

## MANAGING AIR QUALITY

**Air emissions in the Capital Region come from a variety of sources including urban, agricultural, industrial, natural and individual activities. The main ground level air contaminants of concern are nitrogen dioxide, sulphur dioxide, fine particulate matter and ground level ozone. At certain concentrations, these substances may affect human and ecosystem health.**

The Capital Region Air Steering Committee is comprised of industry, environmental non-governmental organizations, airsheds and all three levels of government. Their collaborative, shared vision for managing air in the Capital Region is detailed in two publications:

- *The Capital Region Air Quality Management Framework for Nitrogen Dioxide, Sulphur Dioxide, Fine Particulate Matter and Ozone*
- *Technical Supporting Document for the Capital Region Air Quality Management Framework.*

*The Capital Region Air Quality Management Framework* interlinks with other initiatives and components related to the Alberta government’s direction for managing the cumulative effects of human activity, including industrial development, on the environment. *The Framework* is a sub-regional plan and will inform the North Saskatchewan Regional Plan.

### WHAT IS A CUMULATIVE EFFECTS MANAGEMENT FRAMEWORK?

“Cumulative effects” are the combined effects of past, present and foreseeable human activities over time on the environment, economy and society in a particular place.

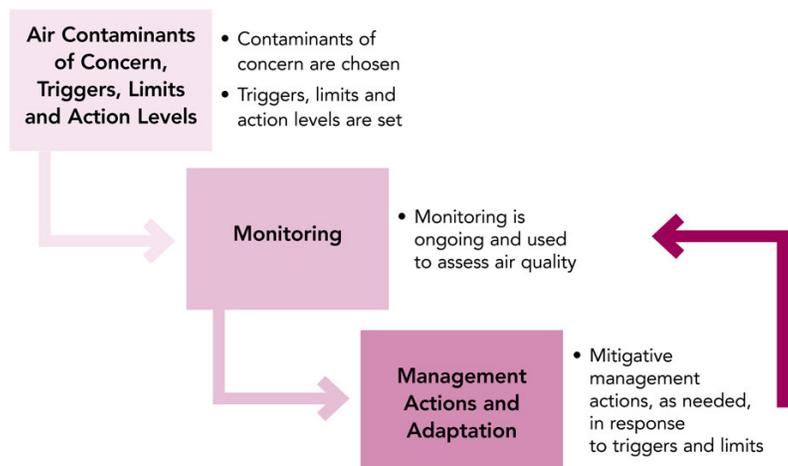
*The Capital Region Air Quality Management Framework* focuses on the achievement of outcomes, understanding the effects of multiple development pressures (existing and new) and assessing risk. It represents collaborative work with shared responsibility for action among the stakeholders represented on *The Framework’s* Steering Committee. The Committee built *The Framework* on the adaptive management approach outlined in the diagram to the right. This approach allows decision-makers to learn from experience and new information, and adapt to changing social expectations and demands.

The *Framework* confirms that the province will continue to require industrial and municipal sources of emissions to employ pollution prevention and emission minimization principles.

### WHAT ARE THE MAIN SOURCES OF THE CONTAMINANTS OF CONCERN?

In the Capital Region, the main sources of nitrogen dioxide are combustion of fuel for vehicles and home heating, and the combustion of coal, oil and natural gas for industrial processes. Sulphur dioxide may be released because

of activities like coal combustion, petroleum refining, chemical production and metals manufacturing. Fine particulate matter is emitted directly (primary particulate matter) or formed in the atmosphere from precursor emissions. Ground level ozone is formed through complex chemical reactions between precursor emissions of volatile organic compounds and nitrogen oxides in the presence of heat and sunlight or by stratospheric intrusion. The contaminants can also enter the Capital Region from transboundary sources.

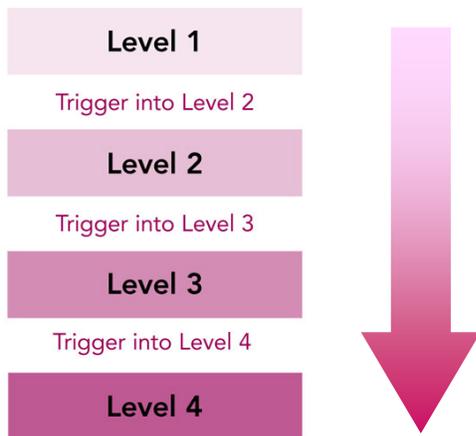


## DOES THE FRAMEWORK REPLACE EXISTING REGULATIONS?

No. *The Framework* enhances existing provincial and federal initiatives and regulatory processes for maintaining and improving our ambient air quality by interpreting policy principles, concepts and actions at a sub regional level. It uses the *Alberta Ambient Air Quality Objectives* to set air quality levels for nitrogen dioxide and sulphur dioxide. Alberta Environment and Sustainable Resource Development publishes these objectives on its website. For particulate matter and ozone, *The Framework* uses the *Clean Air Strategic Alliance Particulate Matter and Ozone Management Framework*.

## HOW DO THE TRIGGERS, LIMITS AND LEVELS WORK?

The approach to managing ambient air quality is proactive. It sets ambient air quality triggers and limits for the contaminants of concern using a four-level management approach. Level 1 is the lowest and Level 4 is the highest, as illustrated in the figure below.



## HOW DOES THE FRAMEWORK ASSIGN AMBIENT AIR QUALITY LEVELS?

Ambient air quality levels are assigned using measured data from ambient air quality monitoring stations located in the Capital Region. See the map to the right for monitoring station locations.

Monitoring is conducted by airsheds, municipalities, industry and Alberta Environment and Sustainable Resource Development in accordance with the *Alberta Air Monitoring Directive*. Alberta Environment and Sustainable Resource Development analyzes the ambient data collected from the current monitoring structure and assigns an ambient air quality level to each station.

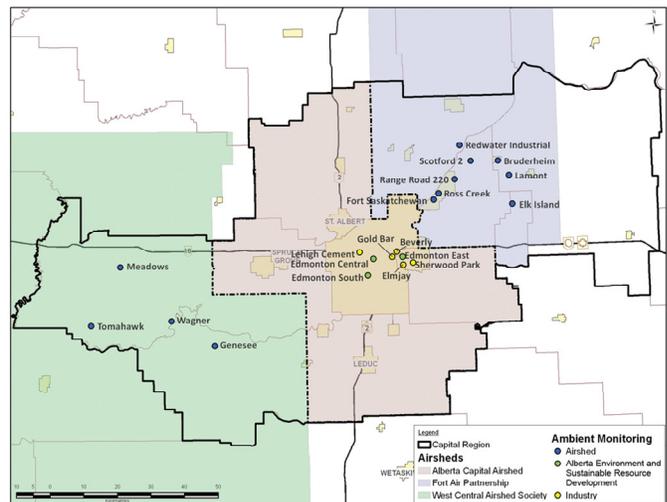
Stations operated by Alberta Environment and Sustainable Resource Development and airsheds

archive data into the publicly accessible Clean Air Strategic Alliance electronic data warehouse. Once a year these stations are reported on through the Alberta government's *State of the Environment* reporting process.

## WHAT ARE THE FRAMEWORK'S MANAGEMENT ACTIONS?

Once an ambient air quality level is assigned to each monitoring station in the Capital Region, the need for responsive management action is determined. As the ambient air quality level increases, management responses become more stringent. *The Framework* recommends a suite of management response options for each level. These actions include a range of potential measures and tools with varying degrees of rigour and flexibility. Tailored responses address concentration trends and the magnitude of the concentration above an ambient air quality trigger or action trigger.

When mitigative management actions are required, Alberta Environment and Sustainable Resource Development will collaborate with stakeholders to identify and implement the appropriate management action. This will include identifying the public, stakeholders and different levels of government that need to be involved in the plan. Timelines will be mapped out for the achievement of the reductions necessary to move below air quality levels, triggers, or limits.



## WHERE CAN I FIND THE FRAMEWORK?

*The Capital Region Air Quality Management Framework* is available on the Alberta Environment and Sustainable Resource Development website.