

# BAY AREA AIR POLLUTION SUMMARY – 2017

| MONITORING STATIONS            | OZONE    |               |          |               |               |          | CARBON MONOXIDE |          |              | NITROGEN DIOXIDE |         |               |               | SULFUR DIOXIDE |           |               |                | PM <sub>10</sub>     |           |                |                | PM <sub>2.5</sub>    |                |          |         |          |
|--------------------------------|----------|---------------|----------|---------------|---------------|----------|-----------------|----------|--------------|------------------|---------|---------------|---------------|----------------|-----------|---------------|----------------|----------------------|-----------|----------------|----------------|----------------------|----------------|----------|---------|----------|
|                                | Max 1-Hr | Cal 1-Hr Days | Max 8-Hr | Nat 8-Hr Days | Cal 8-Hr Days | 3-Yr Avg | Max 1-Hr        | Max 8-Hr | Nat/Cal Days | Max 1-Hr         | Ann Avg | Nat 1-Hr Days | Cal 1-Hr Days | Max 1-Hr       | Max 24-Hr | Nat 1-Hr Days | Cal 24-Hr Days | Ann Avg              | Max 24-Hr | Nat 24-Hr Days | Cal 24-Hr Days | Max 24-Hr            | Nat 24-Hr Days | 3-yr Avg | Ann Avg | 3-yr Avg |
| <b>North Counties</b>          | (ppb)    |               | (ppb)    |               |               |          | (ppm)           |          |              | (ppb)            |         |               |               | (ppb)          |           |               |                | (µg/m <sup>3</sup> ) |           |                |                | (µg/m <sup>3</sup> ) |                |          |         |          |
| Napa                           | 98       | 1             | 84       | 2             | 2             | 63       | 5.6             | 4.7      | 0            | 53               | 7       | 0             | 0             | -              | -         | -             | -              | -                    | -         | -              | -              | 199.1                | 13             | 35       | 13.7    | 10.9     |
| San Rafael                     | 88       | 0             | 63       | 0             | 0             | 58       | 2.6             | 1.6      | 0            | 53               | 10      | 0             | 0             | -              | -         | -             | -              | 17.7                 | 94        | 0              | 2              | 74.7                 | 8              | 27       | 9.7     | 8.2      |
| Sebastopol                     | 87       | 0             | 71       | 1             | 1             | 53       | 2.1             | 1.6      | 0            | 35               | 5       | 0             | 0             | -              | -         | -             | -              | -                    | -         | -              | -              | 81.8                 | 4              | 21       | 8.1     | 6.5      |
| Vallejo                        | 105      | 1             | 88       | 2             | 2             | 61       | 3.1             | 2.1      | 0            | 49               | 8       | 0             | 0             | 5.9            | 2.1       | 0             | 0              | -                    | -         | -              | -              | 101.9                | 9              | 30       | 11.6    | 9.5      |
| <b>Coast &amp; Central Bay</b> |          |               |          |               |               |          |                 |          |              |                  |         |               |               |                |           |               |                |                      |           |                |                |                      |                |          |         |          |
| Berkeley Aquatic Park*         | 58       | 0             | 49       | 0             | 0             | *        | 2.2             | 1.7      | 0            | 123              | 16      | 1             | 0             | -              | -         | -             | -              | -                    | -         | -              | -              | 52.0                 | 7              | *        | 9.1     | *        |
| Laney College Freeway          | -        | -             | -        | -             | -             | -        | 1.9             | 1.3      | 0            | 68               | 17      | 0             | 0             | -              | -         | -             | -              | -                    | -         | -              | -              | 70.8                 | 8              | 27       | 11.6    | 10.1     |
| Oakland                        | 136      | 2             | 100      | 2             | 2             | 54       | 3.2             | 2.2      | 0            | 65               | 10      | 0             | 0             | -              | -         | -             | -              | -                    | -         | -              | -              | 70.2                 | 7              | 24       | 9.4     | 7.9      |
| Oakland-West                   | 87       | 0             | 68       | 0             | 0             | 48       | 6.0             | 2.1      | 0            | 52               | 13      | 0             | 0             | 16.9           | 2.2       | 0             | 0              | -                    | -         | -              | -              | 56.0                 | 7              | 28       | 12.8    | 10.6     |
| Richmond                       | -        | -             | -        | -             | -             | -        | -               | -        | -            | -                | -       | -             | -             | 16.0           | 2.9       | 0             | 0              | -                    | -         | -              | -              | -                    | -              | -        | -       | -        |
| San Francisco                  | 87       | 0             | 54       | 0             | 0             | 47       | 2.5             | 1.4      | 0            | 73               | 11      | 0             | 0             | -              | -         | -             | -              | 22.0                 | 77        | 0              | 2              | 49.9                 | 7              | 27       | 9.7     | 8.3      |
| San Pablo                      | 104      | 3             | 80       | 2             | 2             | 52       | 2.5             | 1.9      | 0            | 48               | 8       | 0             | 0             | 8.3            | 2.7       | 0             | 0              | 20.3                 | 95        | 0              | 4              | 71.2                 | 9              | 30       | 10.8    | 9.3      |
| <b>Eastern District</b>        |          |               |          |               |               |          |                 |          |              |                  |         |               |               |                |           |               |                |                      |           |                |                |                      |                |          |         |          |
| Bethel Island                  | 90       | 0             | 71       | 1             | 2             | 68       | 1.6             | 1.0      | 0            | 34               | 5       | 0             | 0             | 5.3            | 3.5       | 0             | 0              | 16.3                 | 52        | 0              | 1              | -                    | -              | -        | -       | -        |
| Concord                        | 82       | 0             | 70       | 0             | 0             | 66       | 1.7             | 1.3      | 0            | 41               | 7       | 0             | 0             | 13.2           | 2.6       | 0             | 0              | 13.3                 | 41        | 0              | 0              | 89.4                 | 6              | 26       | 12.0    | 8.9      |
| Crockett                       | -        | -             | -        | -             | -             | -        | -               | -        | -            | -                | -       | -             | -             | 23.5           | 5.6       | 0             | 0              | -                    | -         | -              | -              | -                    | -              | -        | -       | -        |
| Fairfield                      | 80       | 0             | 62       | 0             | 0             | 63       | -               | -        | -            | -                | -       | -             | -             | -              | -         | -             | -              | -                    | -         | -              | -              | -                    | -              | -        | -       | -        |
| Livermore                      | 109      | 5             | 86       | 6             | 6             | 75       | -               | -        | -            | 45               | 9       | 0             | 0             | -              | -         | -             | -              | -                    | -         | -              | -              | 41.5                 | 2              | 25       | 8.5     | 8.2      |
| Martinez                       | -        | -             | -        | -             | -             | -        | -               | -        | -            | -                | -       | -             | -             | 15.9           | 3.1       | 0             | 0              | -                    | -         | -              | -              | -                    | -              | -        | -       | -        |
| San Ramon                      | 92       | 0             | 75       | 2             | 2             | 68       | -               | -        | -            | 31               | 5       | 0             | 0             | -              | -         | -             | -              | -                    | -         | -              | -              | -                    | -              | -        | -       |          |
| <b>South Central Bay</b>       |          |               |          |               |               |          |                 |          |              |                  |         |               |               |                |           |               |                |                      |           |                |                |                      |                |          |         |          |
| Hayward                        | 139      | 2             | 110      | 3             | 4             | 65       | -               | -        | -            | -                | -       | -             | -             | -              | -         | -             | -              | -                    | -         | -              | -              | -                    | -              | -        | -       | -        |
| Redwood City                   | 115      | 2             | 86       | 2             | 2             | 56       | 2.8             | 1.4      | 0            | 67               | 11      | 0             | 0             | -              | -         | -             | -              | -                    | -         | -              | -              | 60.8                 | 6              | 23       | 9.1     | 7.7      |
| <b>Santa Clara Valley</b>      |          |               |          |               |               |          |                 |          |              |                  |         |               |               |                |           |               |                |                      |           |                |                |                      |                |          |         |          |
| Gilroy                         | 96       | 1             | 84       | 1             | 1             | 64       | -               | -        | -            | -                | -       | -             | -             | -              | -         | -             | -              | -                    | -         | -              | -              | 48.4                 | 2              | 18       | 5.5     | 6.1      |
| Los Gatos                      | 93       | 0             | 75       | 3             | 3             | 66       | -               | -        | -            | -                | -       | -             | -             | -              | -         | -             | -              | -                    | -         | -              | -              | -                    | -              | -        | -       | -        |
| San Jose                       | 121      | 3             | 98       | 4             | 4             | 67       | 2.1             | 1.8      | 0            | 68               | 12      | 0             | 0             | 3.6            | 1.1       | 0             | 0              | 21.6                 | 70        | 0              | 6              | 49.7                 | 6              | 27       | 9.5     | 9.3      |
| San Jose Freeway               | -        | -             | -        | -             | -             | -        | 2.6             | 1.8      | 0            | 77               | 17      | 0             | 0             | -              | -         | -             | -              | -                    | -         | -              | -              | 48.4                 | 8              | 28       | 10.8    | 9.4      |
| San Martin                     | 96       | 1             | 86       | 3             | 3             | 69       | -               | -        | -            | -                | -       | -             | -             | -              | -         | -             | -              | -                    | -         | -              | -              | -                    | -              | -        | -       | -        |
| <b>Total Bay Area</b>          | 6        |               | 6        |               |               |          | 0               |          |              | 1                |         |               |               | 0              |           |               |                | 0                    |           |                |                | 6                    |                |          |         |          |
| <b>Days over Standard</b>      |          |               |          |               |               |          |                 |          |              |                  |         |               |               |                |           |               |                |                      |           |                |                |                      |                |          |         |          |

\*See NOTES on second page.

Dash (-) indicates pollutant is not monitored at the site.

## 2017 NOTES

The annual Bay Area Air Pollution Summary summarizes pollutant concentrations for comparison to the national and California air pollution standards.

**\*Station Information (see asterisks on front page)**

Near-road air monitoring at Berkeley Aquatic Park began on July 1, 2016. Therefore, 3-year averages for ozone and PM<sub>2.5</sub> statistics are not available.

## Explanation of Terms

State and national exceedances occur when pollutant concentrations exceed the indicated standards. For comparison, values in ppb must be converted to ppm and rounded to the same number of decimal places as the original standard.

**MAX HR / MAX 8-HR / MAX 24-HR**

The highest average pollutant concentration over a one-hour period, an eight-hour period (on any given day), or a 24-hour period (from midnight to midnight).

**ANN AVG**

The yearly average (arithmetic mean) of the readings taken at a given monitoring station.

**NAT DAYS**

The number of days during the year for which the monitoring station recorded pollutant concentrations exceeding the national standard.

**CAL DAYS**

The number of days during the year for which the station recorded pollutant concentrations exceeding the California standard.

**TOTAL BAY AREA DAYS OVER STANDARD**

is not a sum of exceedances at individual stations, but rather the number of days where at least one site recorded an exceedance.

**3-YR AVG (Nat. 8-hr ozone standard)**

The 3-year average of the fourth highest 8-hour average ozone concentrations for each monitoring station. A 3-year average greater than 70 ppb at any monitoring station means that the region does not meet the standard and may be designated non-attainment by the EPA.

**PM<sub>10</sub>**

Particulate matter ten microns or smaller in size. PM<sub>10</sub> is sampled every third day at San Jose and every sixth or twelfth day at all other sites.

**PM<sub>2.5</sub>**

Particulate matter 2.5 microns or smaller in size. PM<sub>2.5</sub> is a sub-category of PM<sub>10</sub>.

**PM<sub>10</sub> ANN AVG and MAX 24-HR**

This table shows PM<sub>10</sub> data reported at local temperature and pressure conditions, according to the California standards. National PM<sub>10</sub> data are converted to standard temperature and pressure conditions, which generally results in slightly lower readings.

**3-YR AVG (PM<sub>2.5</sub> 24-hour standard)**

The 3-year average of the annual 98<sup>th</sup> percentiles of the individual 24-hour concentrations of PM<sub>2.5</sub>. A 3-year average greater than 35 µg/m<sup>3</sup> at any monitoring station means that the region does not meet the standard and may be designated non-attainment by the EPA.

**3-YR AVG (PM<sub>2.5</sub> annual standard)**

The 3-year average of the quarterly averages of PM<sub>2.5</sub>. A 3-year average greater than 12.0 µg/m<sup>3</sup> at any monitoring station means that the region does not meet the standard and may be designated non-attainment by the EPA.

## HEALTH-BASED AMBIENT AIR QUALITY STANDARDS

| Pollutant                         | Averaging Time | California Std       | National Std           |
|-----------------------------------|----------------|----------------------|------------------------|
| <b>Ozone*</b>                     | 1 Hour         | 0.09 ppm             | –                      |
|                                   | 8 Hour         | 0.070 ppm            | 0.070 ppm              |
| <b>Carbon Monoxide</b>            | 1 Hour         | 20 ppm               | 35 ppm                 |
|                                   | 8 Hour         | 9.0 ppm              | 9 ppm                  |
| <b>Nitrogen Dioxide</b>           | 1 Hour         | 0.18 ppm             | 0.100 ppm              |
|                                   | Annual         | 0.030 ppm            | 0.053 ppm              |
| <b>Sulfur Dioxide</b>             | 1 Hour         | –                    | 0.075 ppm              |
|                                   | 24 Hour        | 0.04 ppm             | –                      |
| <b>Particulates ≤ 10 microns</b>  | 24 Hour        | 50 µg/m <sup>3</sup> | 150 µg/m <sup>3</sup>  |
|                                   | Annual         | 20 µg/m <sup>3</sup> | –                      |
| <b>Particulates ≤ 2.5 microns</b> | 24 Hour        | –                    | 35 µg/m <sup>3</sup>   |
|                                   | Annual         | 12 µg/m <sup>3</sup> | 12.0 µg/m <sup>3</sup> |

\* In October 2015, the U.S. EPA implemented a new 8-hour ozone standard of 70 ppb. Exceedances are based on this standard (note that national and state numbers can differ due to data-handling conventions).

Concentrations

**ppm** parts per million | **ppb** parts per billion | **µg/m<sup>3</sup>** micrograms per cubic meter

## TEN-YEAR BAY AREA AIR QUALITY SUMMARY

DAYS OVER CURRENT STANDARDS

| YEAR | OZONE |      |      | CARBON MONOXIDE |      | NITROGEN DIOXIDE |      | SULFUR DIOXIDE |       | PM <sub>10</sub> |       | PM <sub>2.5</sub> |
|------|-------|------|------|-----------------|------|------------------|------|----------------|-------|------------------|-------|-------------------|
|      | 8-Hr  | 1-Hr | 8-Hr | 1-Hr            | 8-Hr | 1-Hr             | 1-Hr | 24-Hr          | 24-Hr | 24-Hr            | 24-Hr |                   |
|      | Nat   | Cal  | Cal  | Nat             | Cal  | Nat              | Cal  | Nat            | Cal   | Nat              | Cal   | Nat               |
| 2008 | 19    | 9    | 20   | 0               | 0    | 0                | 0    | 2              | 0     | 0                | 5     | 12                |
| 2009 | 11    | 11   | 13   | 0               | 0    | 0                | 0    | 0              | 0     | 0                | 1     | 11                |
| 2010 | 11    | 8    | 11   | 0               | 0    | 0                | 0    | 0              | 0     | 0                | 2     | 6                 |
| 2011 | 9     | 5    | 10   | 0               | 0    | 0                | 0    | 0              | 0     | 0                | 3     | 8                 |
| 2012 | 8     | 3    | 8    | 0               | 0    | 0                | 0    | 1              | 0     | 0                | 2     | 3                 |
| 2013 | 3     | 3    | 3    | 0               | 0    | 0                | 0    | 0              | 0     | 0                | 6     | 13                |
| 2014 | 9     | 3    | 10   | 0               | 0    | 0                | 0    | 0              | 0     | 0                | 2     | 3                 |
| 2015 | 12    | 7    | 12   | 0               | 0    | 0                | 0    | 0              | 0     | 0                | 1     | 9                 |
| 2016 | 15    | 6    | 15   | 0               | 0    | 0                | 0    | 0              | 0     | 0                | 0     | 0                 |
| 2017 | 6     | 6    | 6    | 0               | 0    | 0                | 0    | 1              | 0     | 0                | 6     | 18                |