

# Air Monitoring with SensWA

SensWA (“sense-wa”) are air sensors designed and built by Ecology to measure fine particulate matter pollution (PM<sub>2.5</sub>). Ecology uses the SensWA to report the Air Quality Index (AQI) every hour. The AQI shows current pollution levels and recommended health actions.



SensWA sensor device (6”x6”x4” and approximately 3 lb)

## Hosting a SensWA

### What are the benefits of hosting a SensWA?

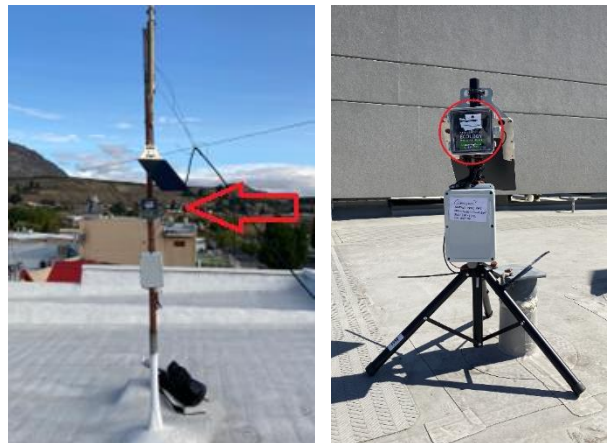
Ecology partners with schools, community centers, libraries, parks, and other public facilities who host SensWA on their property. The SensWA provide current AQI data available to these host facilities and their surrounding communities.

- AQI data can inform decisions about when to cancel outdoor activities such as recess and sporting events, particularly during wildfire smoke episodes.
- AQI data can help community members understand health risks of air pollution and take protective actions during pollution events.
- Many schools use air quality data in educational programs for students.
- Data can be accessed from:
  - [Ecology’s website](#) and AirQualityWA app
  - [EPA’s Fire & Smoke Map](#) and AirNow app

### What does Ecology need from facilities who host SensWA?

When siting SensWA, we look for:

- **Security.** SensWA need to be placed in a secure location, such as a fenced area or a rooftop, or elevated out of reach.
- **Airflow.** SensWA need unrestricted airflow in all or most directions with ample distance away from walls, buildings, and vents.
  - Poles or railings are preferred, but Ecology can also provide a tripod.
  - Vents such as HVAC exhaust and cooking vents can interfere with SensWA measurements.



SensWA on rooftop antenna pole (left) and Ecology tripod (right).

- **Electricity.** Access to a wall outlet within 15 feet is preferred.
  - SensWA power draw is very low (0.2 amps at 5v), which is about \$1 in electrical costs per year.
  - Ecology can provide a solar panel setup if power is unavailable, as shown in the photos above.
- **Cellular service.** SensWA send data to Ecology’s server via an internal cellular modem. They do not require WiFi.
- **No disturbances.** We ask that hosts agree not to disturb the SensWA (e.g. unplug or move) without contacting Ecology staff first.

## Hosting a SensWA (continued)

### What kind of service and maintenance do SensWA need?

Ecology air monitoring staff will visit each SensWA every 3 months for basic maintenance, such as cleaning and inspection.

Once per year, each SensWA will be replaced for annual maintenance and evaluation.

Ecology staff may occasionally need to access the SensWA to resolve unexpected problems, such as power outages or communication failures.

We ask host facilities to provide a point of contact for Ecology staff when planning site visits. This is often a facilities or maintenance staff person.

### Does Ecology enter into a formal agreement or lease with host facilities?

Ecology uses a standard Memorandum of Understanding to define the roles of Ecology and host facilities. Ecology assumes responsibility for any damage to Ecology-provided equipment.



SensWA elevated on utility pole (left) and outbuilding (right).

### Contact information

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## How do SensWA compare to other monitoring devices?

### Reference monitors

Compared to reference monitors, SensWA are smaller, lighter, less expensive, and more portable. They can be installed in a wider range of locations and relocated more easily.

The primary use for SensWA data is public information. SensWA are well-correlated with reference monitors, though they do have a wider margin of uncertainty. Unlike reference monitors, SensWA cannot be used for regulatory purposes.

### Commercial sensors

Many commercial sensors are available to consumers, ranging widely in quality and accuracy. Ecology used our air monitoring expertise to tailor the SensWA for monitoring needs in Washington and overcome the limitations we found in many of the available commercial sensors.

- The SensWA use higher-quality components than many commercial sensors, which provides better durability and accuracy.
- Ecology has full ownership of the SensWA technology and data, which will always be publicly and freely available. Many commercial sensor manufacturers charge for data access.
- Ecology provides regionally-specific calibration of SensWA data to maximize accuracy in Washington's aerosol environments.
- Ecology's experienced air quality monitoring team provides maintenance, support, and quality control, which prevents many failures common to commercial sensors.
- SensWA data can be accessed from [Ecology's website](#) and AirQualityWA app and from [EPA's Fire & Smoke Map](#) and AirNow app.

To request an ADA accommodation, contact Ecology by phone at 360-407-6800 or email [melanie.forster@ecy.wa.gov](mailto:melanie.forster@ecy.wa.gov), or visit <https://ecology.wa.gov/accessibility>. For Relay Service or TTY call 711 or 877-833-6341.