The American Chamber of Commerce in Hong Kong

Response to the Environment Bureau/Environmental Protection Department on 2025 Air Quality Objectives Review Public Consultation

October 2019

The American Chamber of Commerce in Hong Kong (AmCham) is the largest international chamber in Hong Kong and one of the largest American Chambers outside the US. Local air quality has consistently been a major topic of concern for our members and we appreciate the opportunity to give our views on this important issue as government consults on the new Air Quality Objectives (AQOs) for 2025.

Air quality is an issue that profoundly affects everyone in Hong Kong and directly impacts businesses, not only through the health of their employees (and their families), but the ability of our city to attract and retain international talent from overseas. Whilst we recognise that the air pollution we see in Hong Kong comes from both local and regional sources, it is clear that our city must continue to move towards the ultimate Air Quality Guidelines (AQGs) set by the World Health Organisation (WHO) as our statutory air quality standards. Although at present, it seems that no country has yet fully adopted all of the WHO ultimate AQGs, Hong Kong needs to significantly tighten the local air quality standards, some of which still exceed the recommended WHO ultimate AQGs by a wide margin.

Setting tighter AQOs for 2025 is a key milestone for driving improvement and whilst, in general, we support the direction taken by government, we believe that more effort needs to be made on the Particulate Matter (PM) targets, including PM_{10}/$PM_{2.5}$, Ozone (O_3) pollution and the levels of roadside Nitrogen Dioxides (NO_2). A number of the major initiatives to improve future air quality listed in Sections B and C of Annex 3 of the consultation document should also be brought forward, so they can already begin to have a benefit *before* 2025.

There are two other broader issues that AmCham would like to raise in respect of this consultation: the importance of working with authorities across the border in the Greater Bay Area (GBA) and the strong synergies to be gained by linking measures to reduce air pollution with those to reduce carbon emissions. As a simple example, moving from internal combustion engine vehicles to electric vehicles will not only have an enormous public health benefit in terms of roadside air quality but will also help to reduce carbon emissions.

AmCham notes the general reductions in local pollutants and improving air quality in recent years, which are a reflection of government's success in measures to tighten standards and the commitment of businesses to meet these. The Chamber recognises the complexities associated with setting the AQOs, including their role in the Environmental Impact Assessment (EIA) process and the issuance of Environmental Permits (EP). Without frustrating much needed economic development and infrastructure projects, AmCham believes the proposed reductions in pollutants are necessary, but not sufficient, in a number of areas. Please refer to the Appendix for our detailed comments and recommendations. We would be happy to engage with the Administration going forward as plans are put in place and targets formulated.

Appendix – Detailed Recommendations

Introduction

The Chamber welcomes the public consultation document published by the Environment Bureau/ Environmental Protection Department on the 2025 Air Quality Objectives Review.

The public consultation document[1] identifies three tighter AQOs for 2025, three which are unchanged and six which are already set at the WHO Ultimate AQGs. It also notes that performance up until 2018 has so far not met the 2020 AQOs for O_3 and NO_2, both of which pose important public health risks. O_3 is increasing in general in the urban and new town areas of Hong Kong and roadside annual NO_2 levels at Central, Causeway Bay and Mong Kok are currently around twice the prevailing AQO for annual NO_2. The consultation document also highlights a number of mitigation measures, both in hand and proposed for the longer term, and our view is that many of these need to be quickly brought forward.

Focus Areas for Our Response

Targets

Our comments are confined to the AQOs for three pollutants: Sulphur Dioxide (SO_2), Respirable Suspended Particulates (PM_{10}) and Fine Particulate Matter ($PM_{2.5}$) as shown in the table below extracted from the consultation document. Performance against the AQOs for NO_2 and O_3 are also discussed below.

Pollutant	Averaging Time	WHO AQGs (μg/m³)				No. of exceedances allowed in Hong Kong's prevailing AQOs
		IT-1	IT-2	IT-3	Ultimate Target	
SO_2	10-minute	———			500	3
	24-hour	125 ⇨ 50		—	20	3
PM_{10}	annual	70	50	30	20	Not applicable
	24-hour	150	100	75	50	9
$PM_{2.5}$	annual	35 ⇨ 25		15	10	Not applicable
	24-hour	75 ⇨ 50		37.5	25	9 ⇨ 35

Whilst we support the tightening of the AQO for 24-hour SO_2, which is mainly produced from local sources, we suggest that concrete steps are put in place in the next 5 year period to allow a further reduction to a concentration level between IT-2 and the ultimate target level to be proposed in the next 5 yearly review, as we feel that IT-2 for 24-hour SO_2 can be more than comfortably achieved by 2025 if the right measures are put in place.

For PM_{10}, we note that government is not proposing to tighten the targets at all, yet we see in Annex 2 of the consultation document that there was no non-compliance with the prevailing AQOs for PM_{10} at any of the monitoring stations last year. Whilst we recognise that many PM_{10} emissions

[1] https://www.aqoreview.hk/static/docs/booklet-en.pdf

are on a regional rather than local level, Government should give consideration to tightening the AQOs for PM_{10} to IT-3 levels at the next review (perhaps with a slight increase in the number of exceedances allowed for 24-hour PM_{10}), given that these very fine particles can be drawn deep into the lungs where they can pose a significant health risk.

For $PM_{2.5}$, we support the tightening of both the annual and 24-hour targets to IT-2 levels but would like to express our concerns on the increase in the number of exceedances allowed from 9 to 35. This increase seems too great. As the consultation document notes, based on the historical data from the ambient air quality monitoring network between 2011 and 2017, there were 30 exceedances recorded against the proposed new 24-hour AQO for $PM_{2.5}$. That does not take account of the expected improvements in both Guangdong and Hong Kong post 2020 and so we believe that the number of days of exceedance should be set at less than 30.

We note that no changes are proposed to the AQO for NO_2, which is not surprising as the prevailing NO_2 AQOs are already at the WHO ultimate AQGs and that the current performance does not meet the prevailing NO_2 AQOs at all three roadside stations by considerable margin. O_3 is increasing in general in the urban and new town areas of Hong Kong. NO_2 is an issue of serious health concern, particularly at roadside where this will affect lung function and lower resistance to respiratory infections and O_3 is of concern for its impact on asthma. The Chamber believes that although the 2025 AQOs for these two pollutants should not change from those set for 2020, much more effort musts be made by the Administration to put in place measures to see current NO_2 and O_3 levels reduced by 2025. These are highlighted in the section on mitigation measures below.

Mitigation Measures

The Council for Sustainable Development has recently undertaken a public engagement exercise on the development of a long-term decarbonisation strategy for Hong Kong. The Chamber has already provided a detailed response[2] to this exercise and it is important to note that many of the proposals we have made to reduce carbon emissions can also reduce air emissions, especially when they involve the combustion of fossil fuels. We believe that the following should be introduced as advocated in our submission:

- A further phasing down of coal in power plants, with replacement gas generation and a move towards stronger regional cooperation, with the import of zero emission Renewable Energy (RE) and nuclear power in the longer term. Together with an emphasis on local RE generation, where practicable, this would reduce local air emissions from the power sector over the next 20-30 years.
- A focus on significantly reducing emissions from the maritime sector, which is responsible for a very significant proportion of local air emissions. This must include the fast-tracked development of liquefied natural gas (LNG) bunkering facilities by 2025, the provision of government support to port/logistics operators to electrify port and maritime operations wherever possible, including the trial of shore to ship power as at Long Beach in California, electric short distance ferries and the use of electricity for dockside cargo handling.
- The speedy introduction of measures to reduce the use of on-site generators and other stationary plant using diesel fuels on construction sites with a move to mandatory electrification, with government taking the lead on its own projects. As many construction sites are situated in densely populated urban areas, this will have immediate benefits for local air quality in nearby communities.
- As lower carbon and lower air emissions electricity becomes more widely available, look to support the transition away from the burning of fossil fuels for water heating or cooking in

[2] https://www.amcham.org.hk/uploads/media/default/0001/07/ab2a17d6889dd2c506975270faf199f7abe819ed.pdf

buildings. This will not only improve indoor air quality (in restaurant kitchens for the staff that work there for example) but also in buildings close to factories or hotels where diesel or gas is used for heating purposes.

- Roadside emissions are a primary concern for public health. Hong Kong needs to do much more to reduce both NO_2 and also PM_{10}/$PM_{2.5}$ at the roadside level. Many of the measures suggested below will also significantly reduce carbon emissions:
    - Bring forward Hong Kong's 'Rail First' public transport policy with a clear timetable for the development of the additional 7 lines
    - Develop and implement planning and urban design measures to separate pedestrians and roadside vehicles as much as possible, encourage more walking and cycling and introduce Electronic Road Pricing (ERP) and other measures to reduce fossil-fuelled vehicles usage.
    - Steps should be taken quickly (as they have in Mainland and overseas cities) to move to low emissions buses for road-based mass public transit. The current very limited trials for electric minibus and larger public buses should be expanded, together with the provision of a more comprehensive charging network.
    - In the case of light duty cars and vans, electric vehicle technology is already proven and offers zero tailpipe emissions. Government should consider a range of policy measures to significantly increase take-up, which has slowed since the abolition of the original First Registration Tax incentives in 2017. These may include not only capital cost incentives for companies and individuals but also tax and other support for the wider installation of charging networks and introducing time limits on the registration of new Internal Combustion Engine cars, say by the mid-2030s as other cities have done.
    - For heavy goods vehicles, technology options are not yet mature and further study is needed but LNG or hydrogen-fuelled transport may be a longer term option.
- The increase in ozone concentrations remains a major cause for concern. Whilst the Chamber understands that this is a complex issue, without simple and easily identifiable emissions sources, we suggest that this must be seen as an important area for further improvement in formulating plans in the next 5 yearly AQO review. We recommend that government form a taskforce not later than the first half of 2020 with experts from both the HKSAR and Guangdong, including expertise from both the scientific and business communities, to draw up a concrete action plan for further action to be published before the end of 2022, for input into the next AQO review.

GBA/Cross-Border Influences

The Chamber recognises the benefits of government's close cooperation with the authorities in Guangdong in improving Hong Kong's air quality. This has yielded tangible benefits in the maritime and other sectors. The development of the GBA into a model of high quality development and a leading area for living, working and travelling, has been set out in the initial plan[3] published earlier this year. The GBA, comprised of 11 cities, has a population of more than 70 million and represents 12% of China's total GDP. It is expected to reach a GDP of US$4.6 trillion by 2030, which is more than double today's levels. This economic growth must be achieved without an equivalent cost to the environment, in air emissions or in other key environmental indicators.

GBA cities are working to develop greener transport systems. Shenzhen is a world leader in both the development of new technology and the deployment of established technologies with

[3] https://www.bayarea.gov.hk/filemanager/en/share/pdf/Outline_Development_Plan.pdf

thousands of electric buses already running in the city. Hong Kong could learn much from these developments. The logistics and maritime transport sectors play a key role in the GBA. Ports in Guangdong already use electricity in both container handling and dockside, while neighbouring jurisdictions are developing LNG bunkering. This experience could also be extended to Hong Kong to develop a common standard for ships calling anywhere in the GBA.

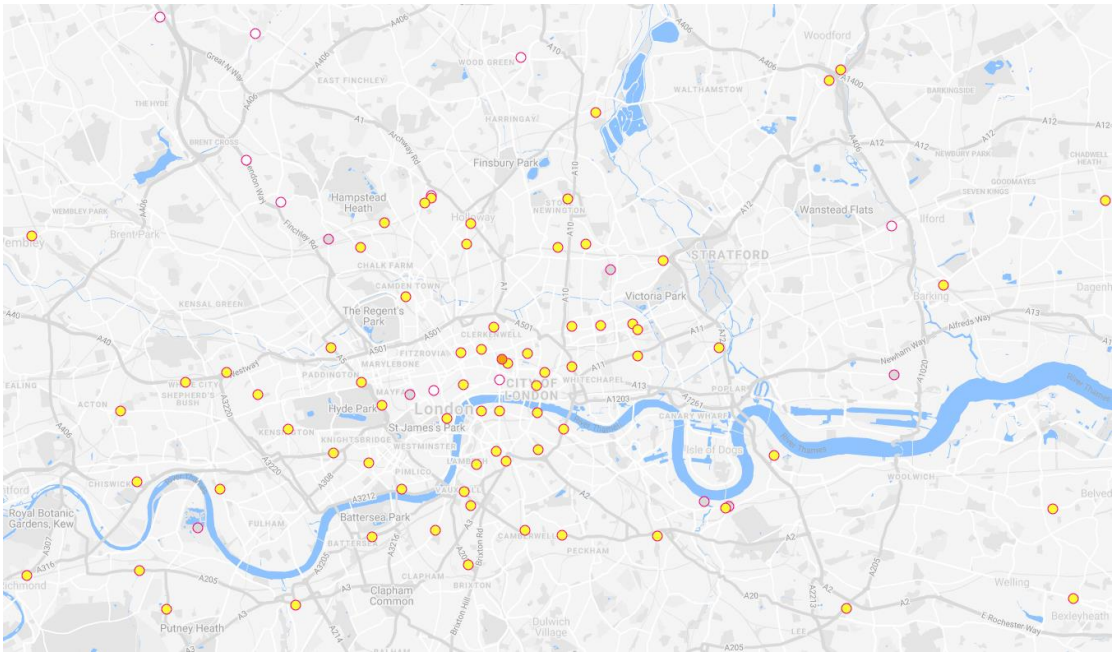
Measurement and Monitoring: Open Data

Hong Kong has only 3 roadside air quality monitoring stations and less than 20 overall. Other leading metropolitan cities have many more, with London being an example for Hong Kong to follow. It has a land area of around 1,500 sq.km., compared to Hong Kong's 1,100 sq.km. and a population of 8 million compared to Hong Kong's 7.5 million, so given the urban density of our city, we should have at least the same sophistication of monitoring that London does.

In January 2019, London launched a new state-of-the-art air quality monitoring network and analysis to identify London's worst air quality hotspots[4], with sensors to measure air quality in tens of thousands of locations and online real-time maps to help citizens avoid pollution hotspots.

The Mayor has collaborated with the Environmental Defense Fund Europe and Google Earth Outreach, who have equipped two of their Google Street View cars with air quality sensors. These will take pollution readings approximately every 30 metres at tens of thousands of locations whilst they travel through London's streets, building up a picture of London's air quality over the course of a year and identifying areas of polluted air that the network of fixed monitors might miss. Meanwhile, 100 state-of-the-art fixed sensor pods will be mounted on lampposts and buildings close to known air quality hotspots and sensitive locations such as schools and nurseries.

An example of the current live view network is shown below:



Central London NO_2 Air Quality Monitoring Stations Active 26 September 2019
https://www.breathelondon.org

[4] https://www.london.gov.uk/press-releases/mayoral/to-identify-londons-toxic-air-hotspots

Not only should there be more monitoring stations and real-time data availability in Hong Kong, but the detailed monitoring results should be made available online, as with the London Atmospheric Emissions Inventory[5, 6].

As GBA integration takes place and people move more freely across the boundary between Hong Kong and Guangdong, the government should add weblinks to the results from the Mainland's monitoring stations in Guangzhou and Shenzhen to its own sites (and encourage the Mainland to do the same), so travellers can gain easy access to likely conditions at their destination.

Summary & Conclusion

Air quality is an issue that profoundly affects everyone in Hong Kong and directly impacts businesses, not only through the health of their employees (and their families), but the ability of our city to attract and retain international talent from overseas. Whilst we recognise that the air pollution we see in Hong Kong comes from both local and regional sources, it is clear that our city must continue to move towards the WHO ultimate AQGs as our statutory air quality standards. Although, at present, it seems that no country has yet fully adopted all of the WHO ultimate AQGs, Hong Kong needs to significantly tighten local standards, many of which still exceed WHO ultimate AQGs by a wide margin.

Hong Kong's current Clean Air Plan[7] was issued in 2013. The Chamber believes that a new edition is overdue and once this public consultation process has been concluded we would suggest that the new edition of the Clean Air Plan includes the concrete mitigation measures we have noted above and EPD's own proposed measures set out in Sections B and C of Annex 3 of the public consultation document. Clear timelines, targets and milestones, together with the allocation of responsibilities need to be included for each of these, especially as it seems many of the 'longer term' proposals from government are focussed on 'exploring' rather than 'implementing' change.

[5] https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory--laei--2016
[6] https://data.london.gov.uk/publisher/gla-and-tfl-air-quality
[7] https://www.enb.gov.hk/en/files/New_Air_Plan_en.pdf