns about air quality?



Responses

- Me and my son sleep in rooms overlooking Hallgarth Street. At times we can smell the pollution inside our home.
- Unlawful, and unhealthy, indeed dangerous.
- ... it's killing my lung[s].
- Thousands of students spend most of their time in areas of high pollution, causing lifelong health issues.
- Poisoning the air me and my family breathe.
- Its impact on my asthma.
- The science is very clear on air pollution - instantaneously damaging to health. Particularly children in buggies are right by exhausts. Diesel particulates are being banned from London, this should be tackled in all cities. Perhaps above all I'm concerned by idling, because this is so easily avoidable and fixable.
- Durham can do so much better.

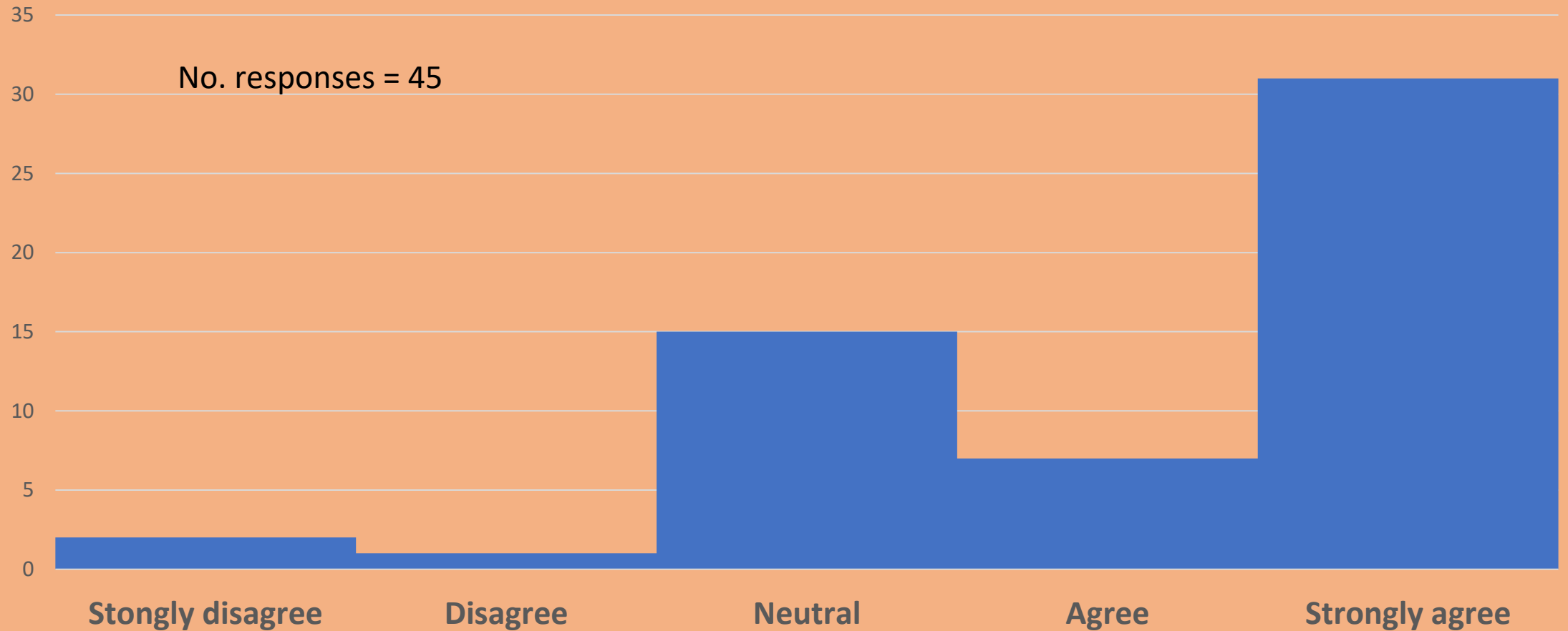
What are the main issues relating to street safety?



Responses

- The safety of pedestrians and their lack [of] priority.
- Narrow, unkept pavements with vegetation encroaching which pushes pedestrians into the road.
- Durham growing bigger than road infrastructure can cope with.
- Just too many cars. Also big lorries using these small streets.
- Narrow pavements, high vehicle speeds, and distracted drivers.
- Lack of space for pedestrians and bikes.
- The street is not wide enough to have two-way traffic and cars parked on both sides.
- Huge student numbers especially in Church St and no room on pavement

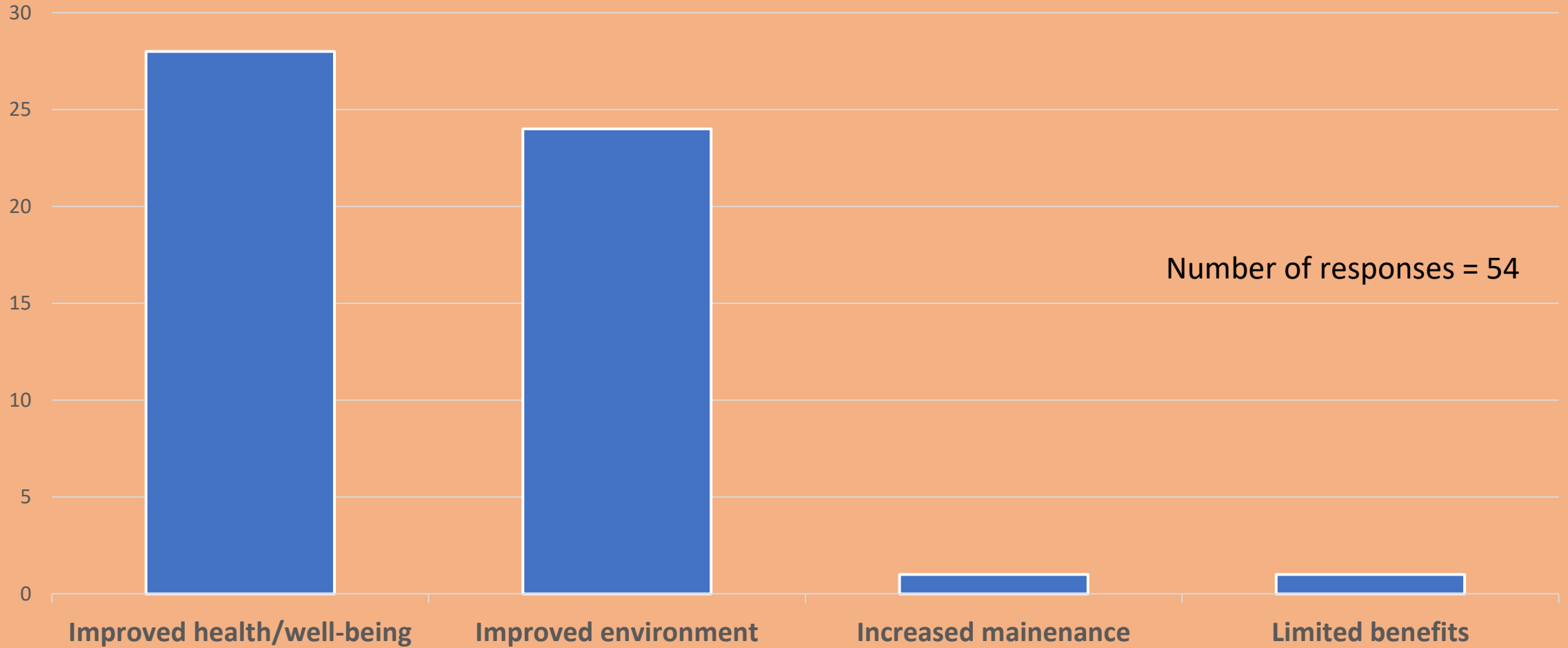
Would you like to see more planting on our streets?



Responses

- Investigate every opportunity of on and off street space to plant greenery.
- I'd love to see even more greenery on Durham streets. Maybe some planters or trees. Green roofs on bus stops would also be cool. I think it would be difficult currently though because of how narrow a lot of the pavements are.
- Planters used on Stockton Road to narrow it for car drivers and create protected bike lanes. Hallgarth and church street are both too narrow for this to be a good use of street space
- More greenery? Stupid question
- More planting in all areas that can- lots of little spaces in gates, walls, pavements, etc. No use of herbicides! or pesticides- maybe more insect & particularly pollinator-friendly planting.
- Move past ideal of “perfectly cut lawn”. Let ‘weeds’ grow. ESPECIALLY on green spaces that aren’t for sitting on. (Between Bill Bryson library and crossroad + in front and beside SU)
- Moss walls, council letting verges grow, wild flower roundabouts, tree lined streets,
- Street ‘parklets’, Green walls, Hanging baskets, more flowers, planters don't take up space on the pavements so reducing pedestrian congestion

What benefits would you expect from making the streets greener?

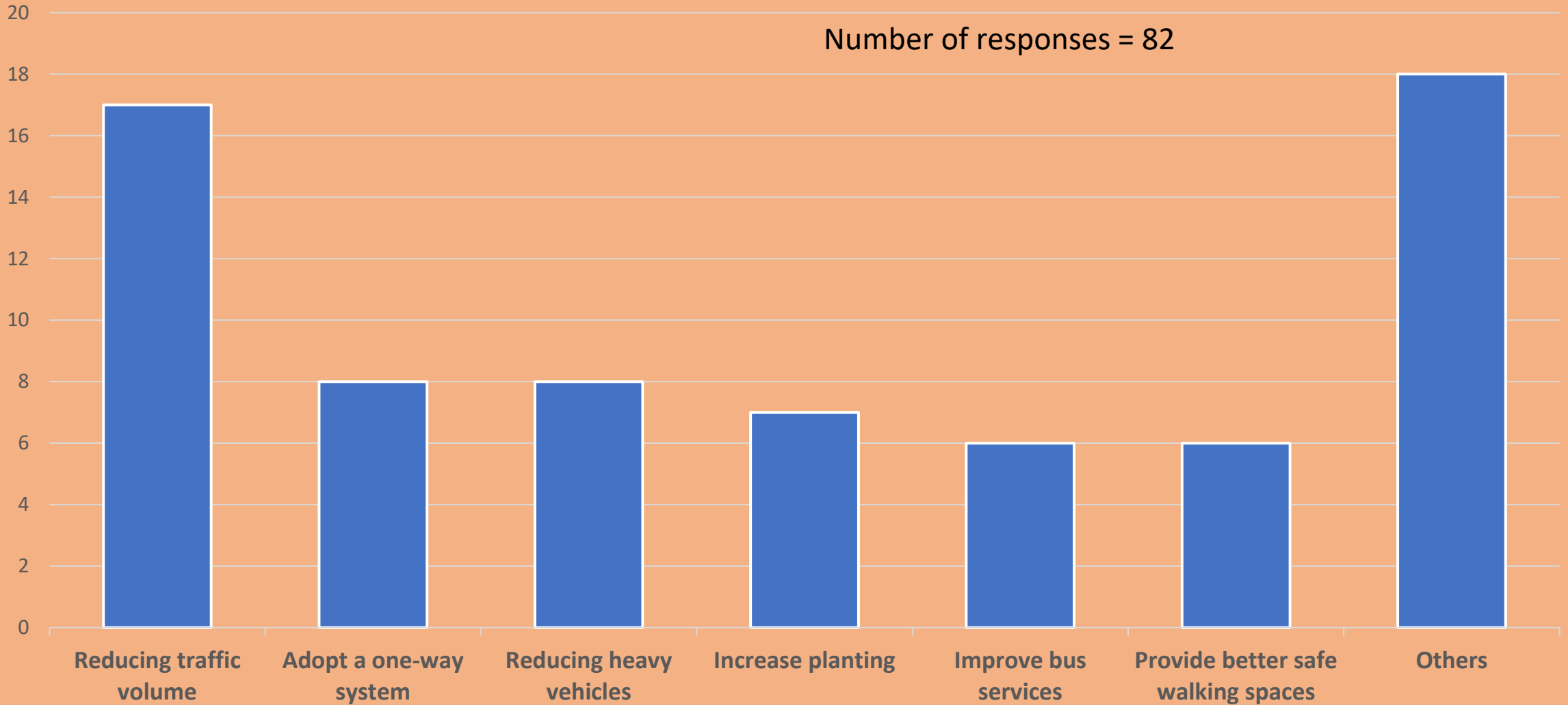


Responses

- Nicer environment. Quieter. Safer. Cleaner. Better place to live.
- Absorption of pollution, increase in oxygen, uptake of CO₂, and some dissipation of street noise.
- Less air pollution, generally prettier and calmer atmosphere. It would also be cooler on very hot days.
- Looks nicer, better sound, smells, animals, mental well-being.
- It would enhance the area just outside Elvet Riverside in particular, as this was [one] of the ugliest parts of Durham.
- Carbon Offsetting, more aesthetically pleasing, a chance to celebrate biodiversity in Durham.
- Better air quality, cooler temperatures in summer, a more attractive city centre - fitting for a world heritage site.
- everything from mental health to a more attractive environment - just look at Sheffield

What should be done to improve air quality?

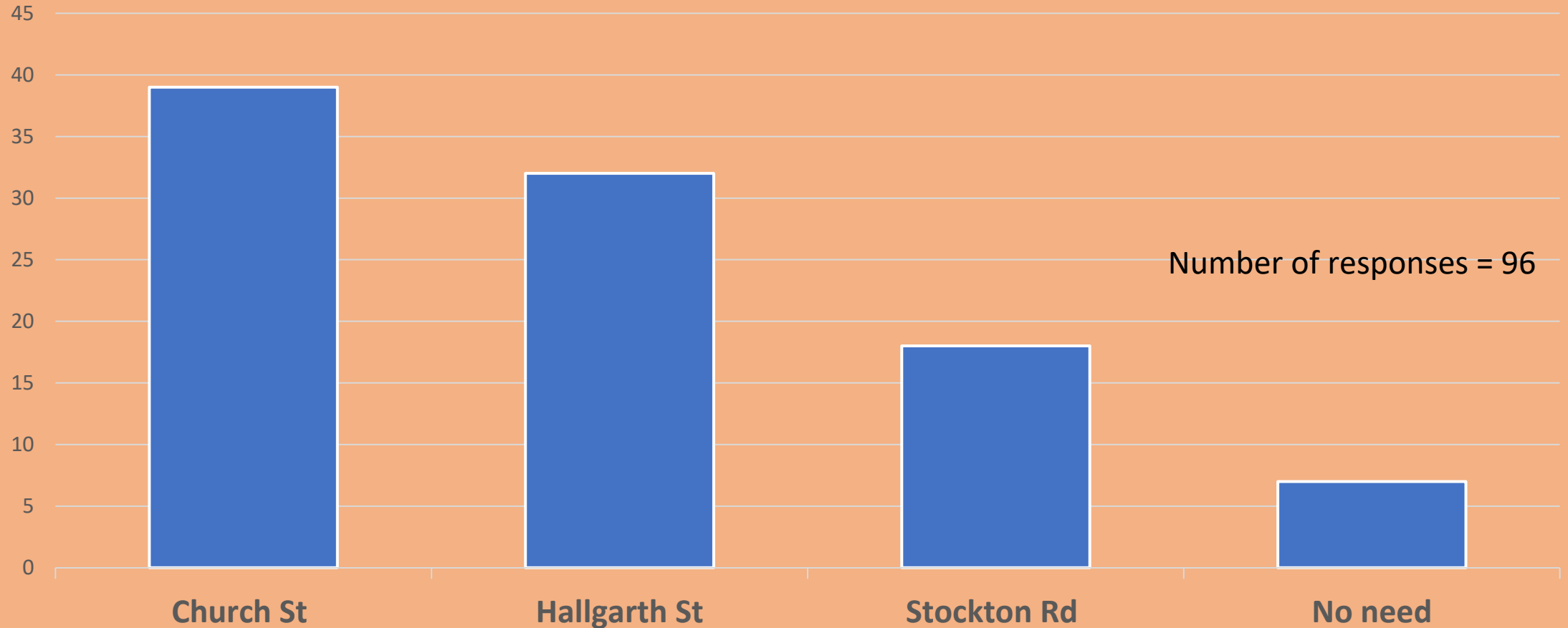
Number of responses = 82



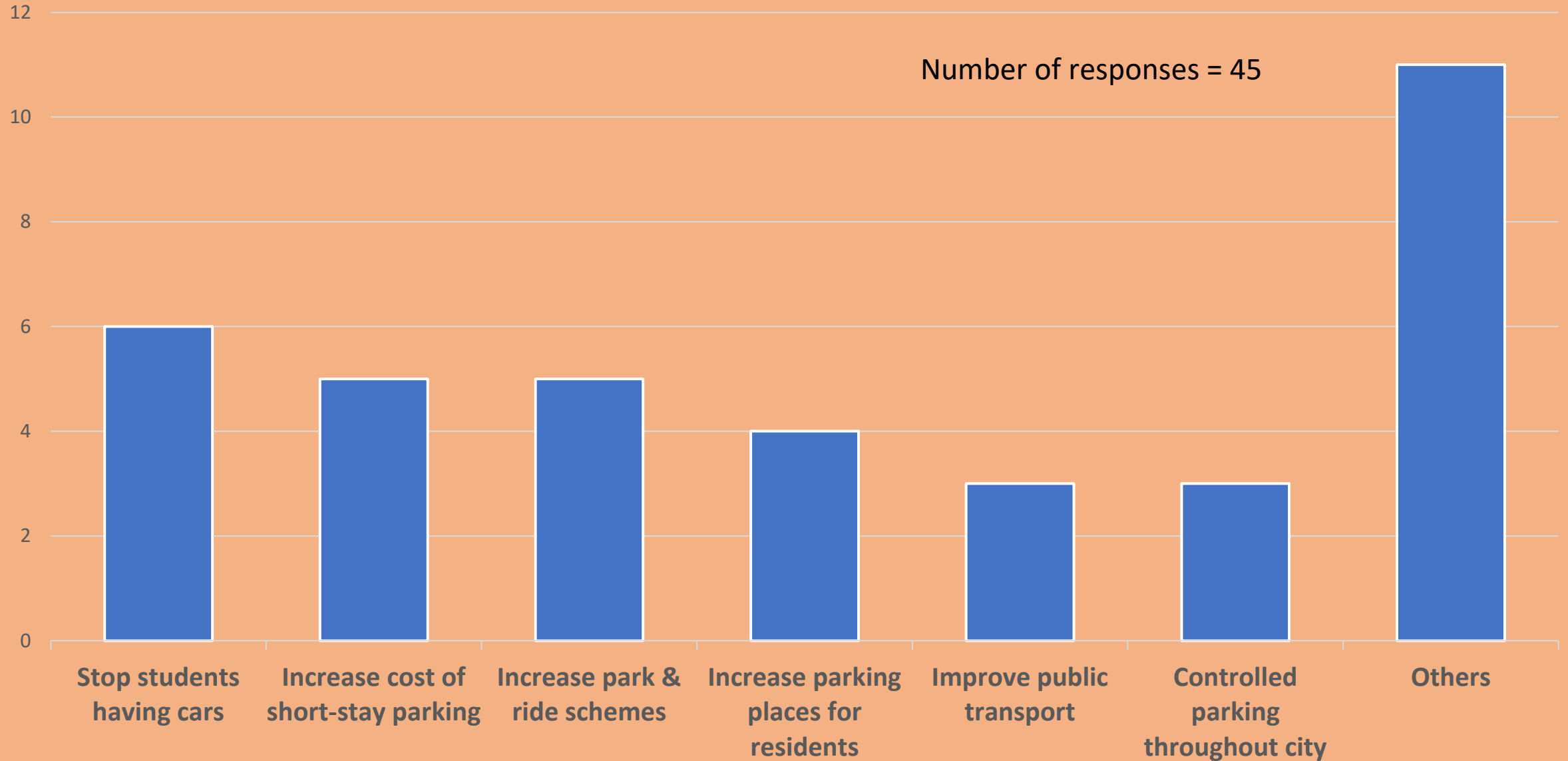
Responses

- Reduce the amount of cars driving through the town centre.
- Reduce traffic flow, clean air times, more space for people.
- Close the road to non-residents. Minimum make it one way. Reduce access to the city centre by introducing a petrol/ diesel charge as London. Make [vehicles] use the A1/A690.
- Making active travel safe is key I think. There are so many people who would like to cycle but can't. I think cycle lanes would really help improve this. If there was some way of pedestrianising more of the city that would also be great.
- Support public transport (free hop and go; simple maps; frequent service).
- Stop students bringing cars to the city.

Should we reduce the speed limit to 20 mph from the current 30 mph limit?



How can car parking be better allocated and managed for the benefit of residents, businesses, social care and community organisations?



Key findings from both surveys

- High pollution levels a major concern for residents and pedestrians
- Concern about high traffic volume making people feel unsafe walking the streets
- Support for:
 - Reducing motor vehicle traffic, particularly HGVs
 - One-way streets provided the speed limit was reduced to 20 mph
 - Widening pavements
 - Separate cycle lanes
 - Greening the streets
 - Stopping students having cars
 - Increasing cost of temporary parking
- Road management should consider pedestrians first, not vehicle users

Challenges to progress

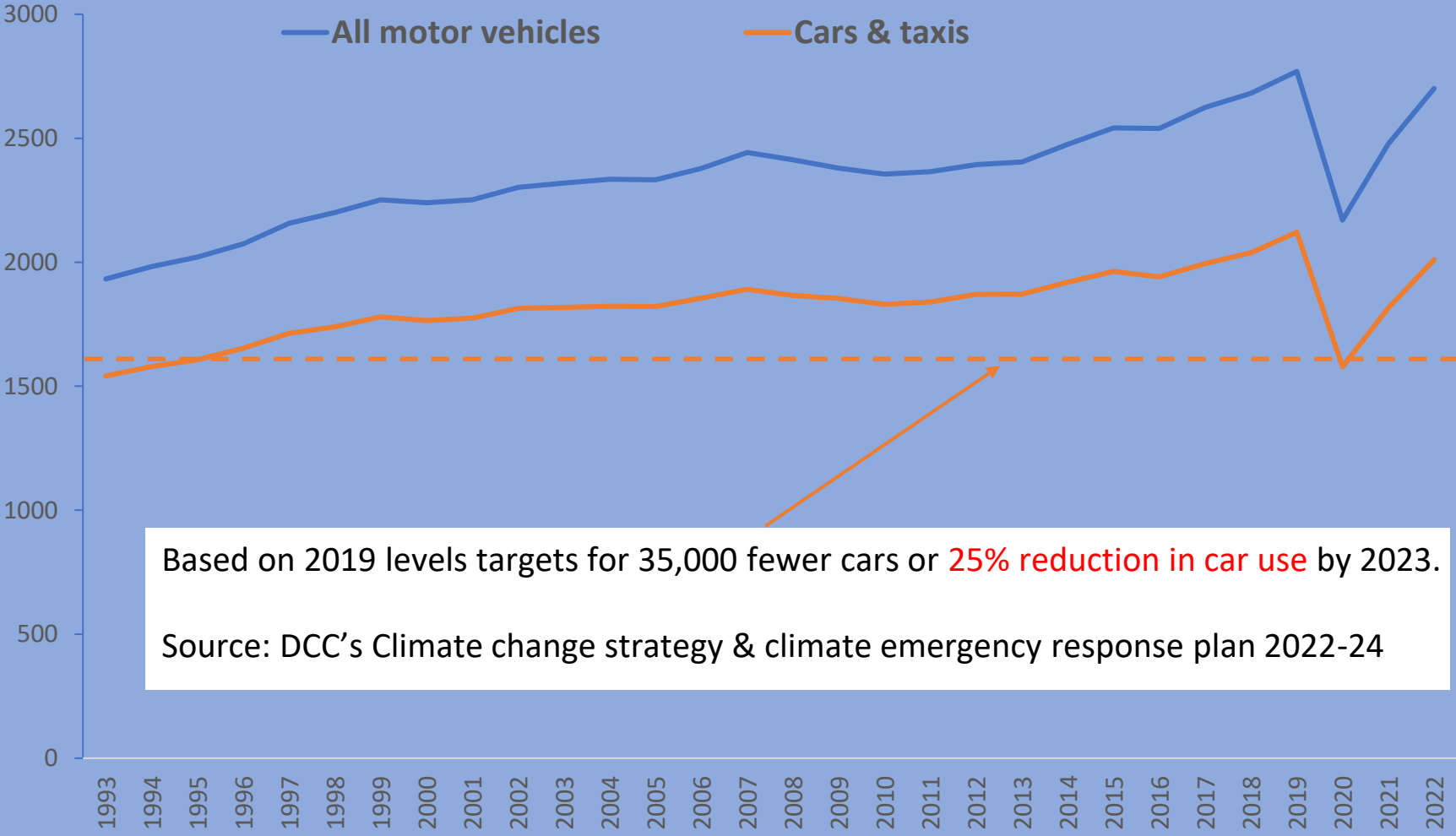
- City-wide approach needed since what we do in our streets has implications for surrounding streets.
- Need to know where the through traffic goes to in order to find less polluting forms of travel for these folk.
- Needs further discussion with our local community to decide precisely what we would all support.
- Inertia of DCC to turn agreed policy into action.
- PMs call to support 'car drivers'.

What does the future hold?

County Durham

- At the end of 2022 there were 301,500 registered vehicles up 13.3% from 2009.
- Nearly half of these were diesel cars of vans (48.6%).
- The number of registered Ultra-low Emission Vehicles in the county is low at around 3,100, representing just 1% of all registrations in the County Durham, compared with 2.6% in England.

Vehicle miles travelled (in millions) in County Durham



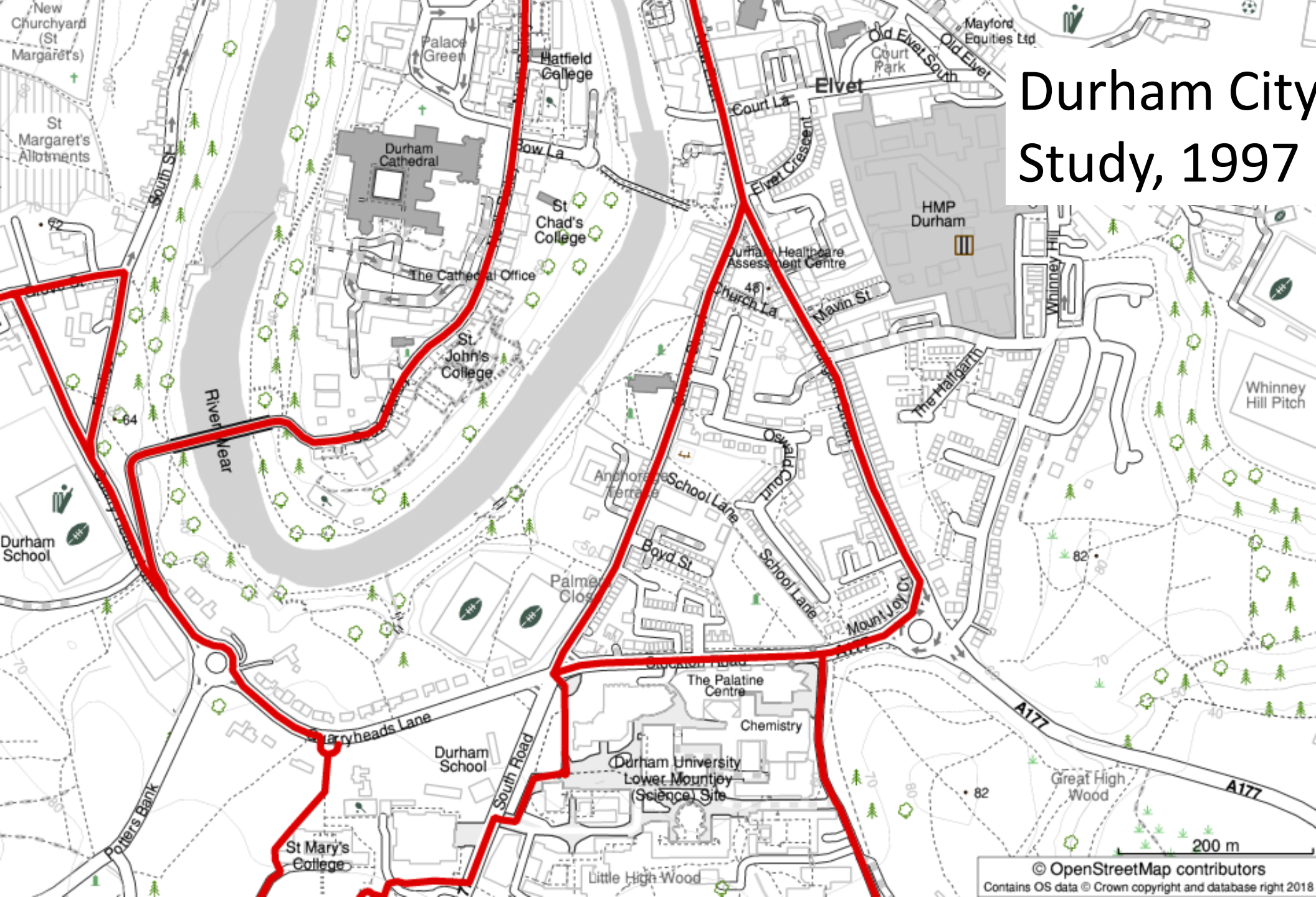
Based on 2019 levels targets for 35,000 fewer cars or **25% reduction in car use** by 2023.
Source: DCC's Climate change strategy & climate emergency response plan 2022-24

2.70 billion vehicle miles travelled on roads in Durham in 2022.

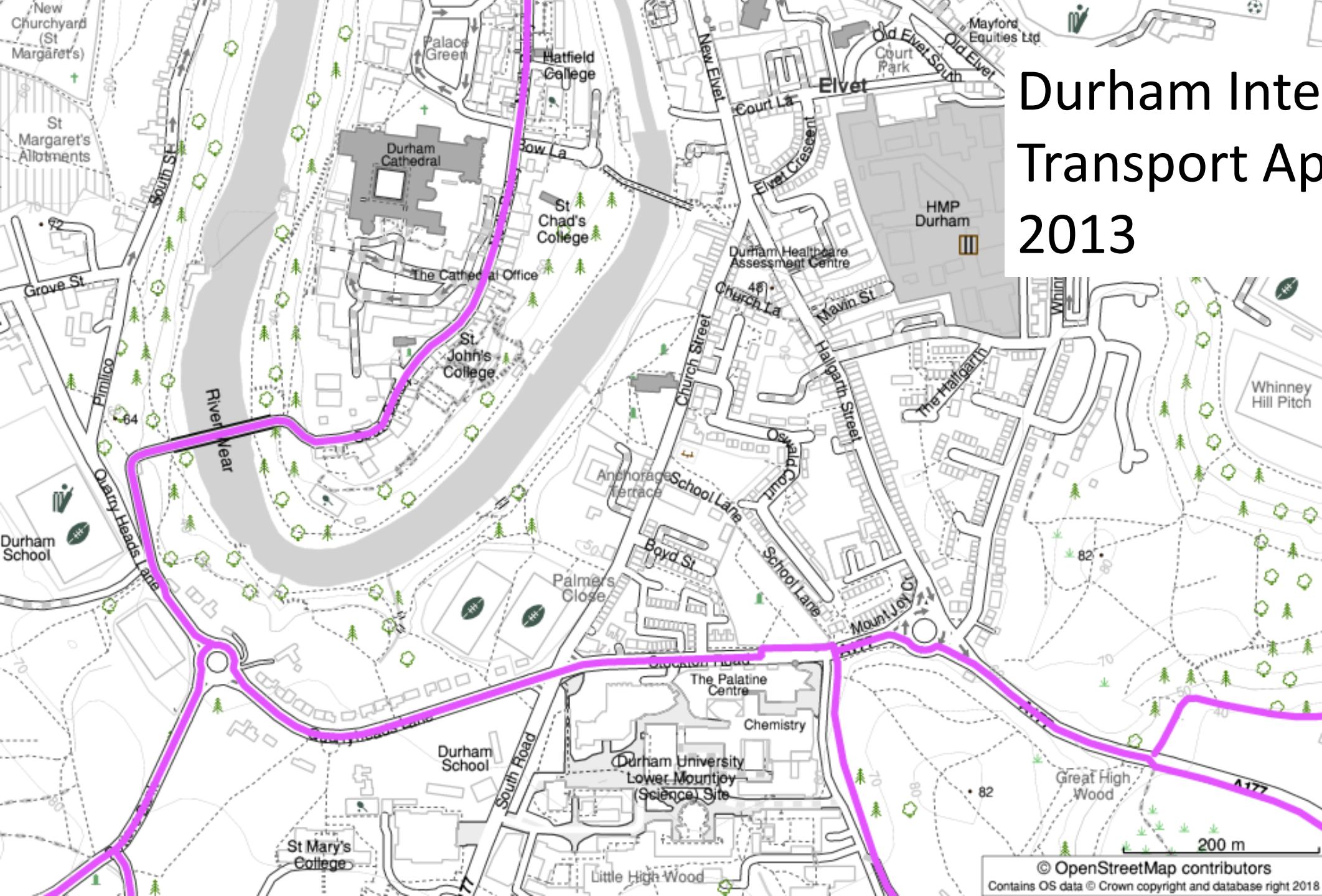
Durham County Council's Climate emergency response plan

- **Laying foundations for 2030**
 - Much improved infrastructure for cycling and walking, whilst EV charging is
Laying foundations for 2030
- **County Durham's vision for 2045**
 - Excellent public transport. Cycling and walking as normal. All vehicles are ultra-low emission. Individual car ownership is less common.

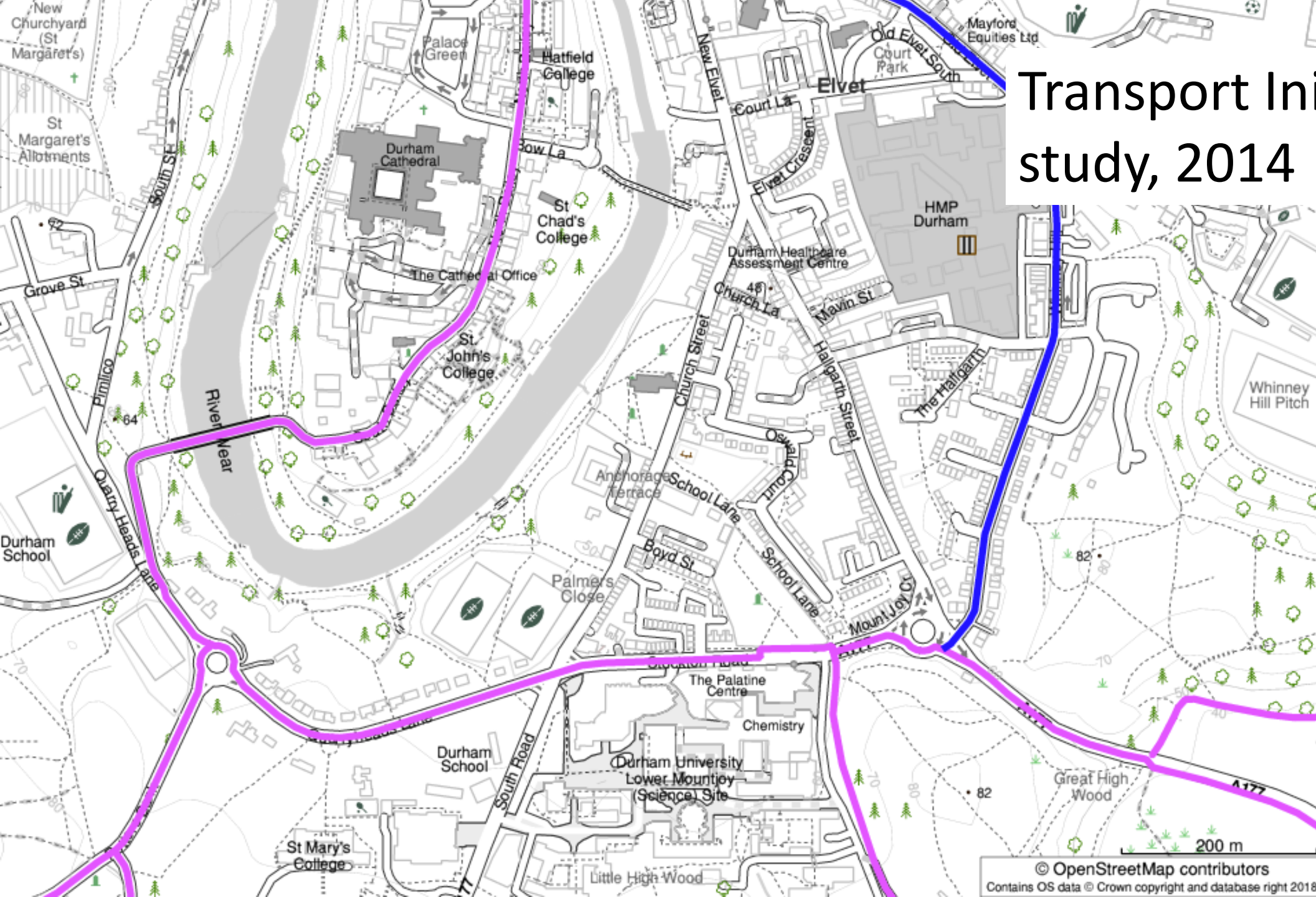
Durham City Travel Study, 1997



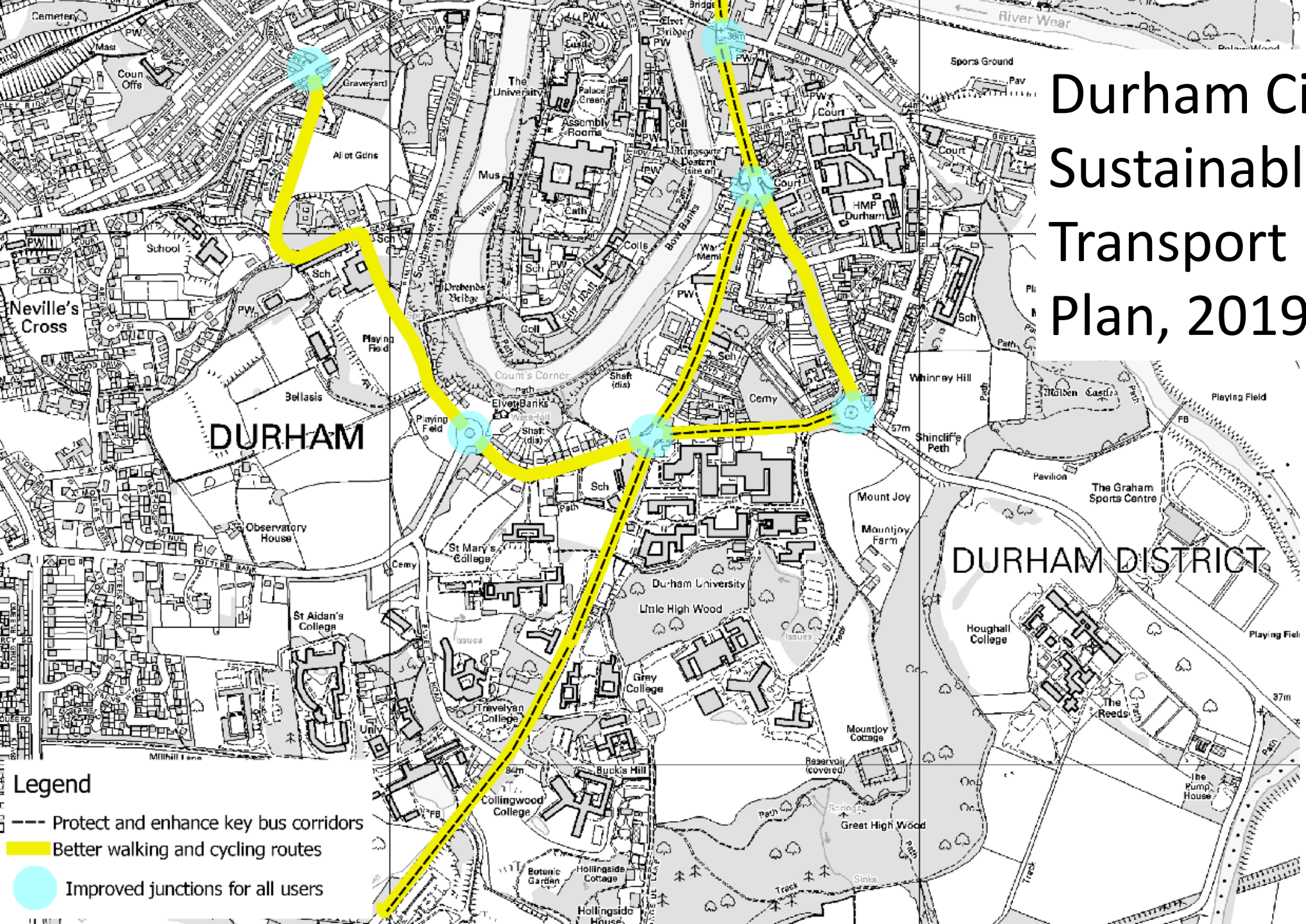
Durham Integrated Transport Approach, 2013



Transport Initiatives study, 2014



Durham City Sustainable Transport Delivery Plan, 2019



- ### Legend
- Protect and enhance key bus corridors
 - Yellow line Better walking and cycling routes
 - Light blue circle Improved junctions for all users

Re-imagining the street



Looking south along Church Street
towards the New Inn junction





Summary

- Heavily polluted air is common in our streets
- Dirty air impacts health
- Major pollutants are from petrol & diesel vehicles
- Our community of long-term residents and students want action to reduce air pollution & improve road safety
- Intervention requires fewer cars, a one-way system at 20 mph, with broader pavements & cycle lanes, and greener streets
- Need to turn strategy documents into action
- Primacy for pedestrians and cyclists, not vehicles