

Treasure Valley Vehicle Inspection and Maintenance Programs

2010–2011 Annual Review



**State of Idaho
Department of Environmental Quality
1410 North Hilton
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Background

In April 2008, the Idaho Legislature enacted and the governor signed into law Idaho Code § 39-116B, *Vehicle Inspection and Maintenance Program*. Subsection 5 directs that “The department shall annually review the results of the vehicle inspection and maintenance program. The review shall include, among other things, an estimate of the emission reduction obtained from the number of vehicles that initially fail the test and then pass after maintenance.”

An inspection and maintenance (I/M) testing program to reduce ozone pollution caused by vehicle emissions in Canyon County and the city of Kuna in Ada County began June 1, 2010. An emissions testing program in Ada County has been operating since 1984 as a result of noncompliance with the federal carbon monoxide National Ambient Air Quality Standard (NAAQS) and is still required by the U.S. Environmental Protection Agency (EPA) today. This midterm report summarizes the emission reductions of both programs for the first year of the most recent two-year testing cycle.

Program Effectiveness

The effectiveness of an emissions testing program can be described in terms of its failure rates and estimated emission reductions.

Failure Rates

Failure rates reflect the percentage of tested vehicles that fail the initial test and are required to either obtain repairs and pass a retest or obtain a waiver due to hardship or repair costs. From June 1, 2010, through May 31, 2011, the Ada County program tested 122,394 vehicles while the Canyon County program tested 54,453 vehicles. The Canyon County failure rates are typical of a first-year program, while the Ada County rates are typical of a well-established program that has resulted in a fleet with fewer high-emission vehicles (Table 1).

Table 1. Failure rates, June 2010 through May 2011

Test Type	Ada County (%)	Canyon County (%)
Two-speed idle	8.51	13.9
On-board diagnostic II	7.15	9.21
Snap-acceleration (diesel)	4.1	3.6

Emission Reductions

When Idaho Code § 39-116B was enacted in 2008, expected ozone precursor emission reduction estimates were developed for Ada and Canyon Counties based on the 2006 travel demand modeling and mobile emissions modeling using the MOBILE6.2 model as required by EPA and as configured for transportation conformity purposes.¹ EPA’s “national default” information

¹ Community Planning Association of Southwest Idaho (COMPASS), *COMPASS Staff’s Emission Testing Benefit Analysis – as of January 11, 2008, Supplemental* (Boise, ID: COMPASS, 2008).

reflecting vehicle type and vehicle age distributions nationwide was used in the MOBILE6.2 modeling.

Emission reductions for the Ada and Canyon County testing programs were estimated in 2011 using EPA’s recently released MOVES emissions model, version MOVES2010a.² Like MOBILE6.2, MOVES used detailed travel demand model results, local inputs on vehicle types and ages, and I/M program statistics for compliance and waiver rates (Table 2). The compliance and waiver rate information allows the MOVES model to account for those vehicles that do not obtain a passing test. The rates shown in Table 2 for Ada and Canyon Counties are typical of rates reported in other I/M programs throughout the United States. The 2011 modeling is based on COMPASS travel demand modeling for 2008 updated to reflect 2010 traffic levels.

Table 2. Compliance and waiver rates based on June 2010–May 2011 program data

	Ada County	Canyon County
Compliance rate	98.5%	96.5%
Waiver rate	0.51%	0.28%

The 2008 and 2011 vehicle emission reduction estimates are summarized in Table 3. Estimated Ada County emission reductions in 2011 are 21% greater than the emission reductions estimated in 2008. Canyon County emission reduction estimates are 50% greater due to a greater average per-vehicle emission reduction, as expected for an older vehicle fleet compared to Ada County.

Table 3. Total ozone precursor reductions, 2008 and 2011 estimates

Ozone Precursor	2008 Estimated Reductions		2011 Estimated Reductions	
	Ada County	Canyon County	Ada County	Canyon County
Volatile organic compounds (tons/year)	293	138	337	216
Nitrogen oxides (tons/year)	275	114	353	162
Total direct reductions (tons/year)	568	252	690	378

Conclusion

Results from the Ada and Canyon County programs indicate that both programs are achieving greater emission reductions than were estimated in 2008 when Idaho Code § 39-116B, *Vehicle Inspection and Maintenance Program*, was passed by the Idaho Legislature. This result confirms that the two-county testing program is one of the most effective of all measures evaluated by Treasure Valley Air Quality Council in reducing ozone precursors in the Treasure Valley.

² U.S. Environmental Protection Agency, *Motor Vehicle Emission Simulator (MOVES): User Guide for MOVES2010a* (Washington, DC: U.S. Environmental Protection Agency, 2010), EPA-420-B-10-036.