

Key Conclusions

- ▶ The Automobile Inspection and Readjustment Program (AIR Program) decreases ozone precursor emissions by about 13%, or 10 tons per day, thereby providing a significant portion of the controllable ozone precursor emission reductions needed to assist with attainment of the National Ambient Air Quality Standards for ozone.
- ▶ The AIR Program reduces the emission of ozone precursors at a cost of about \$16,750 per ton, indicating that the Program is a cost-effective pollution control measure.
- ▶ The AIR Program's emissions reduction benefits are primarily derived from vehicles that fail the Air Program inspection that are subsequently repaired and pass a retest, repaired in anticipation of the inspection, or retired from the vehicle fleet instead of being repaired.

Air Quality Background

- ▶ Ozone is a common pollutant that, in high concentrations, can cause health problems, especially in sensitive populations. Ozone is formed in the atmosphere through photochemical reactions involving ozone precursors (nitrogen oxides, hydrocarbons, and carbon monoxide). The largest source of ground-level ozone precursors comes from human activities, including fossil fuel combustion (e.g., motor vehicle emissions) and solvent usage. Naturally occurring sources of ozone precursor emissions include plants, soil, wildfires, and lightning.
- ▶ The federal government has established health-based National Ambient Air Quality Standards that define acceptable ozone concentrations. Areas that are designated as being in non-compliance with these standards have to satisfy specific requirements related to reducing emissions and come into compliance within a given amount of time. Failure to come into compliance results in re-designation, which imposes more stringent requirements to reduce emissions and establishes a new compliance deadline.
- ▶ At present, the U.S. Environmental Protection Agency (EPA) classifies the Denver Metro/Northern Front Range (DM/NFR) area as being in serious non-attainment of the 75 parts per billion (ppb) federal ozone standard established in 2008 and in marginal non-attainment of the 70 ppb federal ozone standard set in 2015. The applicable attainment deadlines of July 20, 2021, and August 3, 2021, for the 2008 and 2015 standards, respectively, were not met. Therefore, the DM/NFR area is in the process of being re-designated as being in "severe" and "moderate" non-attainment for the 2008 and 2015 standards and will face new deadlines of 2026, and 2023, respectively.
- ▶ Given that the DM/NFR area is in non-compliance with the two federal ozone air quality standards, state and local environmental planning agencies will have to implement a new air quality plan that sets forth new emission reduction measures. That planning process is underway.

Air Program Background

- ▶ The AIR Program is part of the State's overall strategy for ensuring compliance with federal air quality standards.

- ▶ The Colorado Department of Public Health and Environment (Department) is responsible for overseeing and administering the technical aspects of the AIR Program, including maintaining and analyzing emissions inspection data, reporting emissions data to the Colorado Air Quality Control Commission, and administering the licensing tests for emissions inspectors and mechanics.
- ▶ The AIR Program covers all of Broomfield, Boulder, Denver, Douglas, and Jefferson counties and parts of Adams, Arapahoe, Larimer, and Weld counties.
- ▶ Vehicles in the Program Area must pass an emissions test before they can be registered. The frequency and type of emissions test performed depends on the age of the vehicle.
- ▶ RapidScreen, which was implemented in 2004, allows qualifying vehicles to be registered based on readings from roadside monitors, thereby skipping the need for the traditional emissions test at a brick-and-mortar facility.
- ▶ In Calendar Year 2019¹, which was selected as the primary analysis year for this evaluation given that it was the last year of normal AIR program operation prior to the pandemic, approximately 933,000 vehicles received an emissions test through the AIR Program. In addition, about another 136,000 vehicles were registered based on the results of passing RapidScreen readings rather than a traditional emissions test.
- ▶ The total net cost of the AIR Program in Calendar Year 2019 was about \$61.8 million. Costs borne by vehicle owners include the emissions test fee, an additional registration fee that funds the AIR Program, repair costs on vehicles that failed the emissions test, and vehicle owner inconvenience costs. These costs are netted against cost savings to vehicle owners from improved fuel economy as a result of vehicle repairs.

Recommendations

1. The Colorado Department of Public Health and Environment (Department) should consider the following modifications with respect to the Automobile Inspection and Readjustment Program (AIR Program):
 - a. The AIR Program should impose pre-pandemic test requirements, including:
 - i. Exempting the newest 7 model years from AIR Program test requirements.
 - ii. Performing IM240 tests on 1982 and newer model-year vehicles up to 12 model years old.
 - iii. Performing OBD tests on 8 to 11-year-old vehicles. If these vehicles do not meet OBD readiness requirements but pass all other OBD pass/fail criteria, they should receive IM240 tests.
 - b. If confirmatory IM240 testing is discontinued for 8 to 11 year old vehicles that do not meet OBD readiness requirements, the Department should instead require these vehicles to meet the OBD readiness requirements.

Response 1a: The Department agrees to implement Recommendation 1.a by March 31, 2023, as long as the impacts of the pandemic remain as they are as of November 2022 and no additional pandemic restrictions are imposed in 2022 or the beginning of 2023. While unlikely, any new pandemic restrictions or mandatory closures may delay implementing some elements of Recommendation 1.a.

¹ Data from 2020 and 2021 were also analyzed but the results for those are not considered representative of the actual effectiveness of the AIR Program under normal circumstances.

Response 1b: The Department agrees to implement Recommendation 1.b. This program modification was implemented to reduce vehicle emissions testability issues created by the pandemic. Forgoing any additional pandemic restrictions, recommendation 1.b. will be fully implemented by March 31, 2023.

2. The Colorado Department of Public Health and Environment (Department) should perform an analysis to determine if the reductions in emissions that would occur in the Denver Metro/North Front Range (DM/NFR) area from expansion of the AIR Program to El Paso County would be a cost-effective strategy to assist in compliance (and maintenance of compliance) with the 2008 and 2015 ozone standards compared to the other control measures that are being considered for implementation in the DM/NFR area. After completing the analysis, the Department should determine the appropriate next steps based on the results of the analysis.

Response: The Department agrees to perform an analysis to determine if expanding the AIR Program into El Paso County would be a cost effective strategy for reducing pollutants in the Denver Metro and Northern Front Range areas. Recommendation 2 will be completed by January 31, 2024. This allows the Department the opportunity collect additional data in 2023 and use contemporary emissions monitor results from the 2023 ozone season. The Department will determine the appropriate next steps depending on the results of the analysis.