AIR QUALITY IN HONG KONG

THE GOVERNMENT OF
THE HONG KONG SPECIAL ADMINISTRATIVE REGION

環境保護署
Environmental Protection Department

2025

AIR QUALITY IN HONG KONG

FOR THE YEAR 2025

Air Science and Modelling Group
Environmental Protection Department
The Government of the Hong Kong Special Administrative Region

KEY FACTS FOR 2025

The overall air quality of Hong Kong has been improving in recent years, with concentrations of major air pollutants continuously decreasing and remaining at low levels since Hong Kong's return to the motherland. Notably, the annual average concentration of fine suspended particulates ($PM_{2.5}$) dropped to approximately 14.6 µg/m^3 in 2025. Owing to the efforts of the Hong Kong Special Administrative Region Government over the years, Hong Kong's air quality has continued to improve over the past 20 years, resulting in a reduction of long-term health risks by more than 50%. The long-term health risks posed by air pollution have decreased to levels between Interim Target 2 and Interim Target 3 of the 2021 World Health Organisation Global Air Quality Guidelines, and have thus been significantly reduced.

In 2025, overall air quality in Hong Kong remained good, with pollutant levels comparable to those in 2024 and broadly complying with the Hong Kong Air Quality Objectives (AQOs). According to data recorded by the Environmental Protection Department's air quality monitoring network, the annual average concentrations of respirable suspended particulates (PM_{10}), fine suspended particulates ($PM_{2.5}$), nitrogen dioxide (NO_2) and sulphur dioxide (SO_2) in the ambient air have decreased by 45% to 88% since 2004. Meanwhile, the annual average concentrations of roadside air pollutants have also decreased by 37% to 83%.

However, challenges remain regarding roadside nitrogen dioxide (NO_2) and regional ozone (O_3) pollution. To address these, the HKSAR government will continue to tighten vehicle emission standards and promote the popularisation of electric vehicles to improve roadside air quality. Furthermore, although ambient O_3 levels, which are influenced by regional photochemical smog, have risen in recent years, the trend has gradually stabilized. The HKSAR government will continue to strengthen cooperation with the Guangdong Provincial Government to further reduce regional emissions and mitigate regional photochemical smog and O_3 pollution.

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The Air Quality Monitoring Network

The Environmental Protection Department (EPD) operates a network of air quality monitoring stations (AQMSs) for measuring the concentrations of major air pollutants in Hong Kong. The air quality monitoring network comprises 18 AQMSs, including 15 general stations and 3 roadside stations monitoring ambient air quality and roadside air quality respectively. Details of these AQMSs, quality control and quality assurance policies are set out in **Appendix A**.

Figure 1: Locations of EPD's AQMSs in 2025

The monitoring network operated smoothly in 2025. The average monthly data capture rate for the six air pollutants, namely sulphur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), ozone (O_3), respirable suspended particulates (PM_{10}) and fine suspended particulates ($PM_{2.5}$), measured at all AQMSs was above 97%.

This report summarises the air quality data collected by the EPD's air quality monitoring network in 2025.

Long-term Trends in Air Pollutant Levels

Air quality is influenced by both emissions and meteorological conditions. Over a short period, for instance a few months to a year, air quality is more subject to variations in weather conditions even though the emission levels are more or less the same, e.g., stronger solar radiation will promote photochemical smog formation, more rainfall will help scrub pollutants from the air, etc. In the long run, however, air quality is primarily affected by emissions. Therefore, a **scientific way to assess air quality changes and the effectiveness of emission control measures is to examine the trend of annual average pollutant concentrations over the years**.

The long-term trends for air pollutants presented in this section are based on their annual average concentrations recorded from the relevant AQMSs categorized into 4 groups of land use types, namely Urban, New Town, Rural and Roadside as defined in **Table 1**.

Table 1: Classification of Air Quality Monitoring Stations by Land Use Types

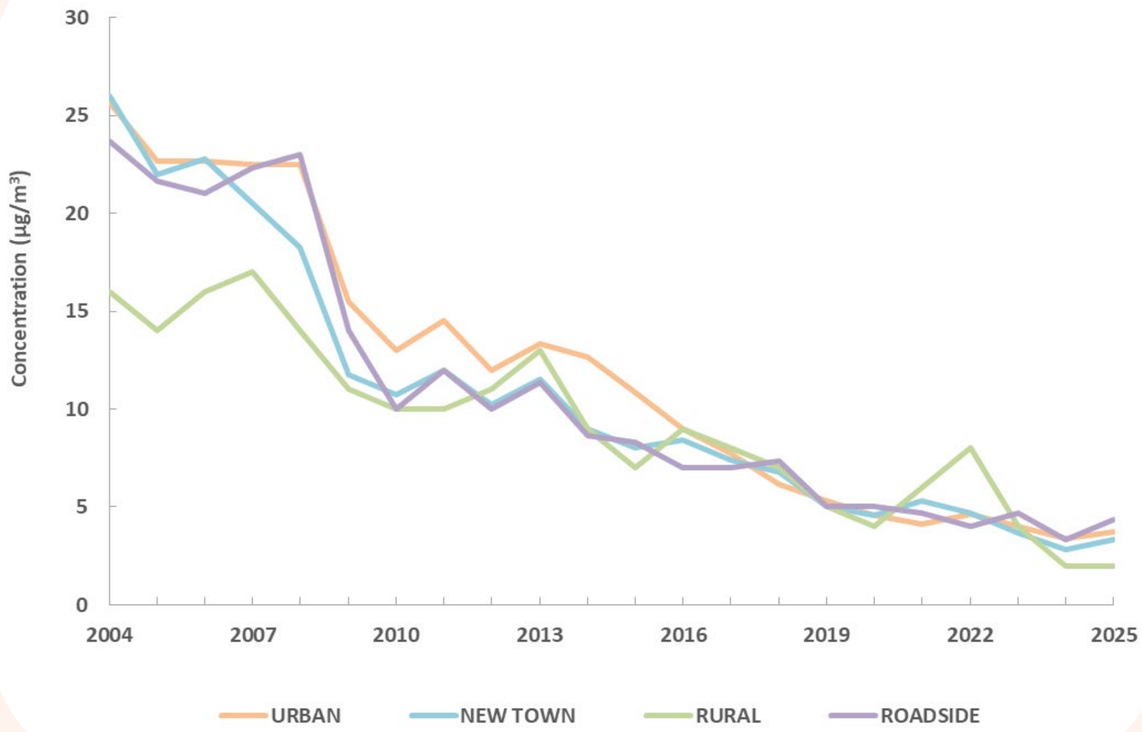
Land Use Type	Land Use Characteristics	Air Quality Monitoring Stations
Urban	Densely populated residential areas mixed with some commercial and/or industrial areas	· Central/Western · Southern · Eastern · Kwun Tong · Sham Shui Po · Kwai Chung · Tsuen Wan · Tseung Kwan O
New Town	Mainly residential areas	· Yuen Long · Tuen Mun · Tung Chung · Tai Po · Sha Tin · North
Rural	Rural areas	· Tap Mun ⍰ (background station)
Roadside	Urban roadside in mixed residential/ commercial areas with heavy traffic and surrounded by many tall buildings	· Causeway Bay · Central · Mong Kok

Sulphur Dioxide (SO_2)

Long-term Trends in SO_2 Levels

Hong Kong has continued to implement various fuel restriction measures, and SO_2 concentration levels have shown a marked downward trend from 2004 to 2025. **In 2025, the annual average concentrations of SO_2 in ambient air and roadside air were significantly lower than in 2004, decreasing by 88% and 83%, respectively**. In the same year, the annual average concentrations recorded across all types of land-use monitoring stations in Hong Kong remained at extremely low levels, ranging from 2 to 4 μg/m^3.

Figure 2: Long-term Trends in SO_2 Levels

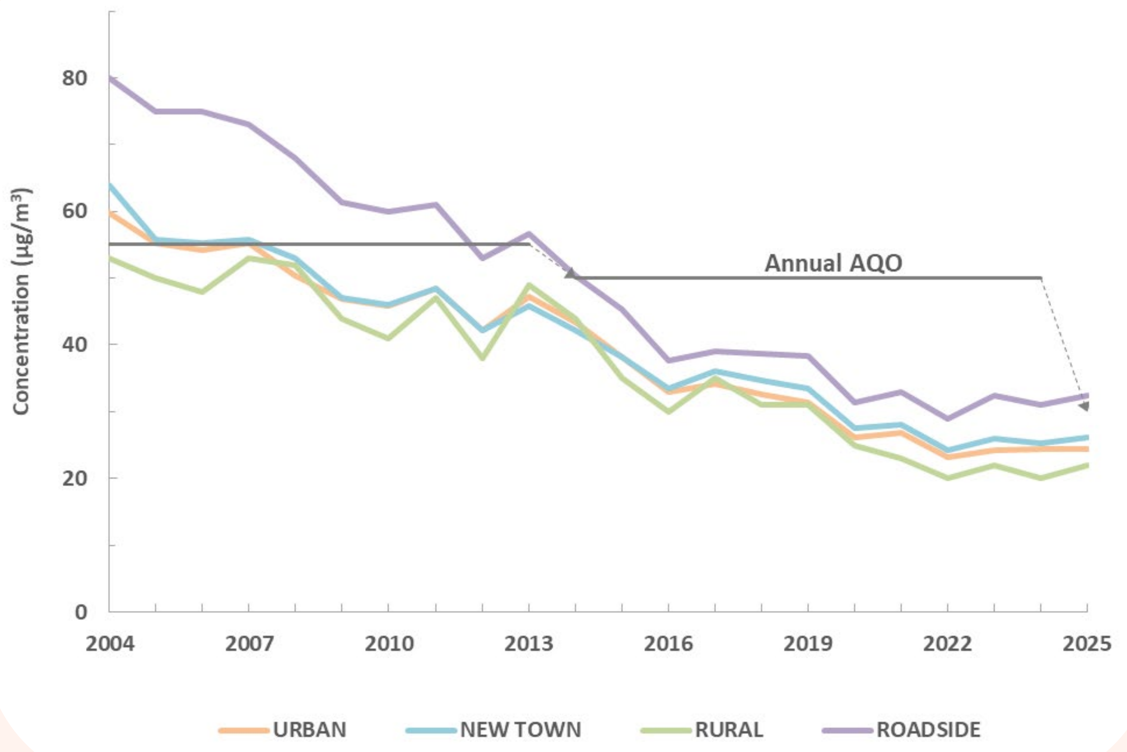


Respirable Suspended Particulates (PM_{10})

Long-term Trends in PM_{10} Levels

The annual average concentration levels of PM_{10} in Hong Kong showed a marked downward trend between 2004 and 2025. As a result of the implementation of various vehicle emission control measures over the past two decades, the improvement in roadside air quality has been particularly remarkable. **In 2025, the annual average PM_{10} concentrations in roadside and ambient air dropped substantially by 60% and 58%, respectively, compared with 2004**. While there was a vast gap between roadside and rural concentration levels in the earlier years, this difference across various monitoring stations has narrowed significantly in recent years as emission reduction measures took effect, indicating that high roadside pollution has been effectively brought under control.

Figure 3: Long-term Trends in PM_{10} Levels

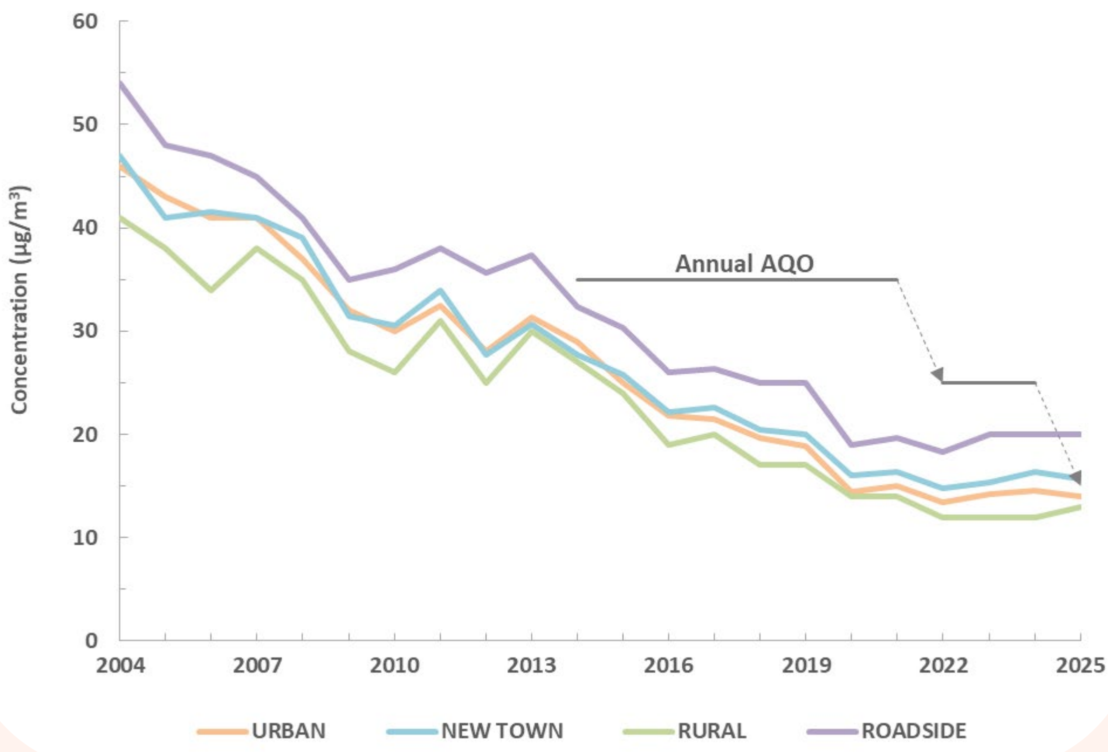


Fine Suspended Particulates ($PM_{2.5}$)

Long-term Trends in $PM_{2.5}$ Levels

Similar to PM_{10}, Hong Kong's $PM_{2.5}$ levels have also shown a stable downward trend over the past two decades. Benefiting from long-term emission reduction measures, the **annual average concentrations of $PM_{2.5}$ in ambient and roadside air in 2025 were reduced substantially by 67% and 63%, respectively, compared with 2004**, leading to a significant improvement in overall air quality.

Figure 4: Long-term Trends in $PM_{2.5}$ Levels

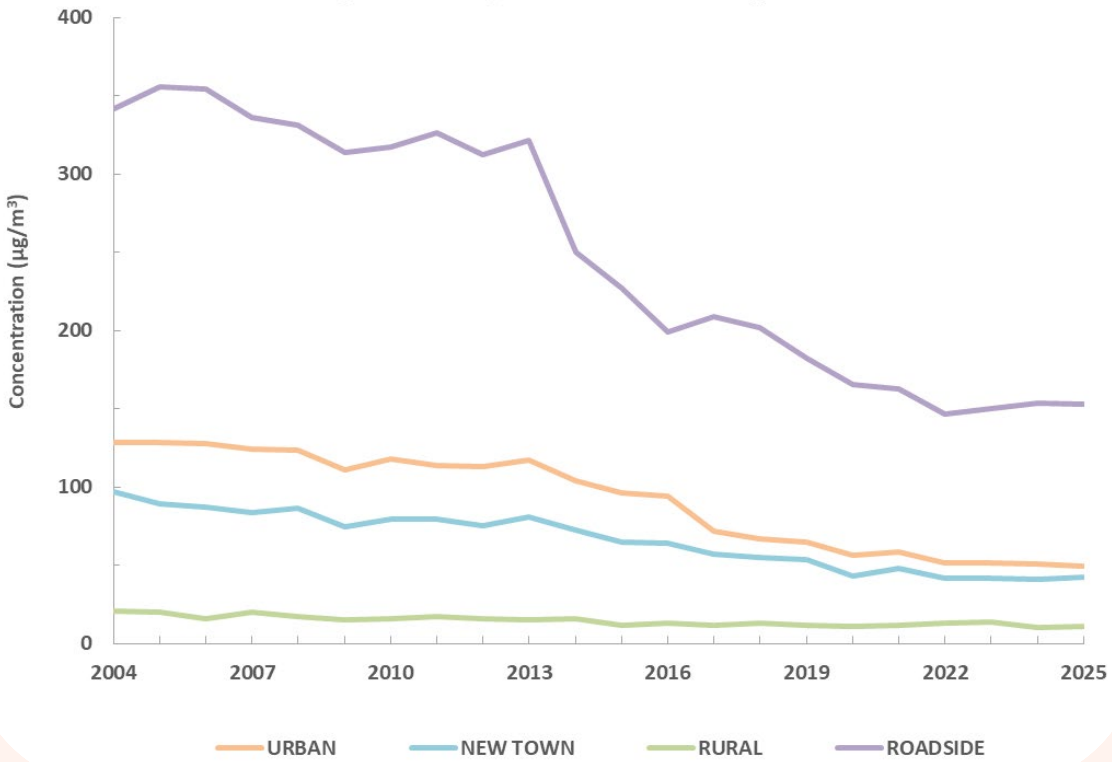


Nitrogen Oxides (NO_X) and Nitrogen Dioxide (NO_2)

Long-term Trends in NO_X Levels

While the background NO_X concentrations (i.e., rural area in Tap Mun) remained stable, the annual average concentrations of ambient NO_X in urban areas and new towns exhibited moderate downward trends between 2004 and 2025. During the same period, the annual average NO_X concentration at the roadsides showed a more distinct descending trend, reflecting the effectiveness of various vehicle emission control measures implemented over the past decades. **The annual average NO_X concentration at roadside stations in 2025 was 55% lower than in 2004**.

Figure 5: Long-term Trends in NO_X Levels

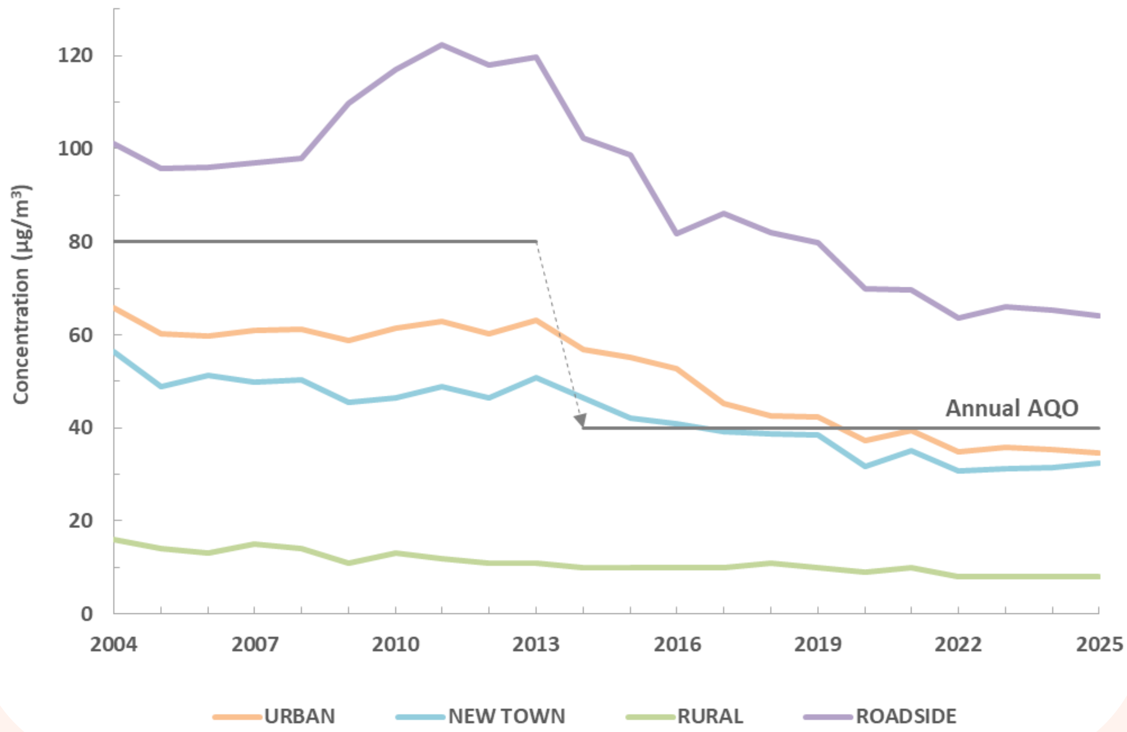


Long-term Trends in NO_2 Levels

NO_2, a major component of NO_X, is mainly formed from the oxidation of NO. The oxidation can be promoted by the presence of a large amount of O_3 and volatile organic compounds (VOCs) in ambient air. Between 2004 and 2025, the annual average concentrations of NO_2 in urban areas and new towns showed a moderate downward trend.

In the past, roadside NO_2 levels increased due to factors such as motor vehicle ageing, increased direct emissions of NO_2 from vehicles, and the rise in regional O_3 level, which promoted the conversion of NO emitted by vehicles to NO_2. This upward trend has reversed, and NO_2 levels have declined since the peak in 2011. **In 2025, the annual average NO_2 concentrations at general and roadside stations were 45% and 37% lower, respectively, than in 2004**.

Figure 6: Long-term Trends in NO_2 Levels



Ozone (O_3)

Brief of O_3 Formation Chemistry and Monitoring Background

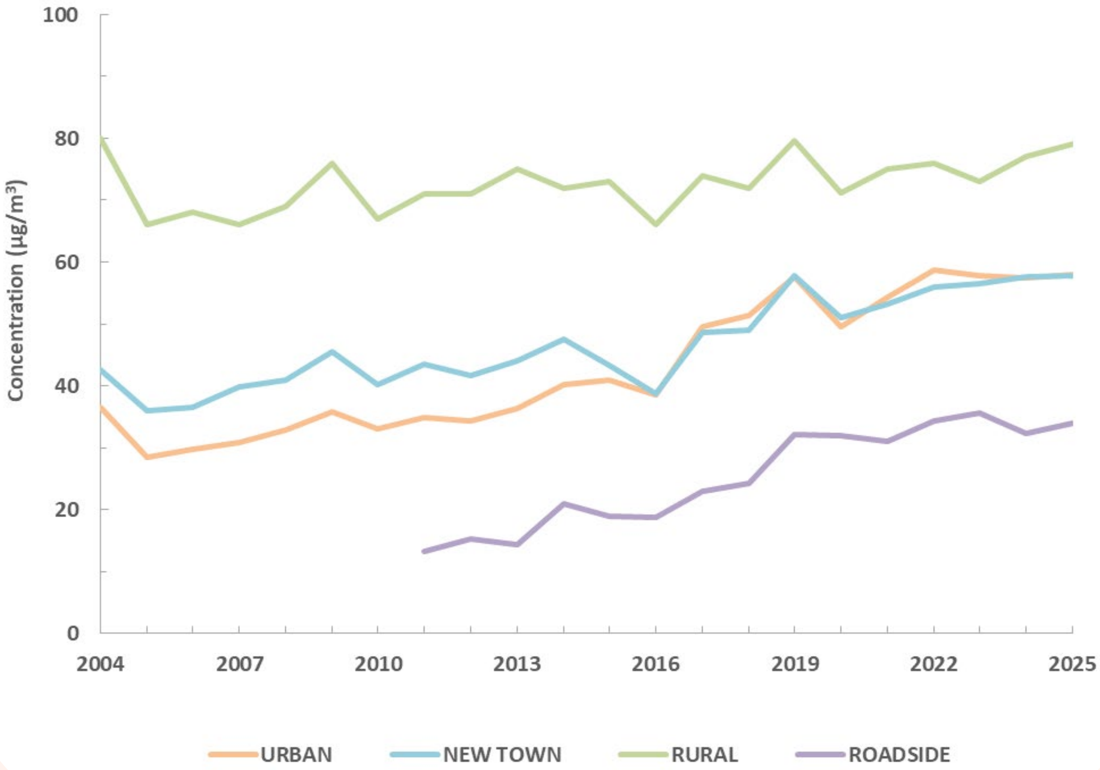
O_3 is a complex regional air pollution issue. It is formed when precursors such as NO_X and VOCs undergo complicated photochemical reactions under sunlight. O_3 can travel long distances and affect areas downwind. On the other hand, O_3 can react with some pollutants like NO emitted from combustion sources (such as motor vehicles) and be scavenged. Hence the O_3 concentrations measured at a particular location would depend on the regional O_3 background level, its local formation, as well as the scavenging effect.

As NO emissions from motor vehicles can react with and remove O_3 in the air, areas with heavy traffic normally have lower O_3 levels than areas with light traffic. Tap Mun station started monitoring O_3 in 1998. As Tap Mun station is located in a remote rural area with virtually no local emissions, the O_3 concentrations recorded can represent the regional background O_3 levels. This station has consistently recorded higher O_3 levels than those recorded in urban areas, but the gap has been narrowing gradually from over 100% in the early 2000s to about 30% in recent years.

Long-term Trends in O_3 Levels

The annual average concentration of O_3 showed a moderate upward trend from the early 2000s but has gradually stabilized in the past few years. The rising trend in Hong Kong's O_3 levels is mainly attributed to the increase in regional O_3 background, as well as the reduction in local vehicle emissions. The latter reduces atmospheric NO, thereby decreasing O_3 consumption through chemical reactions.

Figure 7: Long-term Trends in O_3 Levels

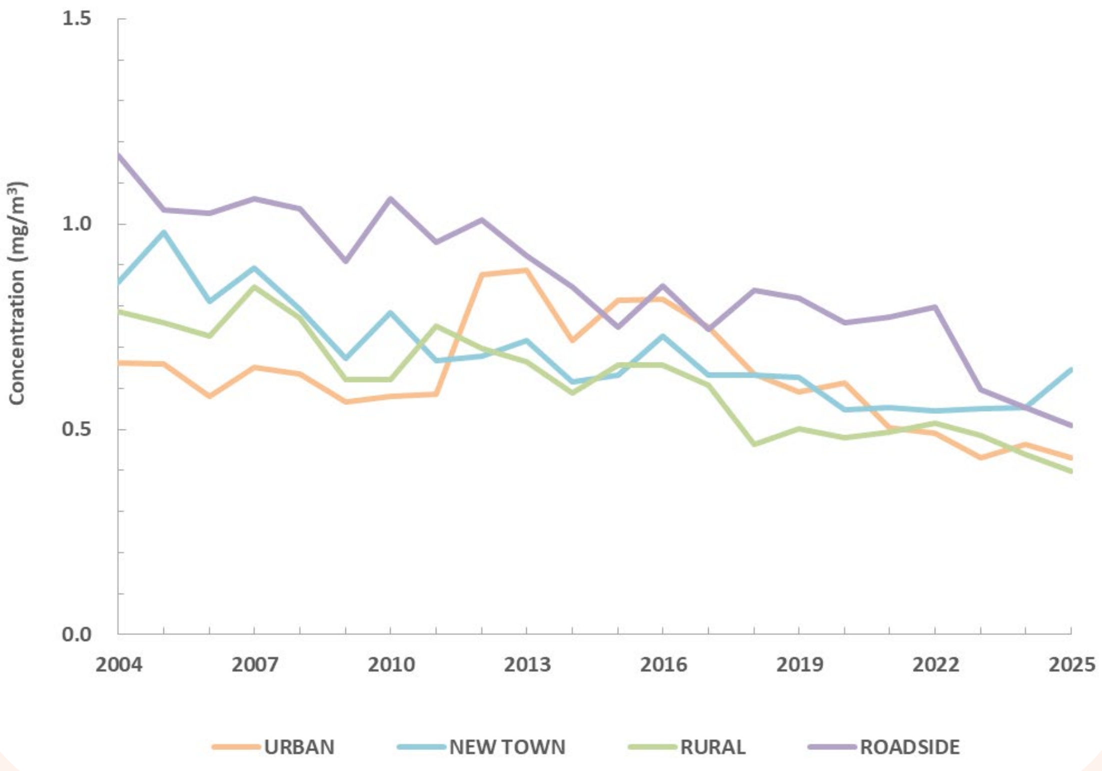


Carbon Monoxide (CO)

Long-term Trends in CO Levels

The ambient annual average concentrations of CO in the territory remained at a very low level while the annual average CO concentration at the roadsides had dropped to a level close to the ambient one in recent years. **In 2025, the annual average concentrations of CO at general and roadside stations decreased by 32% and 56%, respectively, compared with 2004**.

Figure 8: Long-term Trends in CO Levels

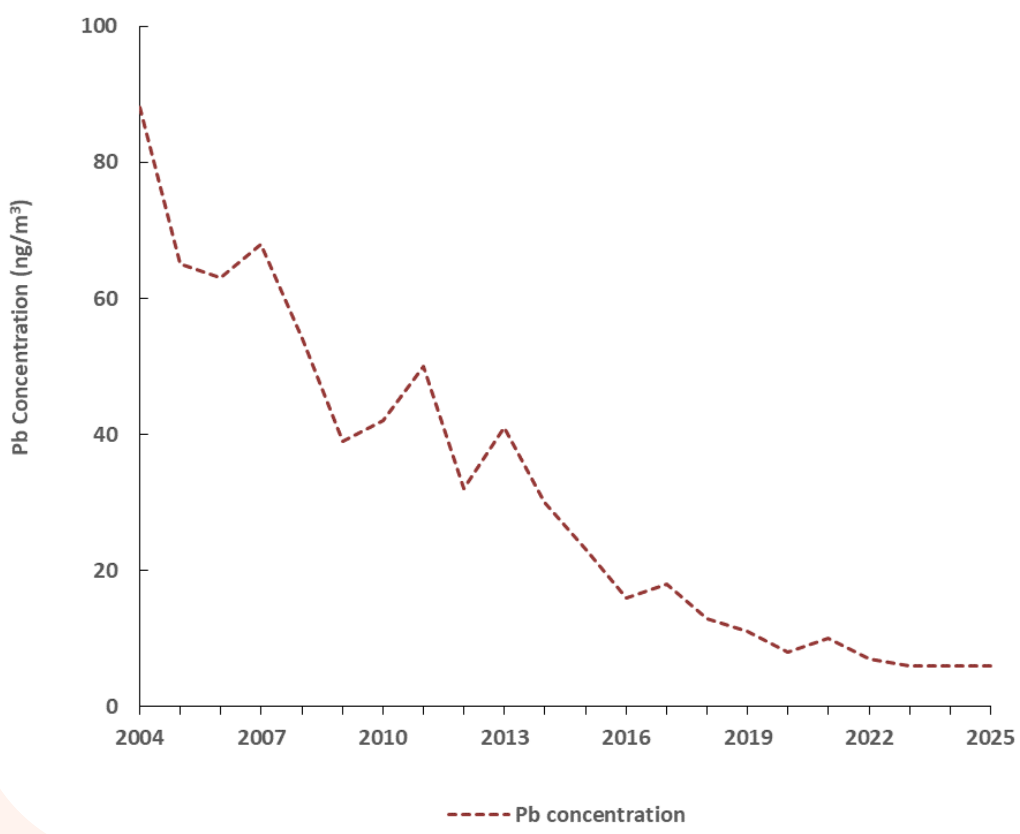


Lead (Pb)

Long-term Trends in Pb Levels

The Pb concentrations in roadside and ambient air have remained at very low levels over the years, since the oil companies took voluntary action in reducing the Pb content of petrol in the 1980s. Pb emissions from motor vehicles were further reduced by the introduction of unleaded petrol in April 1991 and the ban on the sale and supply of leaded petrol in April 1999. **In 2025, the atmospheric concentration of lead was 93% lower than in 2004**.

Figure 9: Long-term Trends in Pb Levels



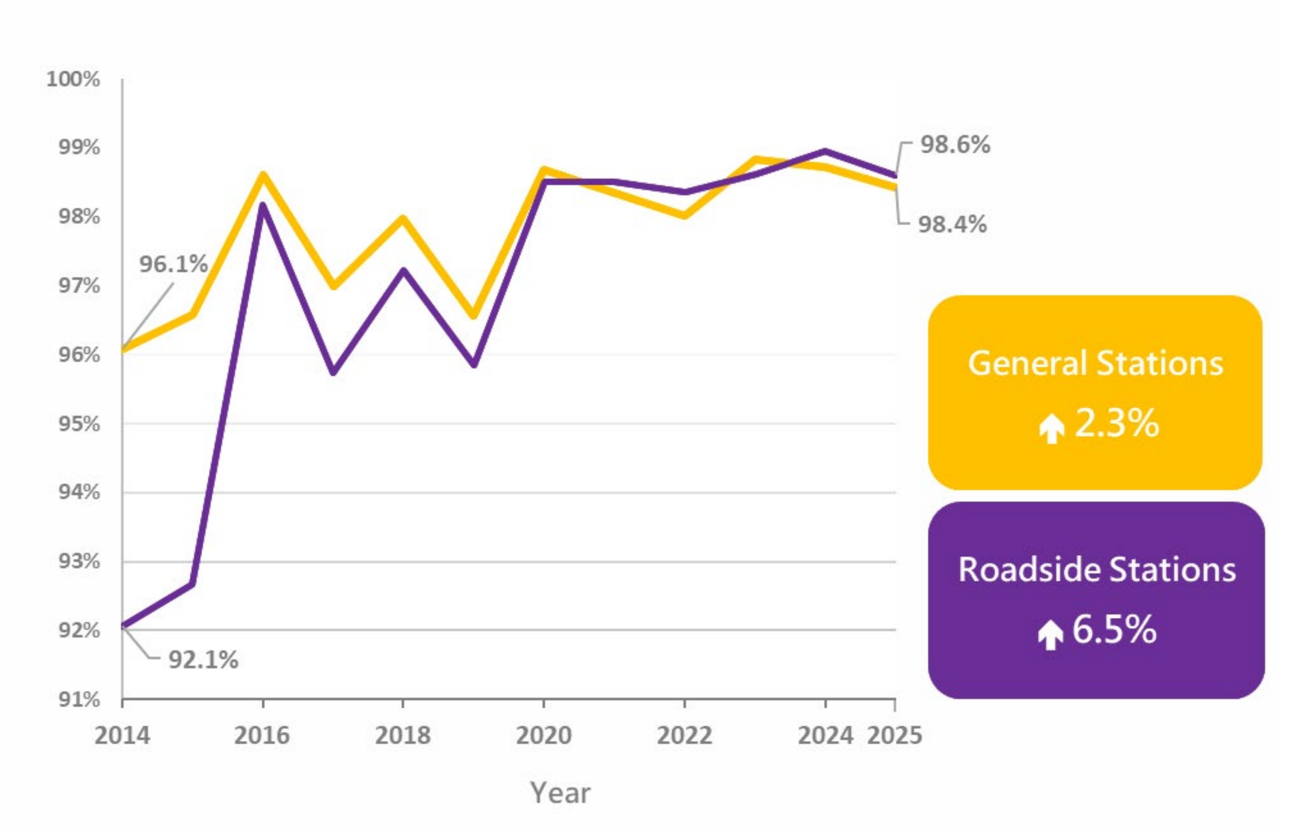
Health Risks of Air Quality

The effects of air pollution on health hinge on several factors, including the concentrations of air pollutants and the duration of exposure to a polluted environment.

Short-term Health Risks of Air Quality

The Environmental Protection Department (EPD) launched the **Air Quality Health Index (AQHI)** in 2014, disseminating **daily information on the short-term health risks posed by air pollution** to facilitate the public in taking precautionary measures for health protection. With reference to the latest air quality guidelines of the World Health Organization and the health data of Hong Kong in recent years, the EPD has updated and implemented the calculation of AQHI in March 2025. Back in 2014 when the AQHI was launched, the percentages of the hourly AQHI below 7 (i.e., low or moderate "health risk" category) at general stations and roadside stations were 96.1% and 92.1% respectively. As at 2025, the relevant figures were improved to 98.4% at general stations and 98.6% at roadside stations, representing **lower short-term health risks posed by air pollution** (see **Figure 10**).

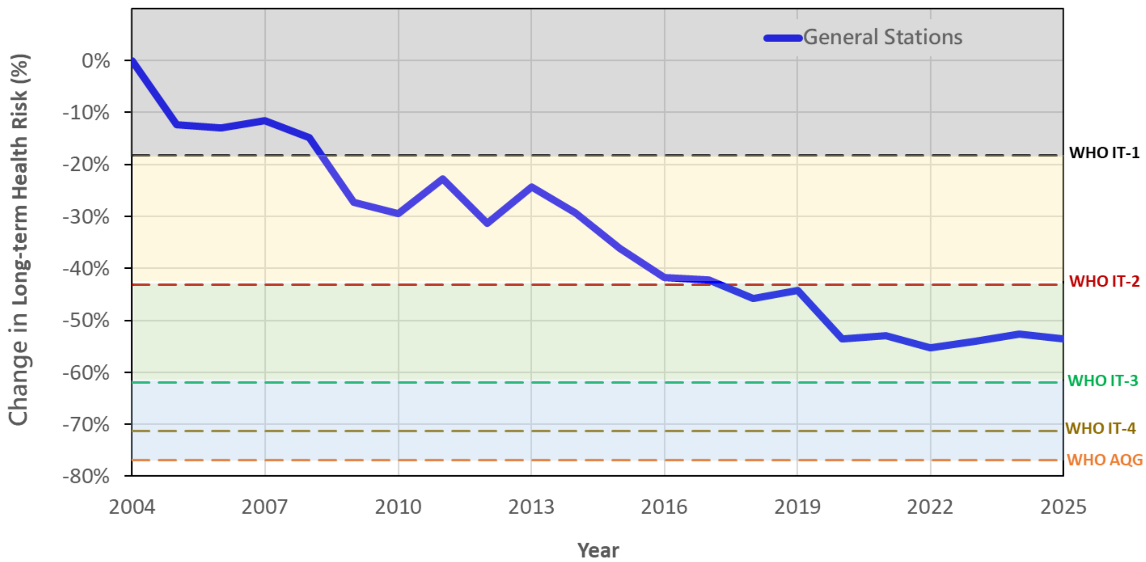
Figure 10: Percentage of Hourly AQHI Readings Below 7



Long-term Health Risks of Air Quality

The EPD has adopted a health risk-based approach to assess the long-term air quality in Hong Kong, which better reflects the impact of air quality on the public, with reference to the methodology developed by a research team in Hong Kong. **The "long-term health risks of air quality" provides information about the risk of long-term exposure to air pollutants**. Data showed that **the long-term health risks posed by air pollution have decreased by more than 50%** between 2004 and 2025 (see **Figure 11**).

Figure 11: Improvement Trend of Long-term Health Risks of Air Quality



Notes:

The lines of WHO IT-1, IT-2, IT-3, IT-4 and AQG represents the health risk equivalent to the four interim targets and the AQG level of World Health Organization Global Air Quality Guidelines 2021 version.

Monitoring Results of Air Pollutant Levels

Sulphur Dioxide (SO_2)

Sources	SO_2 is formed primarily from the combustion of sulphur-containing fossil fuels. In Hong Kong, emissions from power stations and marine vessels are the major sources of SO_2, followed by fuel combustion equipment and motor vehicles.
Health Impact	Exposure to high levels of SO_2 may cause impairment of respiratory function and aggravate existing respiratory and cardiac illnesses. Even at lower levels, prolonged exposure may also increase the risk of developing chronic respiratory diseases.
Monitoring	SO_2 levels were monitored at all 18 AQMSs in 2025.

SO_2 Levels Monitoring Results for 2025

- SO_2 concentrations remained low in Hong Kong.
- The annual average concentration recorded at general monitoring stations was 3 µg/m^3.
- The annual average concentration recorded at roadside monitoring stations was 4 µg/m^3.

Figure 12a: Monitoring Results of SO_2 Levels in 2025 (10-minute Average Statistics)

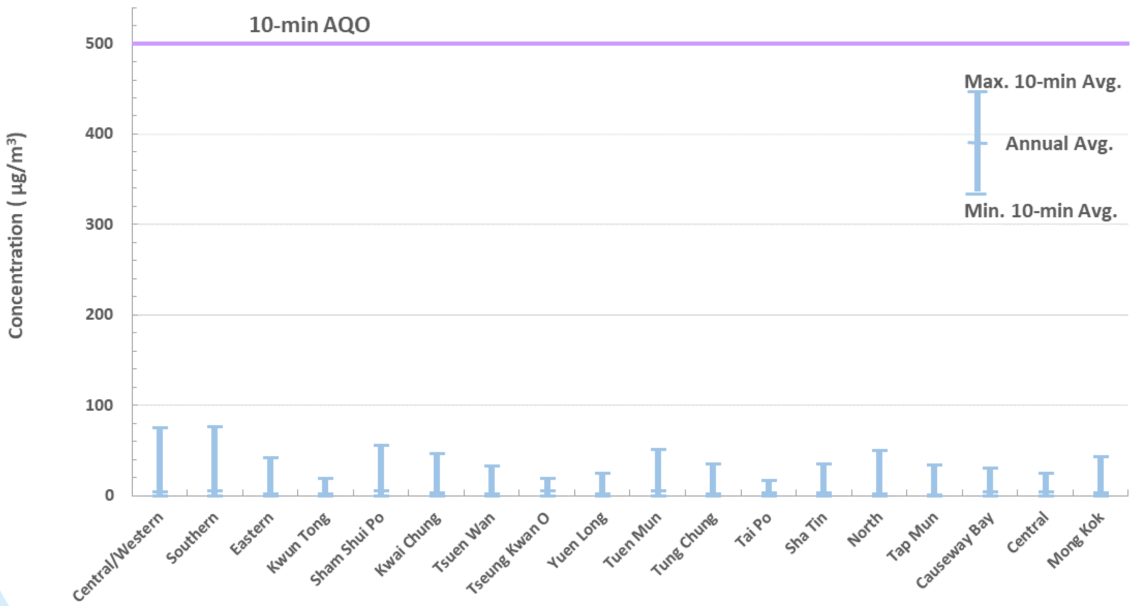
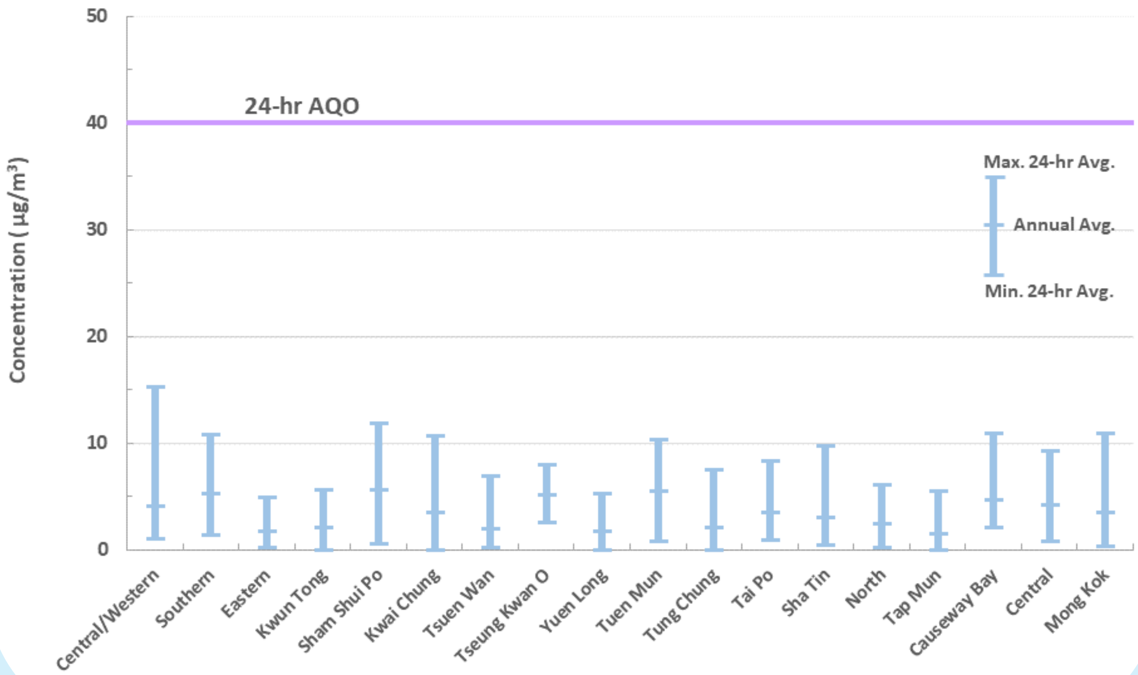


Figure 12b: Monitoring Results of SO_2 Levels in 2025 (24-hour Average Statistics)



Respirable Suspended Particulates (PM_{10})

Sources	PM_{10} refers to those suspended particulates with nominal aerodynamic diameters of 10 micrometres or less. Combustion sources, in particular marine vessels, diesel vehicles and power plants, are the major regional and local sources of ambient PM_{10}. Besides, PM_{10} can also be formed by photochemical reactions of NO_X and VOCs as well as atmospheric oxidation of gaseous pollutants, such as SO_2 and NO_X. To a lesser extent, crustal derived dust and marine aerosols are also sources of PM_{10}. In Hong Kong, PM_{10} is contributed mainly by the regional sources.
Health Impact	PM_{10} at high levels may cause chronic and acute effects on human health, particularly the pulmonary function, as PM_{10} can penetrate deep into the lungs and cause respiratory problems. These effects are uplifted if high PM_{10} levels are associated with higher levels of other pollutants, such as SO_2.
Monitoring	PM_{10} levels were monitored at all 18 AQMSs in 2025. 11 of these stations were also equipped with high-volume samplers to collect particulate samples for chemical analysis.

PM_{10} Levels Monitoring Results for 2025

- The annual average concentration recorded at general monitoring stations was 25 µg/m^3.
- The annual average concentration recorded at roadside monitoring stations was 32 µg/m^3.

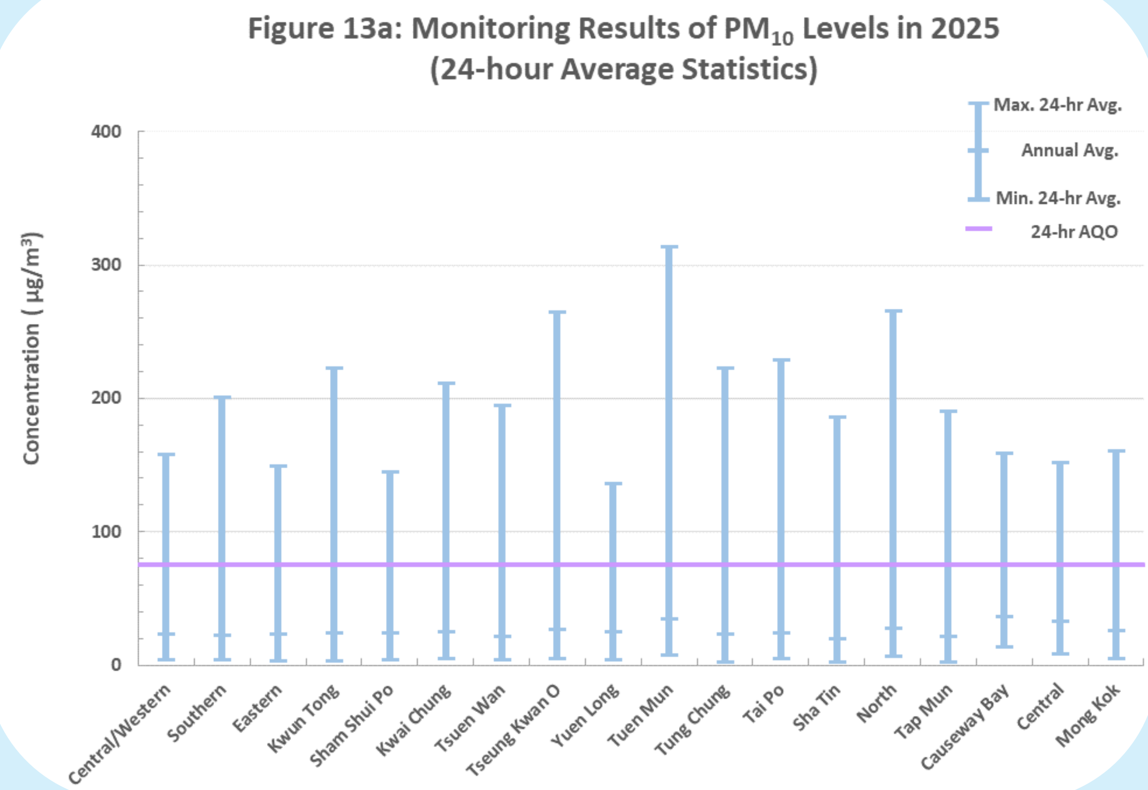


Figure 13a: Monitoring Results of PM10 Levels in 2025
(24-hour Average Statistics)
Max. 24-hr Avg.
Annual Avg.
Min. 24-hr Avg.
24-hr AQO
Concentration (µg/m³)
400
300
200
100
0
Central/Western
Southern
Eastern
Kwun Tong
Sham Shui Po
Kwai Chung
Tsuen Wan
Tseung Kwan O
Yuen Long
Tuen Mun
Tung Chung
Tai Po
Sha Tin
North
Tap Mun
Causeway Bay
Central
Mong Kok

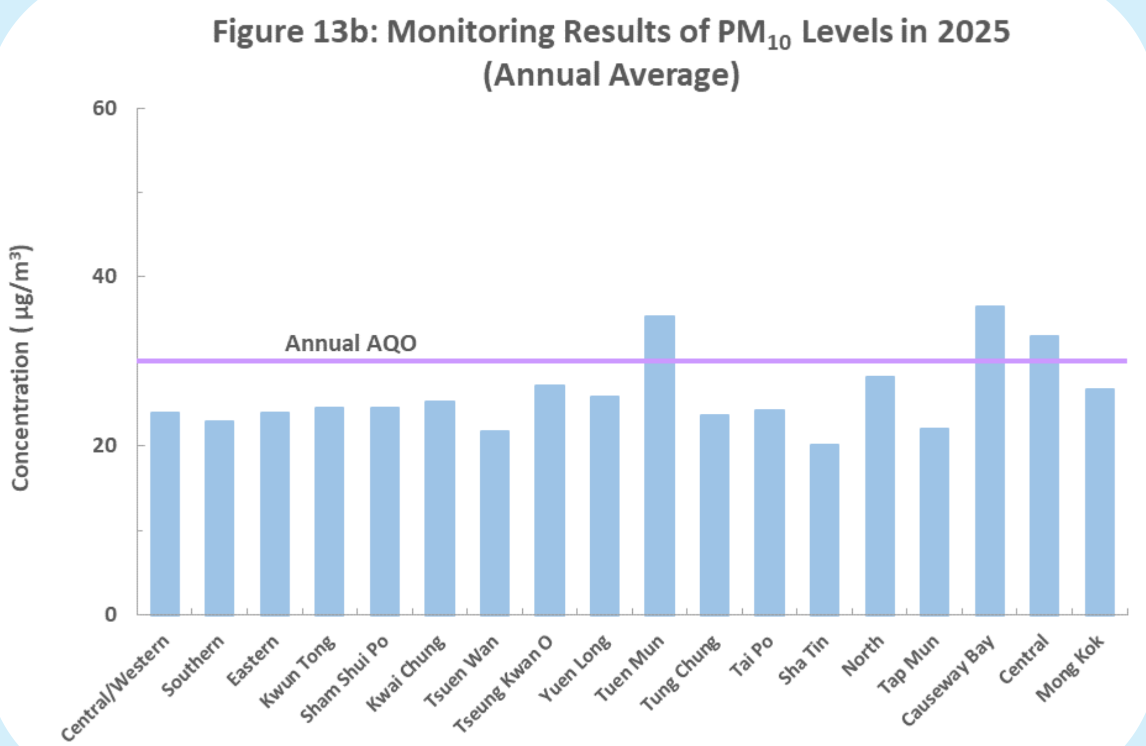


Figure 13b: Monitoring Results of PM10 Levels in 2025
(Annual Average)
Annual AQO
Concentration (µg/m³)
60
40
20
0
Central/Western
Southern
Eastern
Kwun Tong
Sham Shui Po
Kwai Chung
Tsuen Wan
Tseung Kwan O
Yuen Long
Tuen Mun
Tung Chung
Tai Po
Sha Tin
North
Tap Mun
Causeway Bay
Central
Mong Kok

Fine Suspended Particulates ($PM_{2.5}$)

Sources	$PM_{2.5}$ refers to those suspended particulates with nominal aerodynamic diameters of 2.5 micrometres or less, which is the finer component of PM_{10}. $PM_{2.5}$ has the same emission sources as PM_{10}, which is also mainly contributed by regional sources. Besides, $PM_{2.5}$ also causes visibility impairment in air.
Health Impact	$PM_{2.5}$ is able to penetrate to the deepest parts of the lungs because of its small size, hence posing a higher risk to health.
Monitoring	$PM_{2.5}$ levels were monitored at all 18 AQMSs in 2025.

$PM_{2.5}$ Levels Monitoring Results for 2025

- The annual average concentration recorded at general monitoring stations was 14.6 µg/m^3.
- The annual average concentration recorded at roadside monitoring stations was 19.9 µg/m^3.

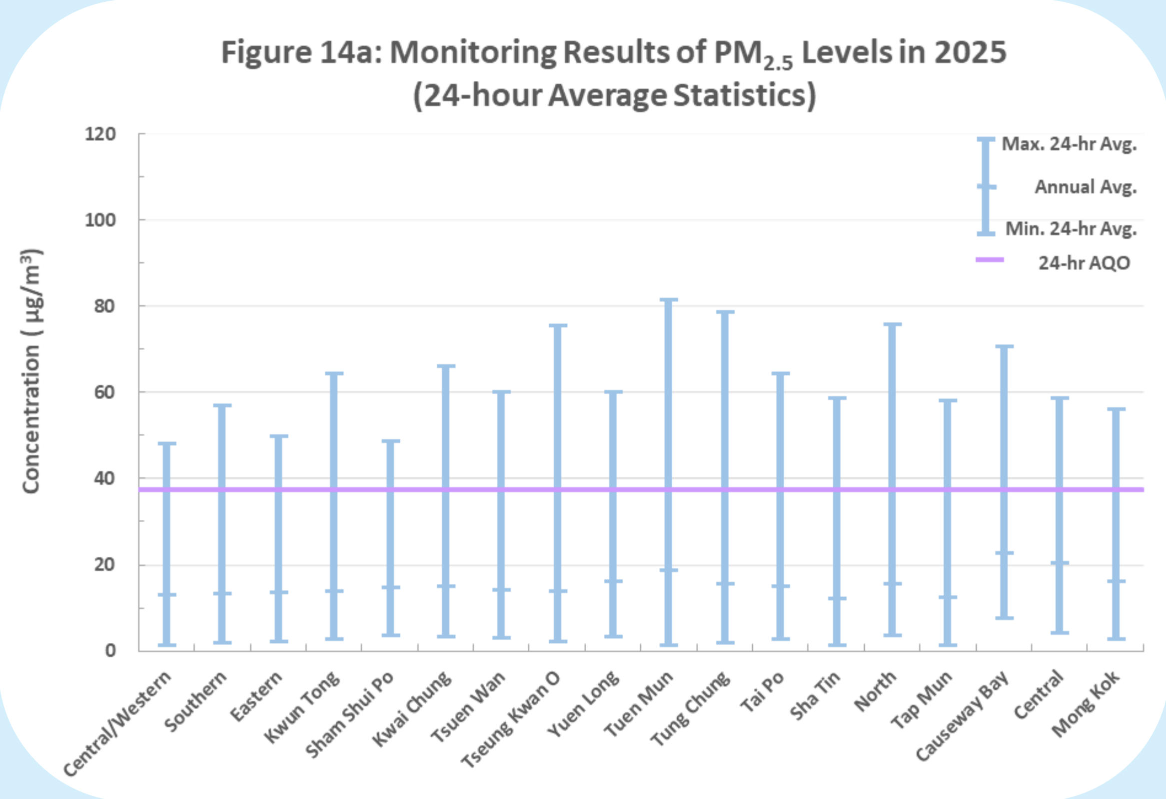


Figure 14a: Monitoring Results of PM2.5 Levels in 2025
(24-hour Average Statistics)
Concentration (µg/m3)
120
100
80
60
40
20
0
Max. 24-hr Avg.
Annual Avg.
Min. 24-hr Avg.
24-hr AQO
Central/Western
Southern
Eastern
Kwun Tong
Sham Shui Po
Kwai Chung
Tsuen Wan
Tseung Kwan O
Yuen Long
Tuen Mun
Tung Chung
Tai Po
Sha Tin
North
Tap Mun
Causeway Bay
Central
Mong Kok

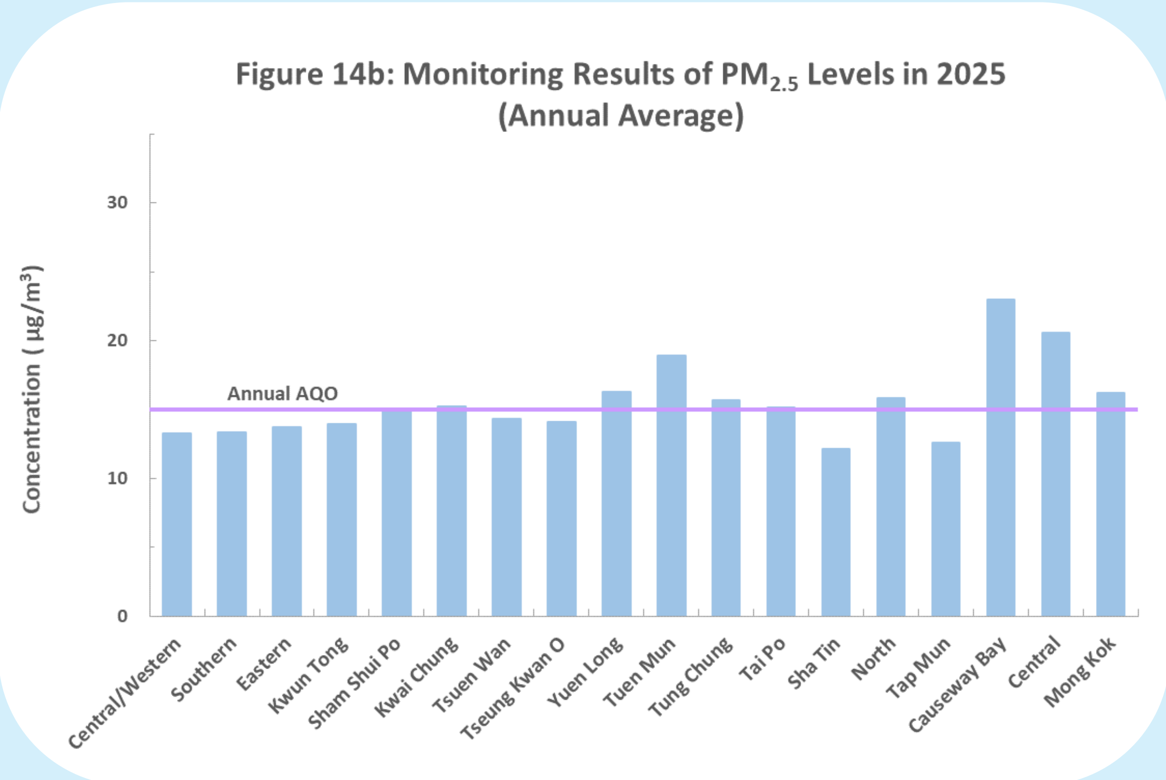


Figure 14b: Monitoring Results of PM2.5 Levels in 2025
(Annual Average)
Concentration (µg/m3)
30
20
10
0
Annual AQO
Central/Western
Southern
Eastern
Kwun Tong
Sham Shui Po
Kwai Chung
Tsuen Wan
Tseung Kwan O
Yuen Long
Tuen Mun
Tung Chung
Tai Po
Sha Tin
North
Tap Mun
Causeway Bay
Central
Mong Kok

Nitrogen Dioxide (NO_2)

Sources	The various chemical species of the oxides of nitrogen are collectively termed nitrogen oxides (NO_X). From an air pollution standpoint, the most important constituents of NO_X are nitric oxide (NO) and NO_2, which are often mentioned as NO_X collectively. They are usually produced in combustion processes and emitted to the atmosphere. Power stations, marine vessels and motor vehicles are the major emission sources of NO_X in Hong Kong. NO_X emissions from motor vehicles have greater impact on roadside air quality. NO_2 is mainly formed from the oxidation of NO emitted from fuel combustion.
Health Impact	Long-term exposure to NO_2 can lower a person's resistance to respiratory infections and aggravate existing chronic respiratory diseases.
Monitoring	NO_2 levels were measured at all of the 18 AQMSs in 2025.

NO_2 Levels Monitoring Results for 2025

- The annual average concentration recorded at general monitoring stations was 32 µg/m^3.
- The annual average concentration recorded at roadside monitoring stations was 64 µg/m^3.

Figure 15a: Monitoring Results of NO_2 Levels in 2025 (1-hour Average Statistics)

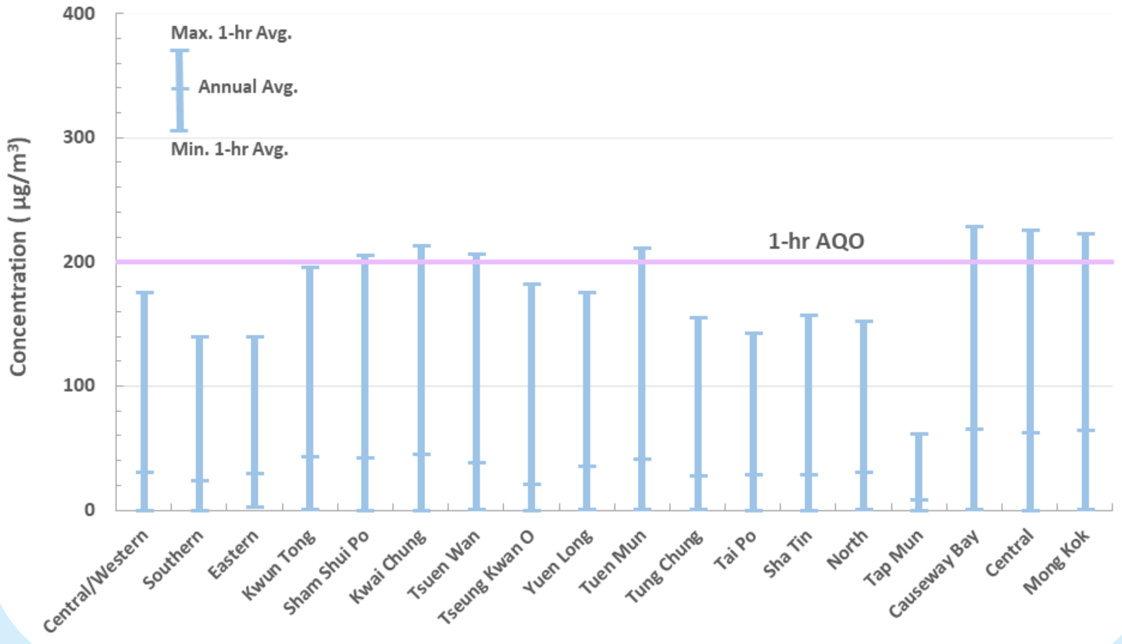
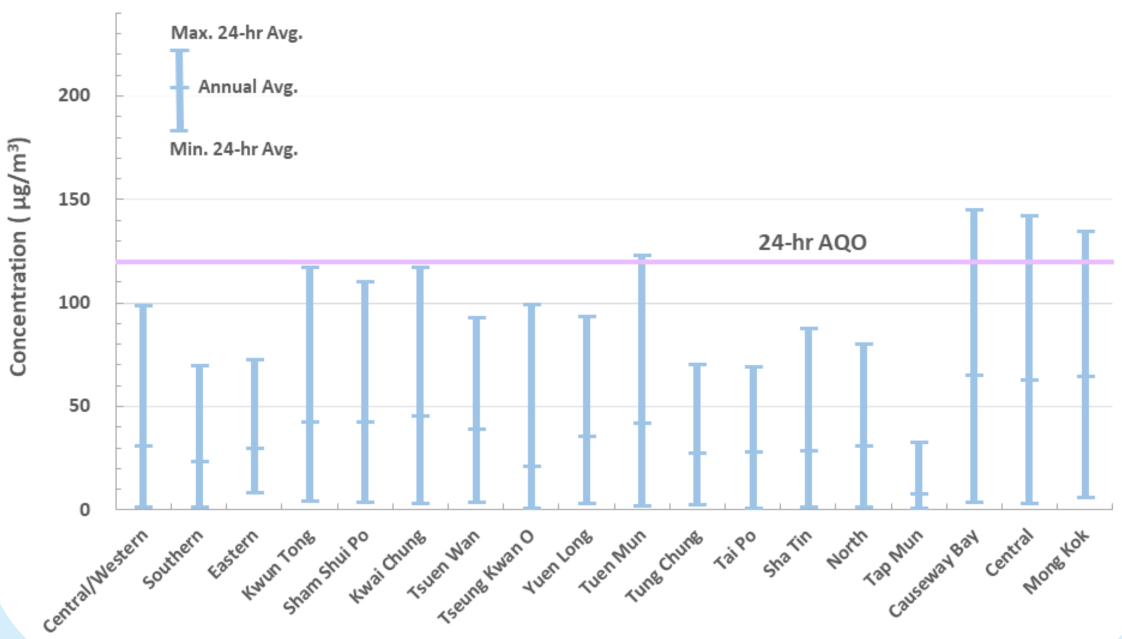


Figure 15b: Monitoring Results of NO_2 Levels in 2025 (24-hour Average Statistics)



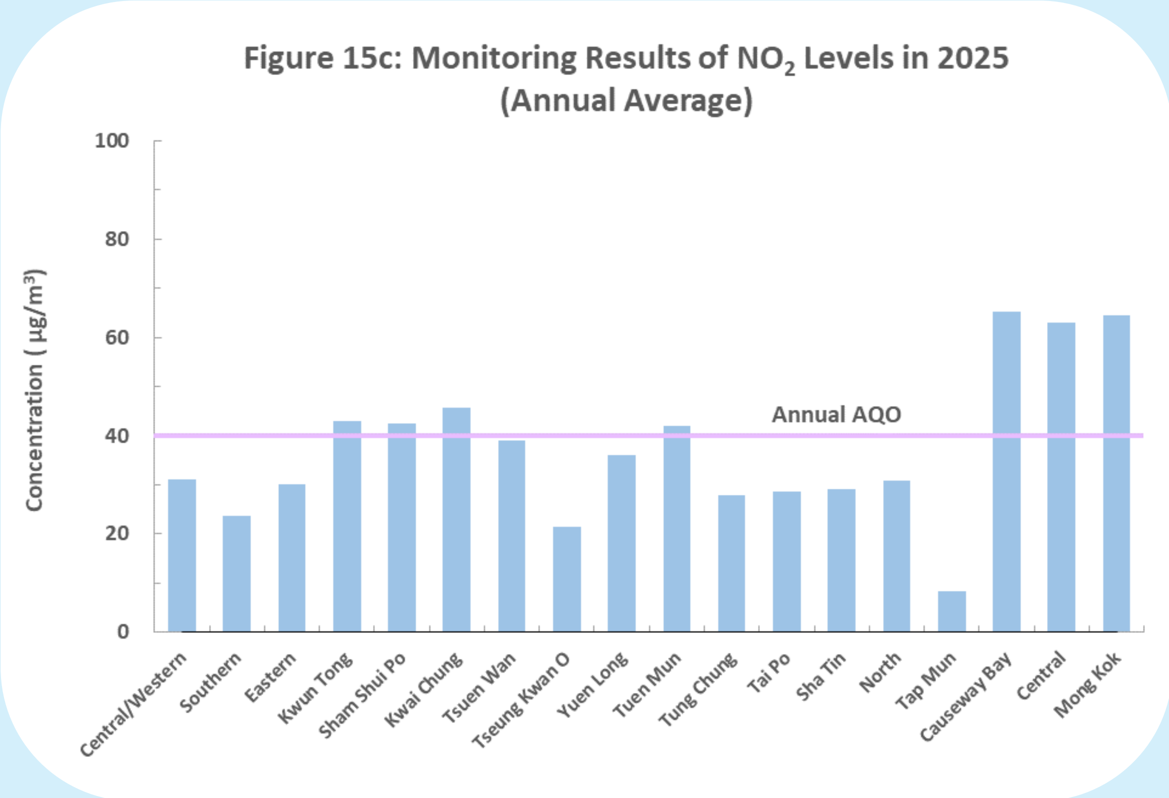


Figure 15c: Monitoring Results of NO2 Levels in 2025
(Annual Average)
Concentration (μg/m3)
100
80
60
40
20
0
Annual AQO
Central/Western
Southern
Eastern
Kwun Tong
Sham Shui Po
Kwai Chung
Tsuen Wan
Tseung Kwan O
Yuen Long
Tuen Mun
Tung Chung
Tai Po
Sha Tin
North
Tap Mun
Causeway Bay
Central
Mong Kok

Ozone (O_3)

Sources	O_3 is a major constituent of photochemical smog. It is not a pollutant directly emitted from pollution sources but formed by photochemical reactions between NO_X and volatile organic compounds (VOCs) under sunlight. As it takes several hours for these photochemical reactions to take place, O_3 recorded in one place could be attributed to NO_X and VOCs emissions from places afar. Hence, O_3 is more a regional air pollution problem. At the roadside, the NO emitted from motor vehicles readily reacts with O_3 to form NO_2, thereby removing O_3. Because of such O_3 scavenging effect, the O_3 concentrations at roadside stations are significantly lower than those at the general stations. In Hong Kong, O_3 episode days are mostly associated with hot, fine and calm weather conditions in the Guangdong-Hong Kong-Macao Greater Bay Area (GBA), which favour the formation and accumulation of O3 via photochemical reactions. Such weather conditions mostly occur in summer and autumn, especially when Hong Kong and the GBA are under the influence of outer subsiding air induced by tropical cyclones located near Taiwan or the Philippines.
Health Impact	Being a strong oxidant, O_3 can cause irritation to the eyes, nose and throat even at low concentrations. At elevated levels, it can increase a person's susceptibility to respiratory infections and aggravate pre-existing respiratory illnesses such as asthma.
Monitoring	O_3 levels were monitored at all 18 AQMSs in 2025.

O_3 Levels Monitoring Results for 2025

- The annual average concentration recorded at general monitoring stations was 59 µg/m^3.
- The annual average concentration recorded at roadside monitoring stations was 34 µg/m^3.

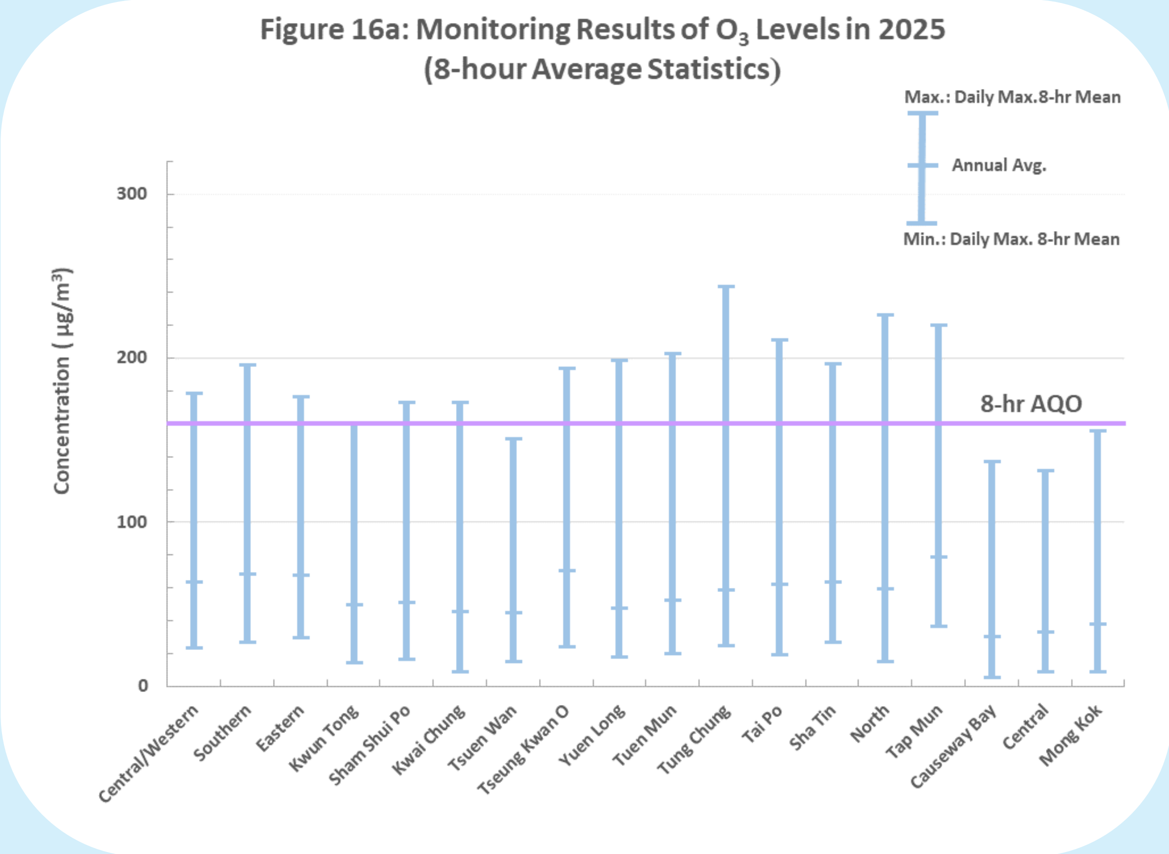


Figure 16a: Monitoring Results of O3 Levels in 2025
(8-hour Average Statistics)
Max.: Daily Max.8-hr Mean
Annual Avg.
Min.: Daily Max. 8-hr Mean
Concentration (µg/m3)
300
200
100
0
8-hr AQO
Central/Western
Southern
Eastern
Kwun Tong
Sham Shui Po
Kwai Chung
Tsuen Wan
Tseung Kwan O
Yuen Long
Tuen Mun
Tung Chung
Tai Po
Sha Tin
North
Tap Mun
Causeway Bay
Central
Mong Kok

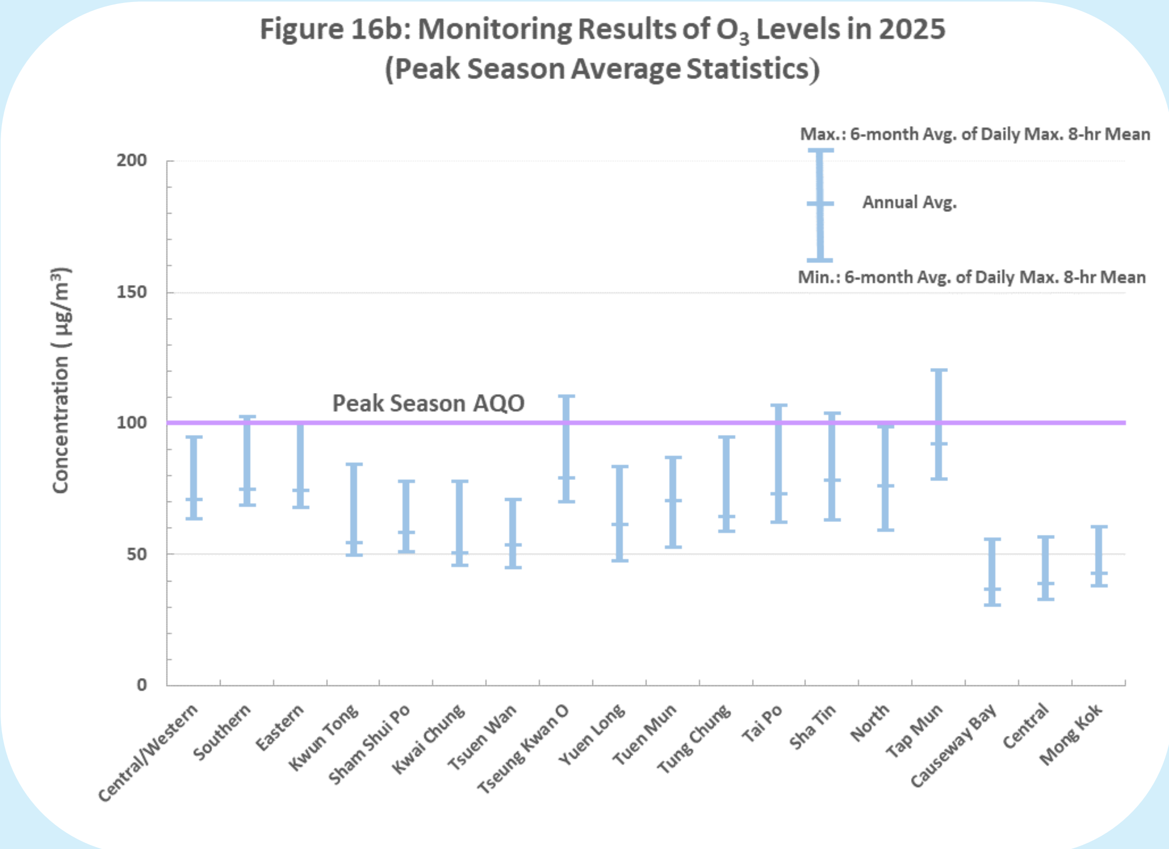


Figure 16b: Monitoring Results of O3 Levels in 2025
(Peak Season Average Statistics)
Max.: 6-month Avg. of Daily Max. 8-hr Mean
Annual Avg.
Min.: 6-month Avg. of Daily Max. 8-hr Mean
Concentration (µg/m3)
200
150
100
50
0
Peak Season AQO
Central/Western
Southern
Eastern
Kwun Tong
Sham Shui Po
Kwai Chung
Tsuen Wan
Tseung Kwan O
Yuen Long
Tuen Mun
Tung Chung
Tai Po
Sha Tin
North
Tap Mun
Causeway Bay
Central
Mong Kok

Carbon Monoxide (CO)

Sources	CO comes mainly from vehicular emissions although a small amount of it may also come from flue gases of factories and power stations.
Health Impact	When CO enters the bloodstream, it can reduce oxygen delivery to the body's organs and tissues. Typical symptoms of CO poisoning include shortness of breath, chest pain, headache, and loss of co-ordination. The health threat from CO is more severe for those who suffer from heart diseases.
Monitoring	CO levels were monitored at 11 stations, including 8 general stations (i.e., Southern, Tsuen Wan, Tseung Kwan O, Yuen Long, Tuen Mun, Tung Chung, North and Tap Mun) and all 3 roadside stations in 2025.

CO Levels Monitoring Results for 2025

- CO concentrations remained low in Hong Kong.
- The annual average concentration recorded at general monitoring stations was 0.5 mg/m^3.
- The annual average concentration recorded at roadside monitoring stations was 0.5 mg/m^3.

Figure 17a: Monitoring Results of CO Levels in 2025 (1-hour Average Statistics)

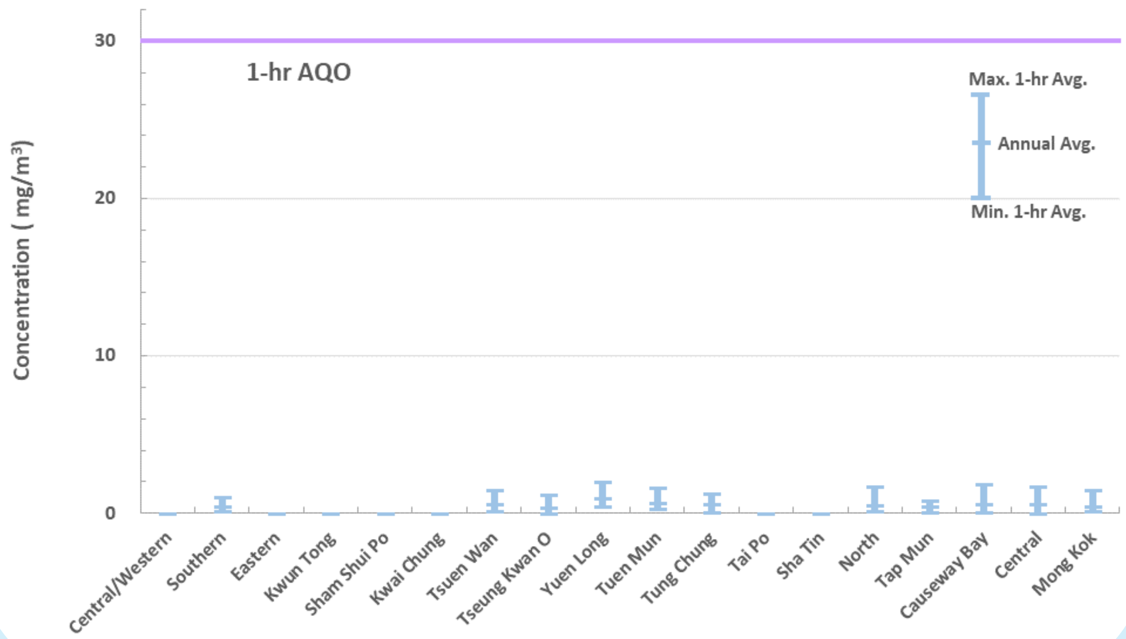
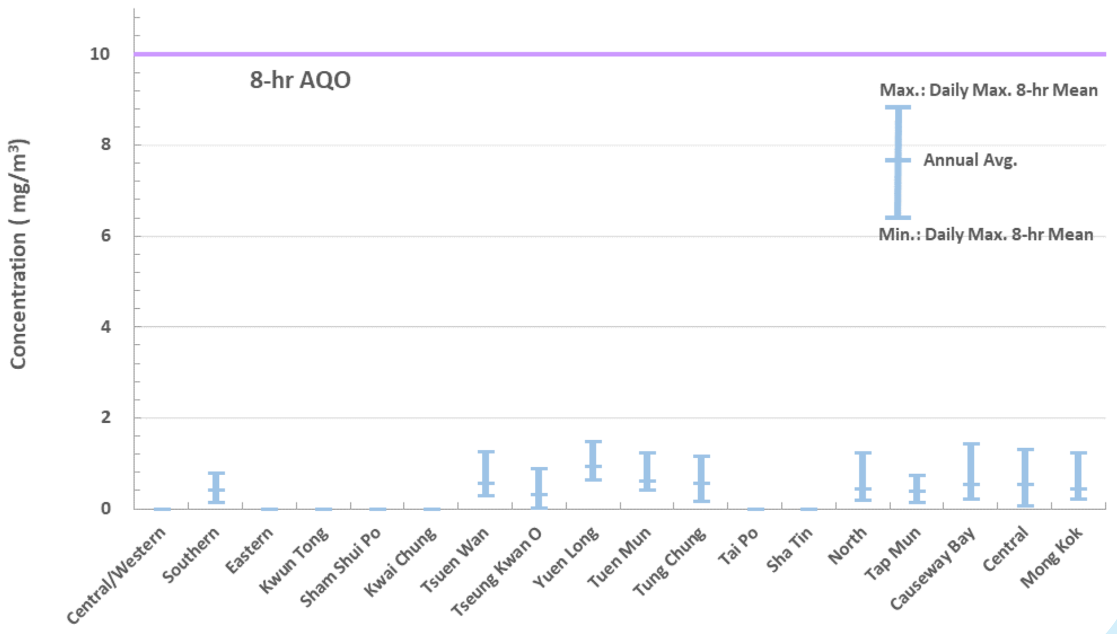


Figure 17b: Monitoring Results of CO Levels in 2025 (8-hour Average Statistics)



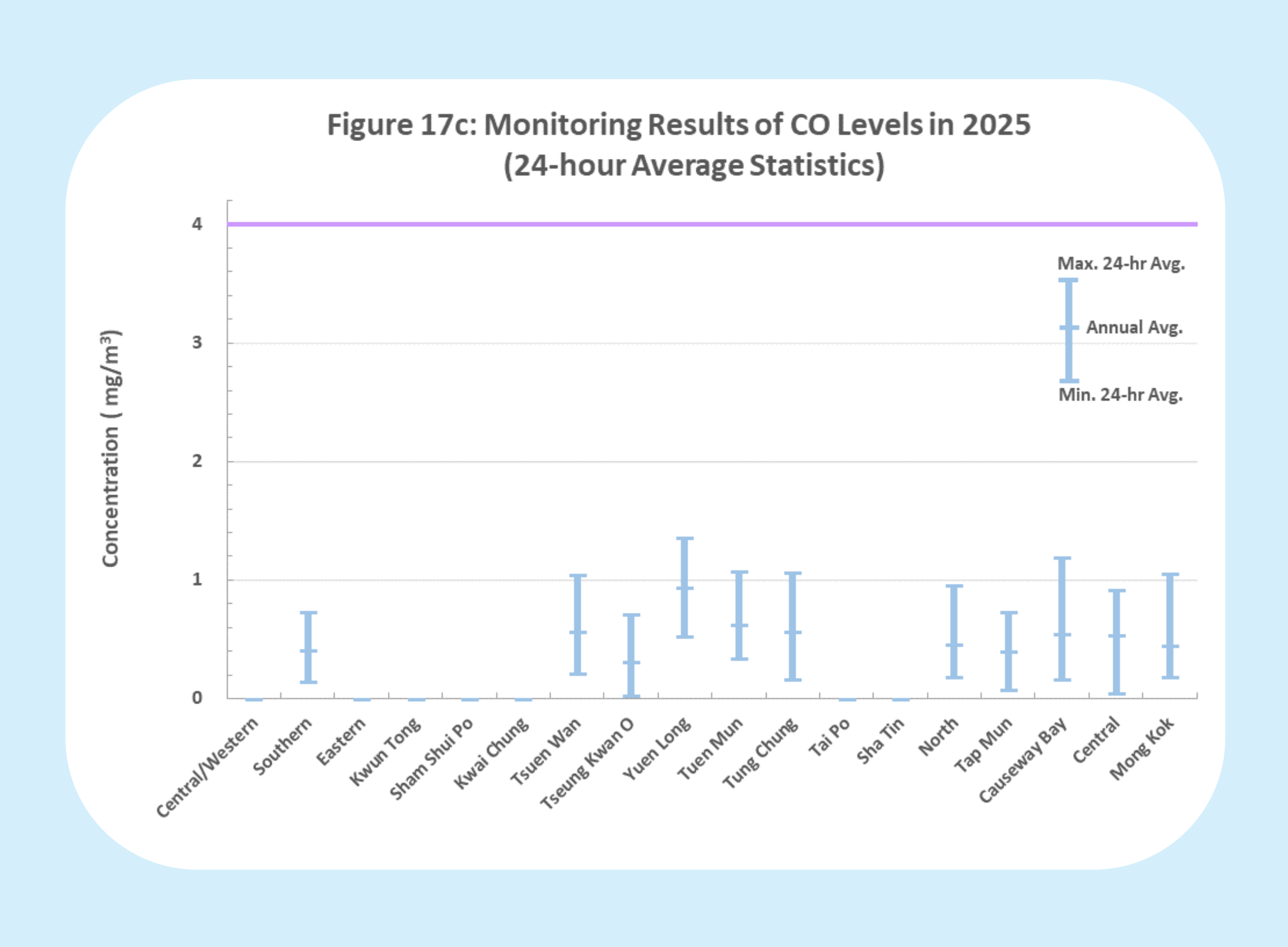


Figure 17c: Monitoring Results of CO Levels in 2025
(24-hour Average Statistics)
Concentration (mg/m³)
4
3
2
1
0
Max. 24-hr Avg.
Annual Avg.
Min. 24-hr Avg.
Central/Western
Southern
Eastern
Kwun Tong
Sham Shui Po
Kwai Chung
Tsuen Wan
Tseung Kwan O
Yuen Long
Tuen Mun
Tung Chung
Tai Po
Sha Tin
North
Tap Mun
Causeway Bay
Central
Mong Kok

Lead (Pb)

Sources	Pb is a toxic heavy metal which can be found in suspended particulates. In Hong Kong, the sale and supply of leaded petrol, which is a known major source of Pb was banned from 1 April 1999.
Health Impact	Children, especially young ones, are especially susceptible to the harmful effects of Pb exposure, which can have long-lasting and severe consequences on their brain and nervous system. Pb exposure can also have serious health implications for adults, including an increased risk of high blood pressure, cardiovascular issues, anaemia, liver and kidney damage. Pregnant women who are exposed to high levels of Pb are at risk of experiencing miscarriage, stillbirth, premature birth, and low birth weight in their newborns.
Monitoring	Pb levels were measured at 11 stations, including 10 general stations (i.e., Central/Western, Southern, Kwun Tong, Sham Shui Po, Kwai Chung, Tsuen Wan, Tung Chung, Yuen Long, Tuen Mun and Tseung Kwan O) and Mong Kok roadside station in 2025.

Pb Levels Monitoring Results for 2025

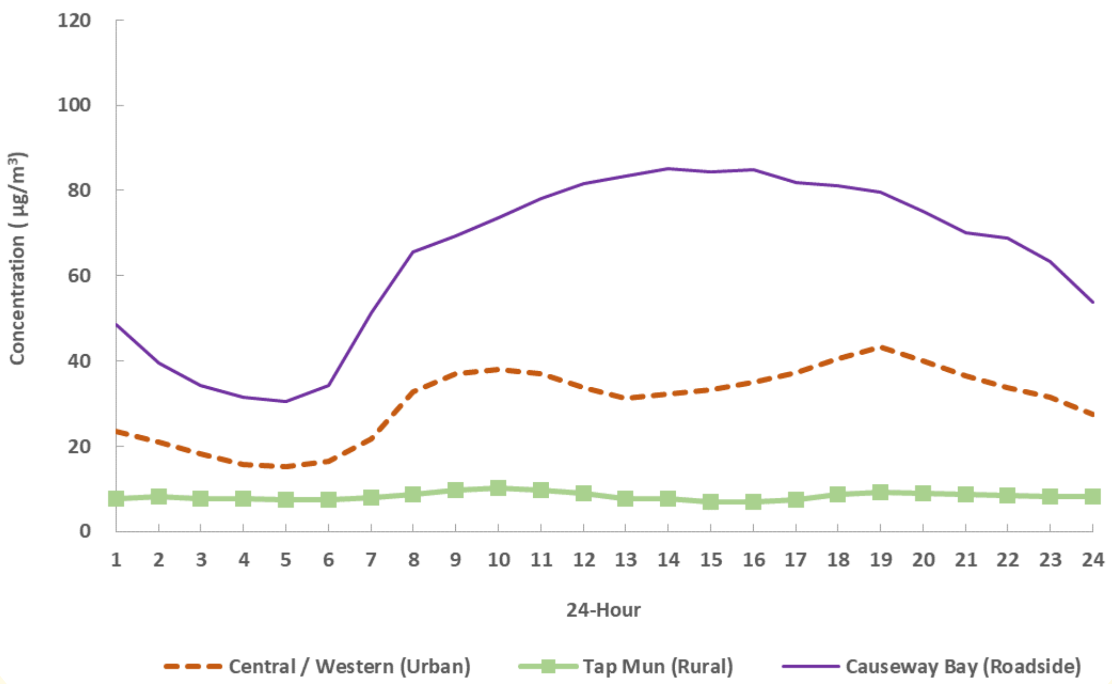
- Pb concentrations continued to linger at very low levels in Hong Kong.
- The annual averages ranging from 5 ng/m^3 to 7 ng/m^3.

Diurnal Patterns of Air Pollutant Levels

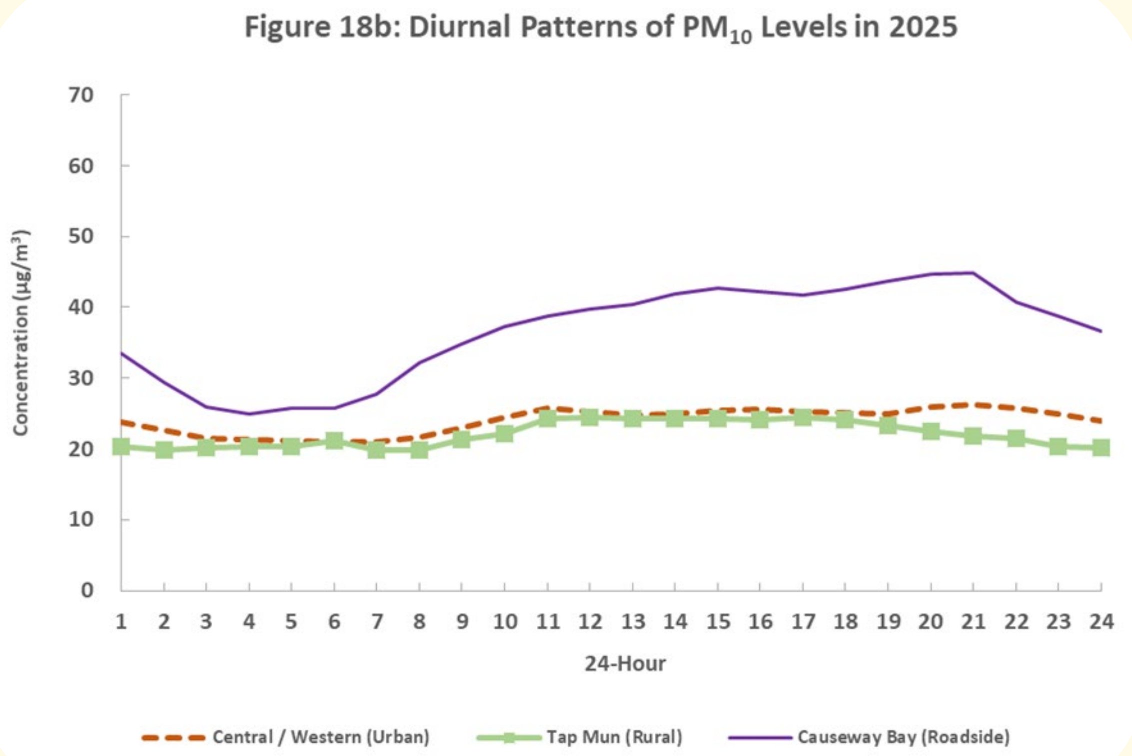
The concentrations of most air pollutants generally follow the diurnal pattern of human activities and traffic. For instance, higher levels of NO_2, PM_{10} and $PM_{2.5}$ are usually observed in the morning and the evening rush hours when there are more traffic and human activities. Likewise, the lowest concentrations often occur from midnight to dawn when the traffic is at its minimum. This type of diurnal pattern of air pollutant levels, caused by traffic flow, is more distinct at roadside locations.

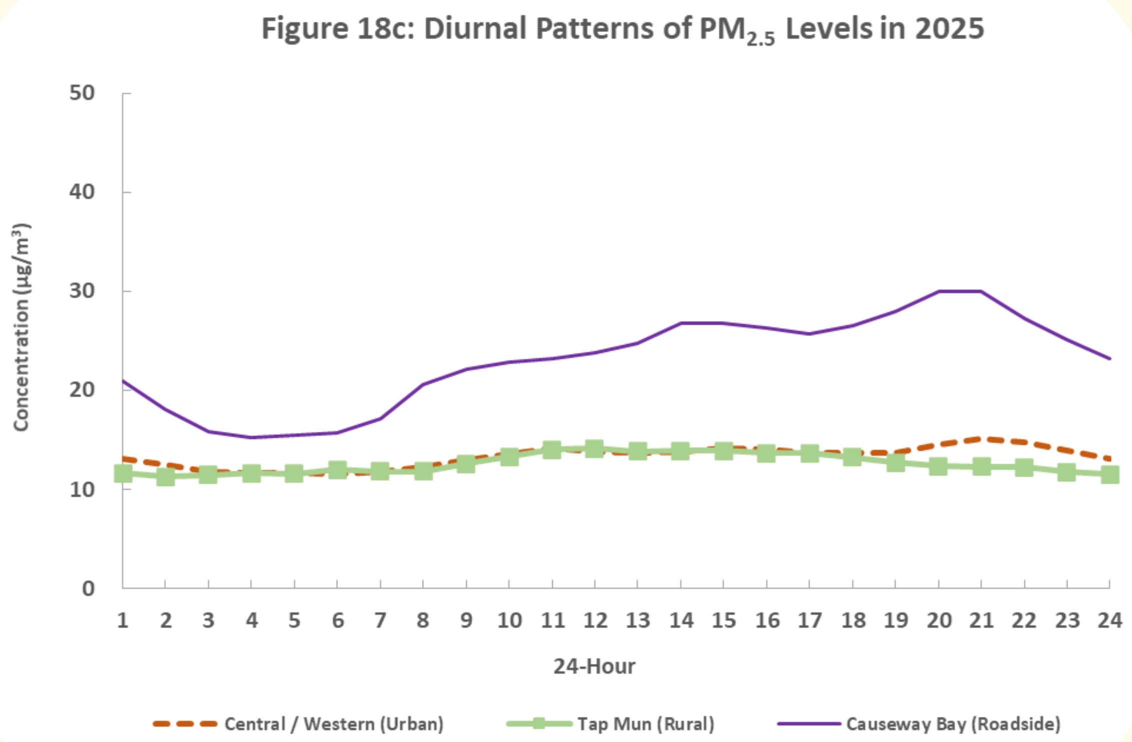
Diurnal Patterns of NO_2 Levels

Figure 18a：Diurnal Patterns of NO_2 Levels in 2025



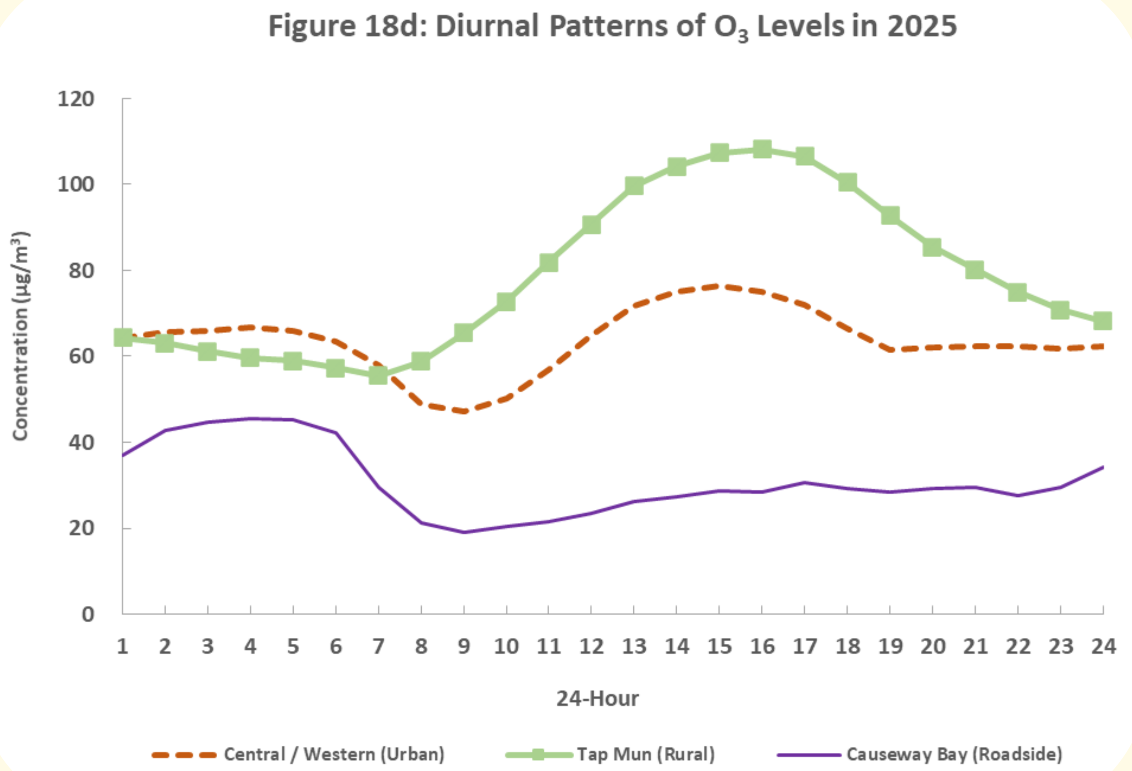
Diurnal Patterns of PM_{10} and $PM_{2.5}$ Levels





The diurnal pattern of O_3 is different from those of NO_2, PM_{10} and $PM_{2.5}$. O_3 is formed by photochemical reactions of its precursor pollutants such as NO_X and VOCs under sunlight. Outside urban centres, the ambient O_3 levels start to build up before noon and peak in the afternoon, when precursor pollutants are accumulated and sunlight is strong. In urban areas and at the roadside, the lowest O_3 concentrations are often observed during rush hours. This is because a large amount of NO from rush-hour traffic acts as an efficient scavenger of O_3. At the roadside, O_3 levels are significantly lower than those at general stations due to the scavenging effect of NO emissions from vehicles.

Diurnal Patterns of O_3 Levels

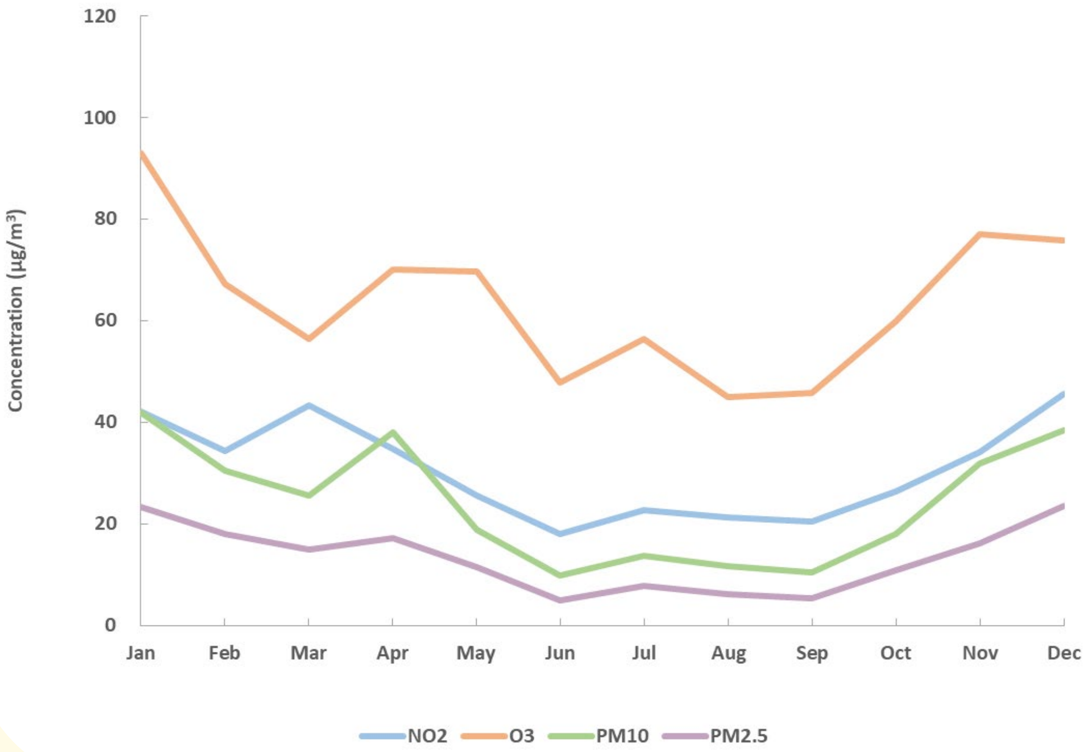


Monthly Variations in Air Pollutant Levels

The concentrations of NO_2, PM_{10} and $PM_{2.5}$ are in general lower in summer for a number of reasons. The higher temperatures in summer months induce larger mixing heights, which favour the dispersion of pollutants. The rain in summer helps to wash out pollutants more frequently. The south-westerly monsoon in summer also helps to replenish the region with cleaner oceanic air.

As regards O_3, the highest monthly concentrations usually occur in autumn and winter with more favourable weather conditions (such as strong solar radiation, less rainfall, favourable wind direction, etc.) for O_3 formation via photochemical reactions.

Figure 19: Monthly Variations in NO_2, O_3, PM_{10} and $PM_{2.5}$ Levels at Central/Western Station for 2025



Appendix A

Air Quality Monitoring Network and Operation

A1. Network Operation

The Air Science and Modelling Group of the Environmental Protection Department operates the Air Quality Monitoring Network with 18 air quality monitoring stations (AQMSs) in 2025. **Table A1** shows the station site information.

In order to provide good representation of the air quality in areas of high population density, the locations of the 18 AQMSs were carefully chosen by referencing to the United States Environmental Protection Agency's (USEPA) guidelines with practical consideration of the unique congested high-rise development of Hong Kong.

Figure A1: Tsuen Wan monitoring station.

Table A1: AQMSs Site Information

Monitoring Station	Address	Area Type	Sampling Height Above P.D.H.K.	Sampling Height Above Ground	Date Start Operation
Central/Western	Sai Ying Pun Community Complex 2 High Street, Sai Ying Pun	**Urban:** Mixed residential / commercial	82m	16m (5 floors)	Nov 1983[1]
Southern	Aberdeen Tennis and Squash Centre 1 Aberdeen Praya Road, Hong Kong	**Urban:** Mixed residential / commercial / industrial	22m	18m (2 floors)	Jul 2020
Eastern	Sai Wan Ho Fire Station 20 Wai Hang Street, Sai Wan Ho	**Urban:** Residential	28m	15m (4 floors)	Jan 1999
Kwun Tong	Kwun Tong Police Station 9 Lei Yue Mun Road, Kwun Tong, Kowloon	**Urban:** Mixed residential / commercial / industrial	23m	14.7m (2 floors)	Jul 1983[2]
Sham Shui Po	Sham Shui Po Police Station 37A Yen Chow Street, Sham Shui Po	**Urban:** Mixed residential / commercial	21m	17m (4 floors)	Jul 1984
Kwai Chung	Kwai Chung Police Station 999 Kwai Chung Road, Kwai Chung	**Urban:** Mixed residential / commercial / industrial	19m	13m (2 floors)	Jul 1988[3]
Tsuen Wan	Princess Alexandra Community Centre 60 Tai Ho Road, Tsuen Wan	**Urban:** Mixed residential / commercial / industrial	21m	17m (4 floors)	Aug 1988
Tseung Kwan O	Tseung Kwan O Sports Centre 9 Wan Lung Road, Tseung Kwan O, Sai Kung	**Urban:** Residential	23m	16m (2 floors)	Mar 2016
Yuen Long	Yuen Long District Office Building 269 Castle Peak Road, Yuen Long	**New Town:** Residential	31m	25m (6 floors)	Jul 1995
Tuen Mun	Tuen Mun Public Library 1 Tuen Hi Road, Tuen Mun	**New Town:** Residential	31m	27m (4 floors)	Dec 2013
Tung Chung	Tung Chung Health Centre 6 Fu Tung Street, Tung Chung	**New Town:** Residential	34.5m	27.5m (4 floors)	Apr 1999
Tai Po	Tai Po Govt. Offices Building 1 Ting Kok Road, Tai Po	**New Town:** Residential	31m	28m (6 floors)	Feb 1990[4]
Sha Tin	Sha Tin Govt. Secondary School 11-17 Man Lai Road, Tai Wai, Sha Tin	**New Town:** Residential	31m	25m (6 floors)	Jul 1991
North	Po Wing Road Sports Centre 19 Pak Wo Road, Sheung Shui	**New Town:** Residential	33m	23m (3 floors)	Jul 2020
Tap Mun	Tap Mun Police Post	**Background:** Rural	26m	11m (3 floors)	Apr 1998
Causeway Bay	1 Yee Woo Street, Causeway Bay	**Urban Roadside:** Mixed commercial / residential area surrounded by tall buildings	6.5m[5] / 7m[6]	3m[5] / 3.5m[6]	Jan 1998
Central	Junction of Des Voeux Road Central and Chater Road, Central	**Urban Roadside:** Busy commercial / financial area surrounded by tall buildings	8.5m	4.5m	Oct 1998
Mong Kok	Junction of Nathan Road and Lai Chi Kok Road, Mong Kok	**Urban Roadside:** Mixed commercial / residential area surrounded by tall buildings	8.5m[5] / 10.9m[6]	3m[5] / 5.4m[6]	Apr 1991[7]

Notes: P.D. = Principal Datum

[1] Central/Western station was relocated to the current address in October 2009.
[2] Kwun Tong station was relocated to the current address in March 2020.
[3] Kwai Chung station was relocated to the current address in January 1999.
[4] Tai Po station was relocated to the current address in February 2006.
[5] Sampling height for gaseous pollutants.
[6] Sampling height for suspended particulates.
[7] Mong Kok station was relocated to the current address in January 2001.

Figure A2: Instrument for measuring the air pollutants at an AQMS.

The details of the parameters monitored at each AQMS and a list of equipment employed for measuring the air pollutants are summarised in **Tables A2** and **Table A3** respectively. In general, the concentrations of gaseous pollutants, PM_{10} and $PM_{2.5}$ are measured continuously by automatic analysers. Manually operated high volume samplers using gravimetric methods are also used regularly to measure PM_{10} concentrations. The concentrations of Pb are measured in the subsequent elemental analysis of the PM_{10} samples by Government Laboratory using Inductively Coupled Plasma Optical Emission Spectroscopy. In addition, meteorological parameters, including temperature, solar radiation, wind speed and wind direction, are also recorded continuously at each station as appropriate.

Tables A2: Parameters Monitored at each AQMSs in 2025

	Monitoring Station	SO_2	NO_x	NO	NO_2	CO	O_3	$PM_{2.5}$	PM_{10}		MET [3]
									Cont [1]	Hi-Vol [2]	
General Station	Central/Western	✓	✓	✓	✓		✓	✓	✓	✓	✓
	Southern	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Eastern	✓			✓		✓	✓	✓		✓
	Kwun Tong	✓	✓	✓	✓		✓	✓	✓	✓	✓
	Sham Shui Po	✓	✓	✓	✓		✓	✓	✓	✓	✓
	Kwai Chung	✓	✓	✓	✓		✓	✓	✓	✓	✓
	Tsuen Wan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Tseung Kwan O	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Yuen Long	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Tuen Mun	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Tung Chung	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Tai Po	✓	✓	✓	✓		✓	✓	✓		✓
	Sha Tin	✓	✓	✓	✓		✓	✓	✓		✓
	North	✓	✓	✓	✓	✓	✓	✓	✓		✓
	Tap Mun	✓	✓	✓	✓	✓	✓	✓	✓		✓
Roadside Station	Causeway Bay	✓	✓	✓	✓	✓	✓	✓	✓		
	Central	✓	✓	✓	✓	✓	✓	✓	✓		✓
	Mong Kok	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes:

[1] "Cont" denotes continuous monitoring.
[2] "Hi-Vol" denotes high-volume sampling.
[3] "MET" denotes meteorological parameters such as temperature, wind speed, wind direction, etc.

Table A3: List of Equipment Used in Measuring Air Pollutant Concentration

Pollutants	Measurement Principle	Commercial Instrument
SO_2	UV fluorescence	API T100, API T100U,
NO, NO_2, NO_x	Chemiluminescence	API 200A, API T200
O_3	UV absorption	API 400A, API T400
SO_2, NO_2, O_3	Differential Optical Absorption Spectroscopy	Opsis AR 500 System
CO	Non-dispersive infra-red absorption with gas filter correlation	API T300, API T300U
PM_{10}	a) Gravimetric b) Oscillating microbalance c) Beta Attenuation	Tisch PM10+, Thermo Scientific TEOM 1405-DF T-API 602 Beta Plus, Met One BAM 1020
$PM_{2.5}$	a) Oscillating microbalance b) Beta Attenuation	Thermo Scientific TEOM 1405-DF, T-API 602 Beta Plus, Met One BAM1020

Wet and dry deposition samples are collected at 3 AQMSs, namely Central/Western, Kwun Tong and Yuen Long. The parameters measured for all wet and dry samples include conductivity, pH, Na^+, K^+, NH_4^+, NO_3^-, SO_4^{2-}, Cl^-, F^-, Ca^{2+}, Mg^{2+}, formate and acetate in the filtrate.

A2. Data Processing and Dissemination

At each AQMS, signals from the continuous analysers and the meteorological instruments are first stored in a data logger and then sent back to the Data Processing Unit of the Air Science and Modelling Group via dedicated broadband data lines for further processing. The Data Processing Unit adopts a quality policy to ensure that air quality monitoring data are processed in a timely manner and meet the quality requirements as laid out in the QA/QC Manual. Following checking and validation[A2], the monitoring data are disseminated to the public in the following manner:

Real-time Air Quality Monitoring Data

- Hourly Air Quality Health Index (AQHI)
- Hourly concentrations of SO_2, NO_2, CO, O_3, PM_{10} and $PM_{2.5}$

Past Air Quality Monitoring Data

- Past 24-hour AQHI and concentrations of SO_2, NO_2, CO, O_3, PM_{10} and $PM_{2.5}$
- Monthly release of the AQHI summary
- Monthly updating of air quality monitoring data in the Environmental Protection Interactive Centre (EPIC) for public access following validation (https://www.epd.gov.hk/epd/epic/english/epichome.html)
- Reporting of monitoring data in the annual reports *"Air Quality in Hong Kong"* and *"Environment Hong Kong"*
- Ad hoc provision of air quality data to the public, academics and environmental consultants upon request for the purposes of research and air quality assessment

The reporting and forecasting of AQHI will help the public, particularly susceptible groups such as the elderly, children and those with heart or respiratory illnesses, to consider taking precautionary measures when necessary. The monitoring results are also regularly used to assist in formulating air quality management plans and evaluating the effectiveness of the current air pollution control programmes.

Figure A3: The Data Processing Unit facilitates public access to timely air quality information via various platform, including the AQHI website and app.

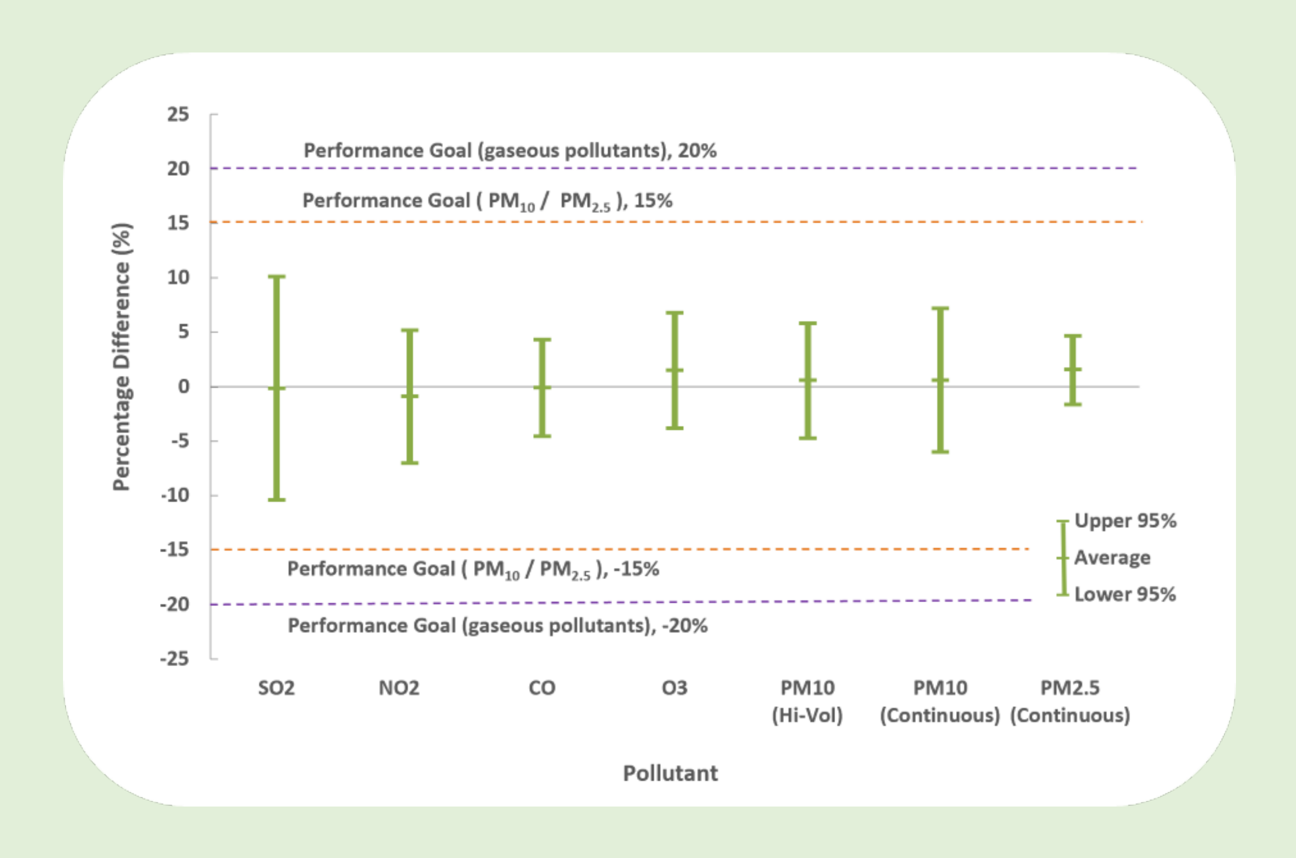
[A2] Real-time and past 24-hour air quality data are reported following preliminary limited validation

A3. Quality Control and Assurance

To ensure that the air quality data recorded at the air quality monitoring stations are accurate and reliable, the Air Quality Monitoring Network has obtained accreditation under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for measurements of major air pollutants since 1995. A quality management system has been established in accordance with the requirements of HOKLAS and ISO/IEC 17025. A high degree of data accuracy, precision and completeness is attained primarily by (1) implementing a set of quality control and quality assurance (QA/QC) activities detailed in the QA/QC manuals; (2) regular meeting of the monitoring network management; and (3) regular audit and review.

The accuracy of the monitoring network is assessed by performance audits. Accuracy is the measurement of deviation from the true value. Performance goals of ±15% and ±20% are adopted for suspended particulates (PM_{10} and $PM_{2.5}$) and gaseous pollutants respectively. In 2025, 461 audit checks were carried out on the stations' analysers and samplers. As shown in **Figure A4**, based on the 95% probability limits, the accuracy varied from -10.4% to 10.1% for gaseous pollutants, and from -6.0% to 7.2% for particulates[A3]. All parameters were well within the corresponding performance goals.

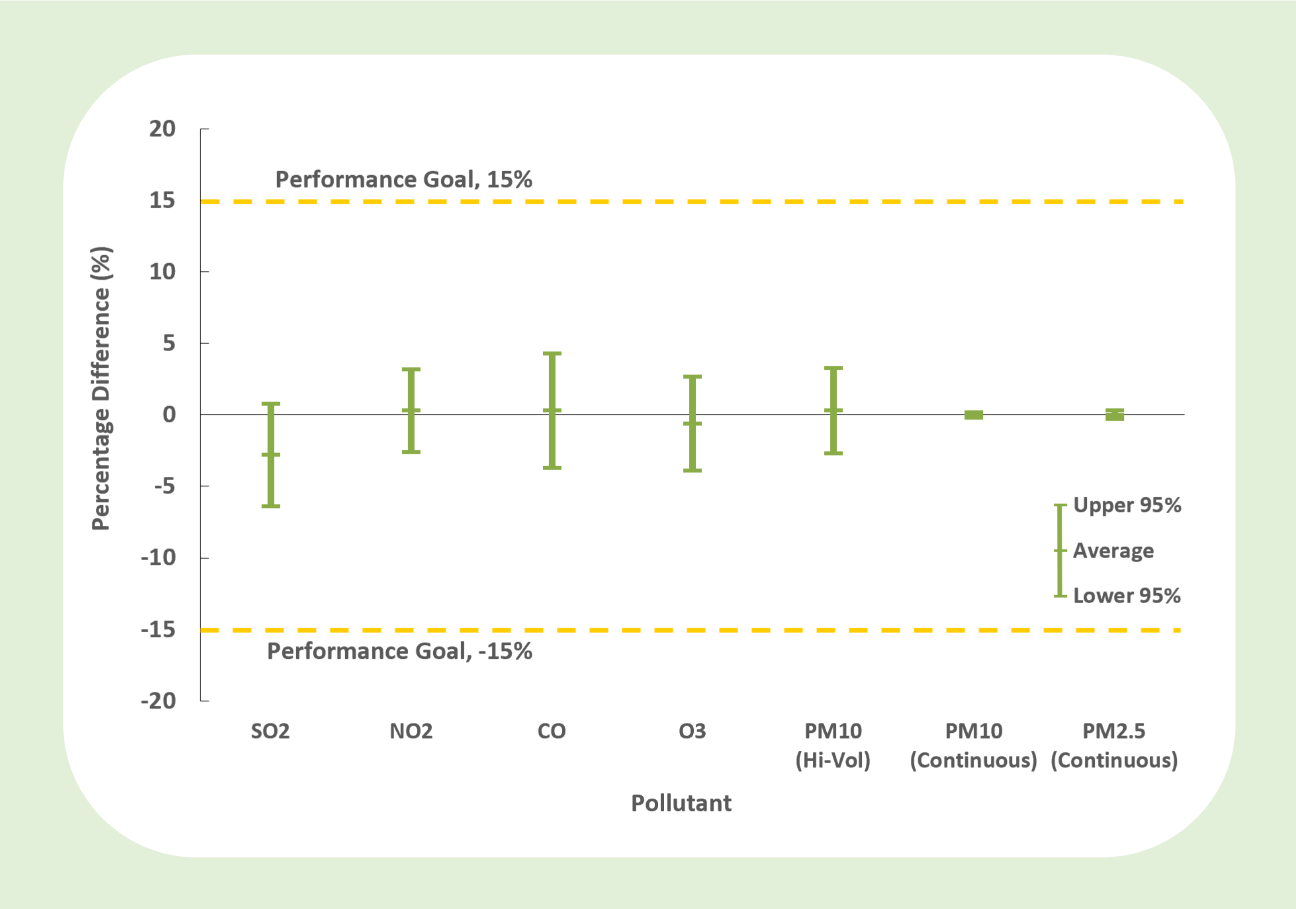
Figure A4: Accuracy of Air Quality Monitoring Network in 2025



[A3] Derived from the accuracy of indicated flowrate of particulates instruments only

The precision of the monitoring network is assessed from the results of precision checks. Precision is the measurement of repeatability or how close repeated measurements are to each other. In 2025, 3512 precision checks were carried out on the analysers and samplers. As shown in **Figure A5,** based on the 95% probability limits, the precision of the network varied between -6.4% and 4.3%, which was again within the performance goal of ±15%.

Figure A5: Precision of Air Quality Monitoring Network in 2025



A4. Toxic Air Pollutants Monitoring Operation

Since July 1997, specialized monitoring equipment has been installed at Tsuen Wan and Central/Western stations to regularly measure the levels of Toxic Air Pollutants (TAPs) in Hong Kong. These pollutants are broadly categorized as volatile organic compounds, dioxins (Polychlorinated dibenzo-p-dioxins and Polychlorinated dibenzofurans), carbonyl compounds, polycyclic aromatic hydrocarbons (PAHs) and hexavalent chromium. The analytical methods used for these TAPs are summarised in **Table A4**. Stringent QA/QC criteria are adhered to for all methods to ensure data quality. Sample analysis is conducted by the HKSAR Government Laboratory.

Among the various monitored TAPs, eight are considered as being of significance in terms of their health impacts and their annual averages in 2025 are summarised in **Table C6** in **Appendix C.**

Table A4: Sampling and Analysis Methods Used in Measuring TAPs

Category	Target Pollutants	Sampling and Analysis Method	Sampling Instrument	Sampling Media	Sampling Schedule	Sampling Period
VOCs	Benzene Perchloroethylene 1,3-Butadiene	USEPA Method TO-14A	Xontech 910A / RM 910A / ATEC 2200	Canister	Twice per month	24 hours
Carbonyls	Formaldehyde	USEPA Method TO-11A	ATEC 2200	DNPH coated Sep-Pak cartridge	Once per month	24 hours
PAHs	Benzo(a)pyrene	USEPA Method TO-13	Tisch TE-1000	Quartz fibre filter and polyurethane foam with XAD-2 resin	Once per month	24 hours
Dioxins	Polychlorinated dibenzo-p-dioxins (PCDDs) Polychlorinated dibenzofurans (PCDFs)	USEPA Method TO-9A	Tisch TE-1000	Quartz fibre filter and polyurethane foam	Once per month	24 hours
Hexavalent chromium	Hexavalent chromium	CARB SOP MLD 039	Xonteck 924	Bicarbonate impregnated filter	Once per month	24 hours

Appendix B

Air Quality Objectives

The Government has set out Hong Kong's Air Quality Objectives (AQOs) in the Air Pollution Control Ordinance (Cap. 311) (APCO). The compliance status of the AQOs has been used as the indicator of air quality in different districts in Hong Kong. AQOs refer to the 15 short-term and long-term concentration targets of the seven major air pollutants prescribed in Section 7A and Schedule 5 of the APCO. To continuously improve air quality and better protect the public health, the Government launched the Air Quality Objectives Review at least once in every five years pursuant to the APCO. The prevailing AQOs took effect on 11 April 2025. As shown in **Table B1**, they are based on the interim targets and air quality guidelines (AQG) levels of the World Health Organisation (WHO)'s WHO Global Air Quality Guidelines (the WHO AQGs) published in September 2021. Using these benchmarks, five AQOs were tightened, and three new parameters introduced in the WHO AQGs were added. After the update, **seven out of 15 AQOs are set at the most stringent level of the WHO AQGs**.

Table B1: Hong Kong's Prevailing AQOs

Pollutant	Averaging time	Concentration limit [1] (µg/m^3)	Number of exceedances of limit allowed
Sulphur dioxide (SO_2)	10-minute	500*	3
	24-hour	40*	3
Respirable suspended particulates (PM_{10})	24-hour	75	9
	Annual	30	Not applicable
Fine suspended particulates ($PM_{2.5}$)	24-hour	37.5	18
	Annual	15	Not applicable
Nitrogen dioxide (NO_2)	1-hour	200*	18
	24-hour	120	9
	Annual	40	Not applicable
Ozone (O_3)	8-hour	160	9
	Peak season	100	Not applicable
Carbon monoxide (CO)	1-hour	30 000*	0
	8-hour	10 000*	0
	24-hour	4 000*	0
Lead (Pb)	Annual	0.5*	Not applicable

Notes:

[1] All measurements of the concentration of gaseous air pollutants, i.e., SO_2, NO_2, O_3 and CO, are to be adjusted to a reference temperature of 293 Kelvin and a reference pressure of 101.325 kilopascal.

[2] (yellow shading) Hong Kong AQOs' concentration limits and allowable number of exceedances, were updated on 11 April 2025.

[3] (peach shading) Hong Kong AQOs were newly introduced on 11 April 2025 in response to the parameters added in the WHO AQGs.

[4] * These are the AQG levels in the WHO AQGs. The AQG level of CO (1-hour) proposed under the WHO AQGs is 35 000 µg/m^3.

Table B2: Hong Kong AQOs tightened in 2025

Pollutant	Averaging Time	WHO AQGs (µg/m³)					Number of exceedances allowed per year under Hong Kong's AQOs
		IT-1	IT-2	IT-3	IT-4	AQG level	
SO_2	10-minute	–				500	3
	24-hour	125	50	–		40	3
PM_{10}	24-hour	150	100	75	50	45	9
	Annual	70	50	30	20	15	Not applicable
$PM_{2.5}$	24-hour	75	50	37.5	25	15	35 → 18
	Annual	35	25	15	10	5	Not applicable
NO_2	1-hour	–				200	18
	24-hour*	120	50	–		25	9
	Annual	40	30	20	–	10	Not applicable
O_3	8-hour	160	120	–		100	9
	Peak season*	100	70	–		60	Not applicable
CO	1-hour	–				30 000#	0
	8-hour	–				10 000	0
	24-hour*	7 000	–			4 000	0
Pb	Annual	–				0.5	Not applicable

Notes:

[1] Previous AQO concentration limits and the allowable number of exceedances.

[2] Hong Kong's prevailing AQOs updated on 11 April 2025.

[3] * New parameters in the Hong Kong AQOs.

Appendix C

Air Quality Statistical Summary for 2025

List of Tables

Notes:

[1] In this Report, the concentrations of gaseous air pollutants are adjusted to a reference temperature of 293K and a reference pressure of 101.325 kPa. The concentrations of particulate matters are measured at real-time temperature and atmospheric pressure during monitoring.

[2] (light grey shading) Concentration exceeded the respective AQO limit value

[3] (dark grey shading) Exceeded the maximum allowable number of AQO exceedances

Table C1: Compliance with the Short-term Air Quality Objectives in 2025

Sulphur Dioxide (SO_2) 10-minute AQO

(limit value = 500 µg/m^3 ; allowable no. of exceedances of limit value = 3)

Monitoring Station	Exceeded the maximum allowable number of AQO exceedances	Highest 10-minute Average Concentration (µg/m^3)
		4th Highest
Central/Western	No	64
Southern	No	45
Eastern	No	25
Kwun Tong	No	15
Sham Shui Po	No	42
Kwai Chung	No	39
Tsuen Wan	No	29
Tseung Kwan O	No	18
Yuen Long	No	22
Tuen Mun	No	36
Tung Chung	No	24
Tai Po	No	16
Sha Tin	No	28
North	No	39
Tap Mun	No	22
Causeway Bay	No	24
Central	No	21
Mong Kok	No	35

Sulphur Dioxide (SO_2) 24-hour AQO

(limit value = 40 µg/m^3 ; allowable no. of exceedances of limit value = 3)

Monitoring Station	Exceeded the maximum allowable number of AQO exceedances	Highest 24-hour Average Concentration (µg/m^3)
		4th Highest
Central/Western	No	9
Southern	No	10
Eastern	No	4
Kwun Tong	No	5
Sham Shui Po	No	12
Kwai Chung	No	10
Tsuen Wan	No	6
Tseung Kwan O	No	7
Yuen Long	No	5
Tuen Mun	No	10
Tung Chung	No	6
Tai Po	No	8
Sha Tin	No	7
North	No	5
Tap Mun	No	5
Causeway Bay	No	9
Central	No	8
Mong Kok	No	9

Carbon Monoxide (CO) 1-hour AQO

(limit value = 30 mg/m^3 ; allowable no. of exceedances of limit value = 0)

Monitoring Station	Exceeded the maximum allowable number of AQO exceedances	1-hour Average Concentration (mg/m^3)
		The highest
Southern	No	1.0
Tsuen Wan	No	1.4
Tseung Kwan O	No	1.1
Yuen Long	No	2.0
Tuen Mun	No	1.6
Tung Chung	No	1.2
North	No	1.7
Tap Mun	No	0.8
Causeway Bay	No	1.8
Central	No	1.7
Mong Kok	No	1.5

Carbon Monoxide (CO) 8-hour AQO

(limit value = 10 mg/m^3 ;allowable no. of exceedances of limit value = 0)

Monitoring Station	Exceeded the maximum allowable number of AQO exceedances	Daily Max. 8-hour Average Concentration (mg/m^3)
		The highest
Southern	No	0.8
Tsuen Wan	No	1.3
Tseung Kwan O	No	0.9
Yuen Long	No	1.5
Tuen Mun	No	1.2
Tung Chung	No	1.2
North	No	1.2
Tap Mun	No	0.8
Causeway Bay	No	1.4
Central	No	1.3
Mong Kok	No	1.2

Carbon Monoxide (CO) 24-hour AQO

(limit value = 4 mg/m^3 ; allowable no. of exceedances of limit value = 0)

Monitoring Station	Exceeded the maximum allowable number of AQO exceedances	24-hour Average Concentration (mg/m^3)
		The highest
Southern	No	0.7
Tsuen Wan	No	1.0
Tseung Kwan O	No	0.7
Yuen Long	No	1.4
Tuen Mun	No	1.1
Tung Chung	No	1.1
North	No	1.0
Tap Mun	No	0.7
Causeway Bay	No	1.2
Central	No	0.9
Mong Kok	No	1.1

Table C1 (Cont.): Compliance with the Short-term Air Quality Objectives in 2025

Nitrogen Dioxide (NO_2) 1-hour AQO

(limit value = 200 µg/m^3 ; allowable no. of exceedances of limit value = 18)

Monitoring Station	Exceeded the maximum allowable number of AQO exceedances	Highest 1-hour Average Concentration (µg/m^3) 19th Highest
Central/Western	No	150
Southern	No	109
Eastern	No	113
Kwun Tong	No	157
Sham Shui Po	No	173
Kwai Chung	No	178
Tsuen Wan	No	140
Tseung Kwan O	No	118
Yuen Long	No	134
Tuen Mun	No	171
Tung Chung	No	124
Tai Po	No	113
Sha Tin	No	131
North	No	131
Tap Mun	No	43
Causeway Bay	No	192
Central	No	187
Mong Kok	No	194

Respirable Suspended Particulates (PM_{10}) 24-hour AQO

(limit value = 75 µg/m^3 ; allowable no. of exceedances of limit value = 9)

Monitoring Station	Exceeded the maximum allowable number of AQO exceedances	Highest 24-hour Average Concentration (µg/m^3) 10th Highest
Central/Western	No	60
Southern	No	53
Eastern	No	57
Kwun Tong	No	57
Sham Shui Po	No	59
Kwai Chung	No	63
Tsuen Wan	No	58
Tseung Kwan O	No	64
Yuen Long	No	63
Tuen Mun	Yes	84
Tung Chung	No	61
Tai Po	No	57
Sha Tin	No	50
North	No	62
Tap Mun	No	58
Causeway Bay	No	68
Central	No	67
Mong Kok	No	57

Nitrogen Dioxide (NO_2) 24-hour AQO

(limit value = 120 µg/m^3 ; allowable no. of exceedances of limit value = 9)

Monitoring Station	Exceeded the maximum allowable number of AQO exceedances	Highest 24-hour Average Concentration (µg/m^3) 10th Highest
Central/Western	No	73
Southern	No	52
Eastern	No	54
Kwun Tong	No	84
Sham Shui Po	No	88
Kwai Chung	No	91
Tsuen Wan	No	76
Tseung Kwan O	No	48
Yuen Long	No	72
Tuen Mun	No	91
Tung Chung	No	61
Tai Po	No	59
Sha Tin	No	66
North	No	64
Tap Mun	No	18
Causeway Bay	No	116
Central	No	120
Mong Kok	Yes	121

Fine Suspended Particulates ($PM_{2.5}$) 24-hour AQO

(limit value = 37.5 µg/m^3 ; allowable no. of exceedances of limit value = 18)

Monitoring Station	Exceeded the maximum allowable number of AQO exceedances	Highest 24-hour Average Concentration (µg/m^3) 19th Highest
Central/Western	No	29.6
Southern	No	28.0
Eastern	No	29.0
Kwun Tong	No	28.8
Sham Shui Po	No	30.2
Kwai Chung	No	31.7
Tsuen Wan	No	31.5
Tseung Kwan O	No	27.8
Yuen Long	No	37.1
Tuen Mun	Yes	40.2
Tung Chung	No	36.4
Tai Po	No	32.1
Sha Tin	No	28.0
North	No	29.2
Tap Mun	No	27.3
Causeway Bay	Yes	38.6
Central	Yes	39.0
Mong Kok	No	32.4

Table C1 (Cont.): Compliance with the Short-term Air Quality Objectives in 2025

Ozone (O_3) 8-hour AQO

(limit value = 160 µg/m^3 ; allowable no. of exceedances of limit value = 9)

Monitoring Station	Exceeded the maximum allowable number of AQO exceedances	Highest Daily Max. 8-hour Average Concentration (µg/m^3)
		10th Highest
Central/Western	No	153
Southern	No	160
Eastern	No	160
Kwun Tong	No	136
Sham Shui Po	No	129
Kwai Chung	No	126
Tsuen Wan	No	121
Tseung Kwan O	Yes	168
Yuen Long	No	141
Tuen Mun	No	146
Tung Chung	No	160
Tai Po	Yes	169
Sha Tin	Yes	164
North	No	156
Tap Mun	Yes	186
Causeway Bay	No	107
Central	No	100
Mong Kok	No	105

Table C2: Compliance with Peak Season Ozone Air Quality Objective in 2025

Ozone (O_3) Peak Season AQO

(Peak Season AQO = 100 µg/m^3)

Monitoring Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Peak Season
Central/Western	95	95	88	82	77	74	71	72	79	81	85	89	95
Southern	103	102	93	87	81	78	75	78	87	91	97	101	103
Eastern	99	100	93	88	83	78	75	75	81	83	88	93	100
Kwun Tong	84	84	75	68	62	58	55	56	64	68	73	79	84
Sham Shui Po	78	78	71	68	63	61	59	60	66	68	71	74	78
Kwai Chung	78	78	70	62	55	52	51	52	60	64	70	74	78
Tsuen Wan	71	71	65	61	57	54	54	55	61	62	66	69	71
Tseung Kwan O	110	109	100	92	86	81	79	82	92	98	104	111	111
Yuen Long	84	84	75	72	67	64	62	63	71	73	77	81	84
Tuen Mun	81	82	76	73	71	71	71	72	79	80	84	87	87
Tung Chung	94	95	89	88	83	80	77	73	73	69	67	65	95
Tai Po	105	107	100	94	87	80	75	73	81	84	89	96	107
Sha Tin	104	104	96	89	84	80	78	80	88	93	98	104	104
North	96	98	91	88	83	79	76	77	85	87	93	99	99
Tap Mun	120	120	111	105	99	95	92	95	104	108	113	119	120
Causeway Bay	56	56	51	46	42	40	37	38	42	46	49	53	56
Central	57	57	53	48	44	42	40	39	44	47	51	55	57
Mong Kok	54	59	55	49	46	44	43	45	51	54	57	61	61

Table C3: Monthly and Annual Average Concentrations of Air Pollutants in 2025

Sulphur Dioxide (SO_2) Monthly and Annual Average Concentrations ($\mu g/m^3$)

Monitoring Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Central/Western	4	2	3	3	5	5	4	5	6	3	5	4	4
Southern	7	6	5	5	5	5	7	7	4	4	4	4	5
Eastern	3	1	1	2	2	1	2	2	2	2	3	2	2
Kwun Tong	2	1	1	2	2	2	3	3	3	3	2	3	2
Sham Shui Po	7	6	4	5	6	5	7	7	7	5	5	5	6
Kwai Chung	4	2	4	3	3	4	6	6	5	2	2	3	4
Tsuen Wan	2	2	3	3	3	2	1	1	2	2	2	3	2
Tseung Kwan O	5	4	5	5	6	6	5	5	5	6	6	5	5
Yuen Long	2	1	2	2	2	1	1	1	2	2	3	2	2
Tuen Mun	8	6	6	6	7	8	5	4	2	3	6	6	6
Tung Chung	3	2	2	4	4	2	1	1	1	1	1	2	2
Tai Po	3	2	3	3	3	2	3	5	4	5	6	4	4
Sha Tin	2	2	4	3	4	5	3	2	2	3	3	3	3
North	3	2	5	2	1	1	2	2	3	3	4	3	3
Tap Mun	3	1	2	3	3	1	1	1	1	1	1	1	2
Causeway Bay	5	3	4	4	5	4	5	5	5	5	6	5	5
Central	4	4	5	3	2	2	5	5	5	5	6	5	4
Mong Kok	3	2	3	3	3	3	3	3	3	3	5	7	4

Nitrogen Oxides (NO_X) Monthly and Annual Average Concentrations ($\mu g/m^3$)

Monitoring Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Central/Western	48	47	65	47	31	23	29	31	30	33	41	53	40
Southern	35	36	44	39	29	22	31	26	22	24	29	36	31
Kwun Tong	64	62	72	69	56	61	71	61	56	49	59	69	62
Sham Shui Po	69	64	72	67	51	49	63	55	49	46	51	72	59
Kwai Chung	77	71	91	87	63	69	86	76	68	53	64	87	74
Tsuen Wan	64	63	76	65	48	47	54	45	42	38	47	62	54
Tseung Kwan O	29	21	36	35	25	26	32	29	23	18	20	30	27
Yuen Long	61	49	60	52	41	39	48	44	48	39	48	71	50
Tuen Mun	81	64	72	60	40	38	44	41	41	47	64	84	56
Tung Chung	48	49	54	38	25	21	29	27	30	29	34	42	35
Tai Po	48	31	40	38	30	32	33	31	29	31	42	49	36
Sha Tin	44	27	44	39	27	27	39	33	32	29	38	53	36
North	57	34	48	40	33	33	37	42	39	36	49	66	43
Tap Mun	14	11	14	11	7	5	12	14	7	9	10	13	11
Causeway Bay	204	184	211	192	168	173	195	176	173	170	191	204	187
Central	152	135	162	140	116	113	137	133	126	138	178	179	143
Mong Kok	125	116	134	135	123	130	156	133	123	112	112	140	129

Nitrogen Dioxide (NO_2) Monthly and Annual Average Concentrations ($\mu g/m^3$)

(Annual AQO = 40 $\mu g/m^3$)

Monitoring Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Central/Western	42	34	43	35	26	18	23	21	20	26	34	46	31
Southern	30	26	30	28	21	16	26	18	15	19	26	30	24
Eastern	38	35	38	35	29	21	26	22	23	26	31	39	30
Kwun Tong	52	43	51	48	39	35	48	36	34	34	45	52	43
Sham Shui Po	56	46	52	48	37	31	44	34	30	33	43	57	43
Kwai Chung	58	44	54	52	39	36	52	40	34	34	46	58	46
Tsuen Wan	51	43	46	46	35	31	40	30	27	30	40	51	39
Tseung Kwan O	27	18	30	28	19	18	20	20	16	14	19	26	21
Yuen Long	49	38	43	38	30	25	34	28	28	29	39	50	36
Tuen Mun	63	49	52	46	32	27	34	28	28	34	51	63	42
Tung Chung	42	37	40	30	20	16	24	19	21	24	29	34	28
Tai Po	41	26	31	29	23	22	26	22	21	25	36	40	29
Sha Tin	38	24	37	32	22	20	31	24	21	23	33	43	29
North	45	28	35	30	24	22	27	25	24	26	39	46	31
Tap Mun	13	9	12	9	6	4	8	7	4	6	9	12	8
Causeway Bay	88	69	72	70	62	50	64	49	48	59	74	80	65
Central	81	61	71	65	55	42	58	49	47	61	83	83	63
Mong Kok	78	63	71	69	61	53	70	54	50	54	68	82	64

Carbon Monoxide (CO) Monthly and Annual Average Concentrations (mg/m^3)

Monitoring Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Southern	0.5	0.6	0.4	0.4	0.3	0.2	0.4	0.4	0.5	0.3	0.5	0.5	0.4
Tsuen Wan	0.7	0.8	0.7	0.7	0.5	0.3	0.4	0.5	0.6	0.6	0.5	0.5	0.6
Tseung Kwan O	0.5	0.5	0.4	0.2	0.3	0.2	0.3	0.2	0.1	0.3	0.4	0.4	0.3
Yuen Long	0.9	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.1	0.9
Tuen Mun	0.8	0.8	0.7	0.5	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Tung Chung	0.7	0.8	0.7	0.3	0.4	0.4	0.5	0.3	0.6	0.5	0.7	0.8	0.6
North	0.7	0.7	0.5	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.6	0.5
Tap Mun	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.5	0.4	0.5	0.4	0.4
Causeway Bay	0.8	0.6	0.7	0.6	0.6	0.4	0.4	0.4	0.4	0.5	0.6	0.6	0.5
Central	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.5	0.4	0.5	0.5	0.5
Mong Kok	0.5	0.5	0.5	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.5	0.7	0.4

Table C3 (Cont.): Monthly and Annual Average Concentrations of Air Pollutants in 2025

Ozone (O_3) Monthly and Annual Average Concentrations (µg/m^3)

Monitoring Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Central/Western	93	67	56	70	70	48	56	45	46	60	77	76	64
Southern	103	78	66	72	69	46	57	44	54	65	86	86	69
Eastern	96	73	68	77	76	50	62	47	48	63	79	78	68
Kwun Tong	78	59	48	57	57	29	39	29	32	49	64	61	50
Sham Shui Po	73	55	47	54	58	34	42	33	36	52	69	61	51
Kwai Chung	72	56	44	49	53	25	32	25	28	49	62	58	46
Tsuen Wan	66	49	42	46	52	30	38	28	30	48	61	53	45
Tseung Kwan O	102	83	66	74	73	47	57	45	50	71	89	89	71
Yuen Long	72	54	44	55	55	30	45	27	32	48	59	51	48
Tuen Mun	66	52	44	53	62	39	50	37	47	58	67	60	53
Tung Chung	82	61	58	69	73	54	63	43	46	59	54	44	59
Tai Po	87	82	73	80	79	40	52	38	40	53	64	66	63
Sha Tin	88	76	59	68	72	45	54	42	44	65	78	72	64
North	81	70	57	66	68	42	57	38	41	60	69	66	60
Tap Mun	113	89	76	84	85	55	67	54	57	77	95	94	79
Causeway Bay	47	34	27	34	33	22	25	23	24	30	37	36	31
Central	48	38	28	37	37	19	29	24	25	33	37	41	33
Mong Kok	54	38	33	40	40	23	30	27	30	42	54	48	38

Respirable Suspended Particulates (PM_{10}) Monthly and Annual Average Concentrations (µg/m^3)

(Annual AQO = 30 µg/m^3)

Monitoring Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Central/Western	42	31	26	38	19	10	14	12	10	18	32	39	24
Southern	36	28	24	39	18	11	18	14	11	18	28	32	23
Eastern	40	30	23	40	20	11	15	13	11	18	30	36	24
Kwun Tong	40	29	23	42	22	13	17	14	12	18	30	36	25
Sham Shui Po	40	30	25	40	21	11	17	14	11	19	30	38	25
Kwai Chung	40	29	23	45	21	13	18	15	12	19	29	39	25
Tsuen Wan	37	28	21	39	17	10	15	11	9	16	25	32	22
Tseung Kwan O	41	29	27	54	27	15	17	15	13	20	31	37	27
Yuen Long	42	30	25	39	20	10	18	13	12	22	34	44	26
Tuen Mun	58	40	33	62	26	17	22	19	16	28	47	55	35
Tung Chung	41	29	21	40	17	10	15	11	9	19	32	39	24
Tai Po	41	29	23	41	20	11	17	13	11	19	30	38	24
Sha Tin	36	24	19	36	15	7	13	9	8	16	26	32	20
North	46	31	26	53	23	15	21	17	15	22	32	36	28
Tap Mun	42	28	19	36	18	10	15	12	10	17	27	31	22
Causeway Bay	52	43	35	52	34	24	29	27	24	31	40	47	37
Central	46	38	31	47	28	20	24	23	21	29	40	51	33
Mong Kok	40	33	27	44	22	14	18	16	13	20	33	41	27

Fine Suspended Particulates ($PM_{2.5}$) Monthly and Annual Average Concentrations (µg/m^3)

(Annual AQO = 15 µg/m^3)

Monitoring Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Central/Western	23.3	18.1	14.9	17.3	11.4	5.0	7.9	6.2	5.3	10.8	16.1	23.5	13.3
Southern	20.5	17.9	16.9	17.1	11.6	5.7	10.1	7.1	5.8	11.4	15.8	20.4	13.4
Eastern	23.4	18.5	14.4	18.4	12.3	6.0	9.3	6.9	5.7	11.1	16.1	22.0	13.7
Kwun Tong	23.0	17.2	13.8	18.0	13.1	7.0	10.5	7.7	6.6	11.7	16.4	22.8	14.0
Sham Shui Po	23.8	19.7	15.7	18.0	13.4	7.3	10.8	8.2	7.0	12.8	17.7	25.1	15.0
Kwai Chung	25.4	19.3	14.8	20.3	13.7	7.6	11.7	8.6	7.2	12.6	17.3	24.5	15.2
Tsuen Wan	24.6	19.5	14.9	19.4	12.2	6.4	10.3	7.4	6.4	12.0	16.4	22.9	14.4
Tseung Kwan O	21.7	17.7	13.6	21.3	13.0	7.2	10.5	7.5	7.4	11.8	16.1	21.1	14.1
Yuen Long	27.4	20.5	16.3	19.2	13.6	6.3	11.4	8.0	7.7	14.8	20.1	30.2	16.3
Tuen Mun	33.1	23.7	19.5	24.9	16.2	8.6	10.8	8.8	7.4	16.1	23.8	32.9	18.9
Tung Chung	27.4	20.3	14.3	20.4	13.0	7.7	10.5	7.4	6.1	14.2	19.6	27.3	15.7
Tai Po	26.1	18.7	15.1	19.6	13.4	6.5	11.0	7.4	6.9	13.2	18.1	25.5	15.1
Sha Tin	21.8	14.6	12.0	16.3	10.3	4.4	8.5	5.4	4.9	10.5	15.2	22.2	12.2
North	23.3	17.4	15.0	22.8	14.4	8.7	13.1	9.8	9.0	14.0	18.2	23.2	15.8
Tap Mun	23.4	16.6	12.1	16.1	10.7	4.4	7.9	5.2	4.9	11.8	16.6	21.9	12.6
Causeway Bay	31.2	27.6	22.2	27.1	22.0	15.5	19.6	17.2	15.6	21.3	24.8	31.6	23.0
Central	28.9	25.2	20.1	24.9	17.6	12.1	15.3	14.3	13.6	18.8	23.6	32.9	20.6
Mong Kok	27.0	21.6	17.4	21.6	14.1	7.9	11.0	8.3	7.7	13.1	18.3	26.2	16.2

Table C4: Hourly Statistics of Air Pollutants in 2025

Nitrogen Dioxide (NO_2) Hourly Statistics

Monitoring Station	Total hours recorded	Data capture rate (%)	Hourly Average Concentration (μg/m³) <----Percentiles----> 10	25	50	75	90	95	97.5	99	99.8	Arithmetic mean	The highest
Central/Western	8,499	97.0	8	14	25	41	59	75	91	118	151	31	176
Southern	8,658	98.8	8	12	19	30	45	60	75	89	109	24	140
Eastern	8,631	98.5	12	18	27	39	52	61	70	85	113	30	140
Kwun Tong	8,479	96.8	19	27	38	52	71	89	106	126	158	43	196
Sham Shui Po	8,446	96.4	17	26	37	53	75	91	104	128	174	43	206
Kwai Chung	8,451	96.5	16	26	41	58	81	101	119	140	179	46	213
Tsuen Wan	8,519	97.2	15	24	34	48	69	85	98	115	141	39	207
Tseung Kwan O	8,625	98.5	8	11	16	25	41	60	75	93	119	21	182
Yuen Long	8,491	96.9	15	21	31	44	63	78	93	112	135	36	176
Tuen Mun	8,598	98.2	15	23	35	55	80	96	113	136	171	42	211
Tung Chung	8,484	96.8	8	13	22	38	55	68	79	93	125	28	155
Tai Po	8,436	96.3	11	17	25	36	50	62	73	90	114	29	143
Sha Tin	8,419	96.1	9	14	23	37	57	74	90	107	131	29	157
North	8,520	97.3	12	17	26	39	56	70	85	107	132	31	153
Tap Mun	8,375	95.6	2	4	7	11	16	20	25	30	43	8	62
Causeway Bay	8,472	96.7	28	42	61	84	107	122	141	164	192	65	229
Central	8,459	96.6	27	40	58	81	105	123	142	160	188	63	226
Mong Kok	8,497	97.0	27	41	60	82	107	123	139	162	194	64	223

Carbon Monoxide (CO) Hourly Statistics

Monitoring Station	Total hours recorded	Data capture rate (%)	Hourly Average Concentration (mg/m³) <----Percentiles----> 10	25	50	75	90	95	97.5	99	99.8	Arithmetic mean	The highest
Southern	8,698	99.3	0.2	0.3	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.4	1.0
Tsuen Wan	8,515	97.2	0.3	0.5	0.6	0.7	0.8	0.9	0.9	1.0	1.1	0.6	1.4
Tseung Kwan O	8,677	99.1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0.3	1.1
Yuen Long	8,478	96.8	0.8	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	0.9	2.0
Tuen Mun	8,635	98.6	0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.3	0.6	1.6
Tung Chung	8,432	96.3	0.3	0.4	0.6	0.7	0.9	0.9	1.0	1.0	1.1	0.6	1.2
North	8,707	99.4	0.3	0.3	0.4	0.6	0.7	0.8	0.9	1.0	1.3	0.5	1.7
Tap Mun	8,401	95.9	0.2	0.3	0.4	0.5	0.6	0.6	0.6	0.7	0.8	0.4	0.8
Causeway Bay	8,497	97.0	0.3	0.4	0.5	0.7	0.9	1.0	1.1	1.3	1.5	0.5	1.8
Central	8,485	96.9	0.3	0.4	0.5	0.6	0.8	0.9	1.0	1.1	1.3	0.5	1.7
Mong Kok	8,532	97.4	0.3	0.3	0.4	0.6	0.7	0.8	0.8	0.9	1.1	0.4	1.5

Table C5: Total Wet and Dry Deposition in 2025

Wet Deposition

		Monitoring Station		
		Central / Western	Kwun Tong	Yuen Long
Wet Deposition (tonne/ha)		2,757	2,672	70
Weighted Mean pH	Based on volume-weighted mean hydrogen ion concentrations ([H+])	3.55	4.92	4.93
	Based on volume-weighted mean pH	5.49	5.29	5.43
Number of Samples		82	73	3
Filtrate (kg/ha)	NH_4^+	1.23	1.40	0.08
	NO_3^-	3.44	5.55	0.08
	SO_4^{2-}	2.66	3.26	0.05
	Cl^-	4.28	5.35	0.21
	F^-	0.07	0.07	0.00
	Na^+	2.31	2.84	0.05
	K^+	0.66	0.66	0.14
	Formate	0.63	0.65	0.02
	Acetate	0.65	0.61	0.02
	Ca^{2+}	0.75	0.72	0.02
	Mg^{2+}	0.33	0.38	0.01

Notes: The weighted mean pH is calculated from the pH values measured by the Government Laboratory

Dry Deposition

		Monitoring Station		
		Central / Western	Kwun Tong	Yuen Long
Number of Samples		25	18	4
Filtrate (kg/ha)	NH_4^+	0.13	0.12	0.08
	NO_3^-	7.45	5.56	1.09
	SO_4^{2-}	2.75	1.89	0.36
	Cl^-	7.90	4.45	0.48
	F^-	0.04	0.03	0.01
	Na^+	4.71	2.72	0.28
	K^+	0.38	0.25	0.05
	Formate	0.17	0.11	0.06
	Acetate	0.15	0.11	0.04
	Ca^{2+}	3.76	2.68	0.68
	Mg^{2+}	0.62	0.39	0.05

Table C6: Ambient Levels of Toxic Air Pollutants in 2025

	Toxic Air Pollutants	Annual Average Concentration [1]		
		Monitoring Station		Unit
		Tsuen Wan	Central/Western	
Heavy Metals	Hexavalent chromium [2]	-	0.11	ng/m^3
	Lead [3]	5.70	5.61	ng/m^3
Organic Substances	Benzene	0.69	0.58	$\mu g/m^3$
	Benzo[a]pyrene	0.03	0.04	ng/m^3
	1,3-Butadiene	0.04	0.03	$\mu g/m^3$
	Formaldehyde	4.28	3.66	$\mu g/m^3$
	Perchloroethylene	0.64	0.24	$\mu g/m^3$
	Dioxins [4]	0.013	0.012	pg I-TEQ/m^3

Notes:

[1] For samples with testing result being lower than the detection limit, one half of the limit is used in calculating the annual averages.

[2] For hexavalent chromium, all data measured in Central/Western monitoring station in the whole year are below the detection limit.

[3] For lead, the reported figures are the respective 2025 annual average concentrations in the elemental analysis of respirable suspended particulates.

[4] Dioxins include Polychlorinated dibenzo-p-dioxins and Polychlorinated dibenzofurans. The level of dioxins is expressed here as toxic equivalent (I-TEQ) concentration of 2,3,7,8-Tetrachlorodibenzodioxin (TCDD) based on the International Toxic Equivalency Factors (I-TEF) of the North Atlantic Treaty Organization (NATO/CCMS).

A Report on the Result from the

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