




WASHINGTON STATE
DEPARTMENT OF
E C O L O G Y

Emission Check Program Evaluation

October 1998

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Emission Check Program Evaluation

Prepared by:

Washington State Department of Ecology
Air Quality Program

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Table of Contents

Current Program Report.....	1
Introduction	1
Program Description	1
Background	1
Program funding and costs.....	2
Test standards and procedures	8
Test stations and contracted services	10
Test cost	11
Impacts on vehicle owners.....	12
Repairs and waivers	11
Compliance	12
Customer service.....	13
Conclusion	14
Emission Check Program History.....	15
Selection of Vehicles for Testing.....	17
Selection methods	17
Concerns regarding selection methods	17
Options.....	19
Recommendations.....	25
Inspection Fee	27
Options.....	26
Recommendation	29
Testing Procedures and Standards	30
Gasoline vehicles	30
Diesel vehicles	33
Options.....	32
Recommendations.....	37
Repairs	38
Options.....	37
Recommendations.....	40

Customer Service	41
Customers	41
Motoring public	41
Authorized Repair Shops and Authorized Emission Specialists	42
Contractors	42
Partners	43
Definitions and current procedures	43
Referees	43
Repair shop visits	44
1-800 information lines	44
Technical training	45
Written materials	45
Fairs and trade shows	46
Programs in other states	46
Options and Recommendations	46
Compliance	51
Washington's compliance rate	51
Air quality impacts of non-compliance	50
Enforcing inspection requirements	50
Washington's enforcement methods	51
Options	52
Recommendations	54
Contractor Performance	55
Ensuring contractor performance	55
Major concerns with contractor performance	55
Options	55
Recommendations	56
Technical Appendices	
Public Involvement Appendices	

Current Program Report

Introduction

The Emission Check Program identifies vehicles with excessive emissions and requires their repair. Emission system repairs improve air quality. During 1997, the Department of Ecology evaluated Washington's Emission Check Program. The objectives of the evaluation were to: (1) evaluate the effectiveness of the current program; (2) propose ways in which the program can improve customer service to vehicle owners while continuing to achieve air quality goals; and (3) evaluate the proposed changes to determine which changes would be the most effective and efficient.

This report describes the current program in terms of the following elements:

- Program background;
- Program funding and costs;
- Identifying vehicles to be tested;
- Test standards and procedures;
- Test stations and contracted services;
- Test cost;
- Repairs and waivers;
- Impacts on vehicle owners;
- Compliance; and
- Customer service.

Program Description

Background

In 1979, the Washington State Legislature authorized a vehicle inspection program to help meet and maintain air quality standards for vehicle-related pollutants. The legislature required the program to annually test gasoline vehicles 13 years old and newer, registered in the smallest possible area. The first six test stations opened January 1982 in the Seattle area. Testing began in the Spokane area in 1985. The program has changed over the years due to legislative mandates, differing environmental situations, and improved technology. The program now tests vehicles every other year, exempts new vehicles, and tests vehicles as old as model-year 1968. There are currently 20 test stations in five counties, testing over 1.2 million vehicles per year.

The federal Clean Air Act requires areas violating air quality standards for vehicle-related pollutants to have an emission check program that reduces vehicle emissions as much as an Environmental Protection Agency (EPA) model program. Table 1 compares Washington's program and the EPA model.

Design Feature	Washington	EPA Model
Test frequency	Biennial and owner change	Annual
Vehicles	All 1968 and newer gasoline and diesel vehicles	1968 and newer gasoline cars and light duty trucks
Emission Control Equipment Checks	No ¹	Yes
Failure rate of pre-1981 model year vehicles	33% (overall 12%)	20%
Percentage of failed vehicles waived	7%	3%
Compliance rate	90%, 96% Spokane ²	96%
On-road testing	Yet to be determined ³	0.5% of vehicles

Table 1

More types of vehicles are tested in Washington’s program than in the EPA model program. Although Washington’s program loses some emission reductions due to a high waiver rate and biennial rather than annual testing, these losses are offset by the program’s testing of heavy-duty vehicles and testing of vehicles upon change of ownership.

Program funding and costs

Emission check fees collected by the contractor, Envirotest, are deposited weekly into the state’s General Fund, from which the Emission Check Program is funded. The total annual

¹ Up until 1995, a visual inspection was routinely done as part of the test. With the increased sophistication of the test procedures it was determined that it was unlikely for a vehicle to pass a test without the proper emission control devices. Ecology modified this requirement so that now an equipment check is done only when a waiver from passing the test is requested. A waiver is not granted unless all emission control equipment is present and working on the vehicle.

²EPA requires a “compliance rate” input to its model for estimating motor vehicle emissions. This “compliance rate” is the percentage of vehicles required to be tested that finish the inspection process (either passing the test or being waived after repairs). The vehicles required to be inspected are defined by model-year and vehicle class (light-duty, heavy-duty, motorcycles) and fuel (gasoline, diesel). “Non-tested” vehicles include those vehicles legally exempted. In Washington, exempt vehicles include one-year old and newer vehicles, motorcycles, dealer sales, and prorated (licensed in more than one state) vehicles. Washington’s “State Implementation Plan” (SIP), the state’s plan to reduce air pollution, commits to sufficient enforcement to ensure a 90% compliance rate in the Puget Sound and Vancouver test areas and 96% in the Spokane test area. Recent Ecology field surveys indicate compliance rates are about 10 percent less than those in the SIP. Analysis of our test data suggests an approximate 93% compliance rate.

³ See remote sensing discussion in text of document.

fees collected by the program during 1996 were \$13,119,924 based on 1,093,327 paid tests. The Department of Ecology receives about \$3.50 of each \$12 test fee, with the remainder going to the contractor to pay for test facilities, testing, and labor. The agency's budget is approved by the legislature each biennium. Any funds received over and above what is appropriated by the legislature for operation of the program remain in the General Fund.

There are 20 test stations and 1,052 authorized repair shops in Washington. The statewide program budget includes 41 full-time equivalent (FTE) staff. Of these staff, 20 are regional inspectors, 3 are outreach staff, and 18 are other staff monitoring vehicle related pollution and supporting Emission Check Program. Staff costs total approximately \$3.5 million a year.

Table 2 shows Ecology's Full Time Employees for the Emission Check Program by locations.

Table 3 shows Ecology's Emission Check Program budget distribution and uses.

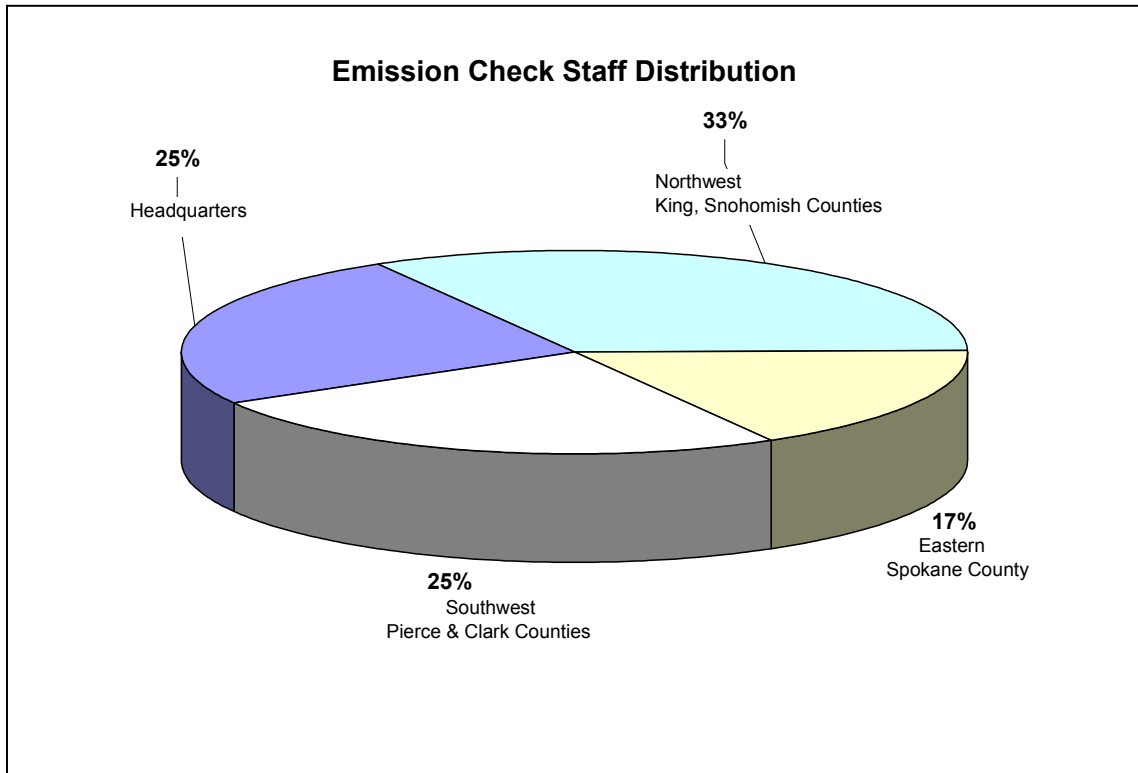


Table 2

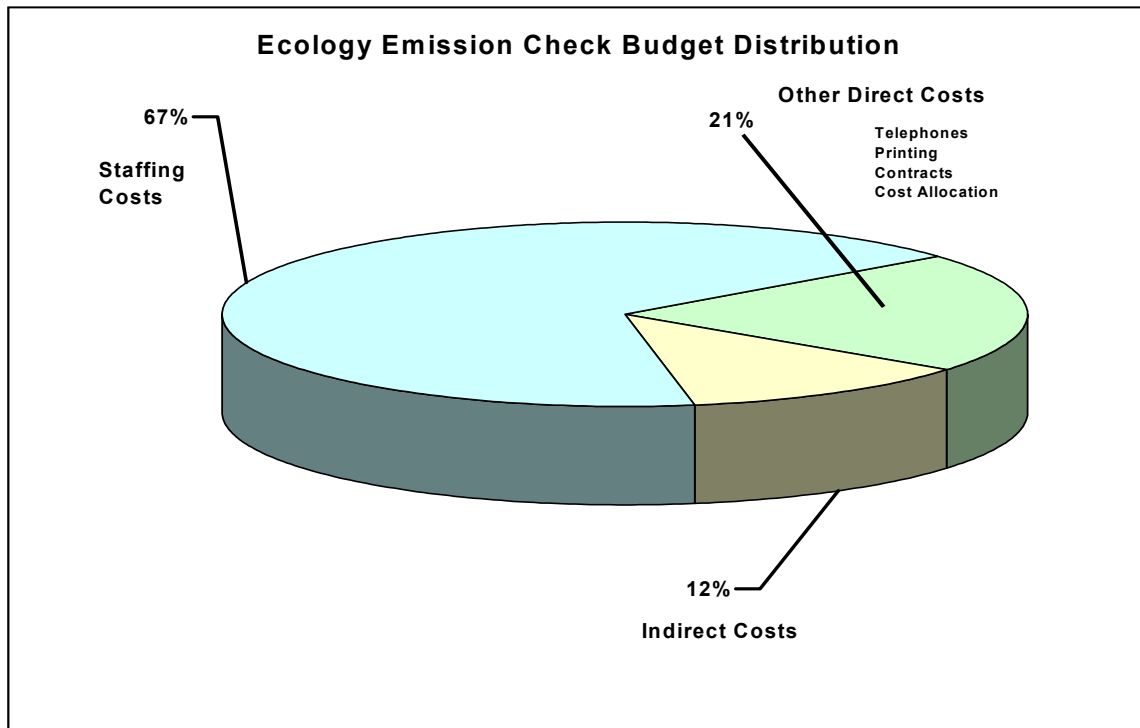


Table 3

Identifying vehicles to be tested

Washington’s Emission Check Program requires biennial tests for 1968 and newer gasoline and diesel on-road vehicles registered in a test area. (Exceptions are state and local government vehicles, which are tested annually.) Odd model-year vehicles are tested in odd calendar years, and even model-year vehicles are tested in even calendar years. Newer vehicles (those with a model-year the same as or greater than the current calendar year) are exempt. Vehicles sold by dealers, prorated vehicles (semi-tractors/trailers), and alternative fuel vehicles (compressed natural gas, electric) are also exempt.

In addition to the scheduled tests, a test is required to change a registered owner of a vehicle. However, dealer sales, transfers of ownership between immediate family members, and vehicles already tested for their current license are exempt from this test requirement.

The Department of Licensing (DOL) coordinates licensing-related aspects of the Emission Check Program. DOL mails a notice to vehicle owners notifying them that they need to have an emission check performed when they renew their license. Vehicles are identified by the ZIP code in which the owner resides. It is the responsibility of the licensing agents to ensure that customers have complied with emission check requirements before tabs are issued. Agents can do this by accessing testing information that is sent to them via a data link between Envirotest and DOL.

One consistent comment from the public is that new vehicles should not be tested because they almost always pass the test. Another frequent comment is that older vehicles should not

be tested because they are usually collector cars or driven infrequently. The program evaluation examined data related to vehicle model-years to determine whether the right kinds and emission testing years of vehicles are being tested.

Table 4 shows the number for model years of vehicles emission checked in Washington.

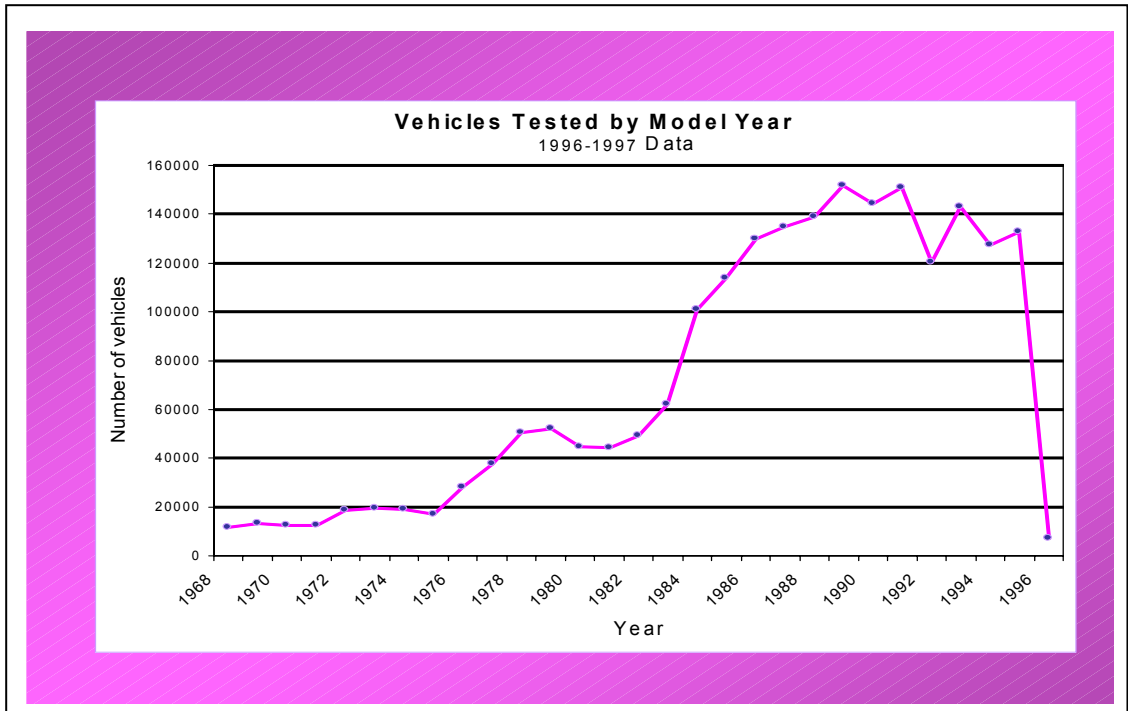


Table 4

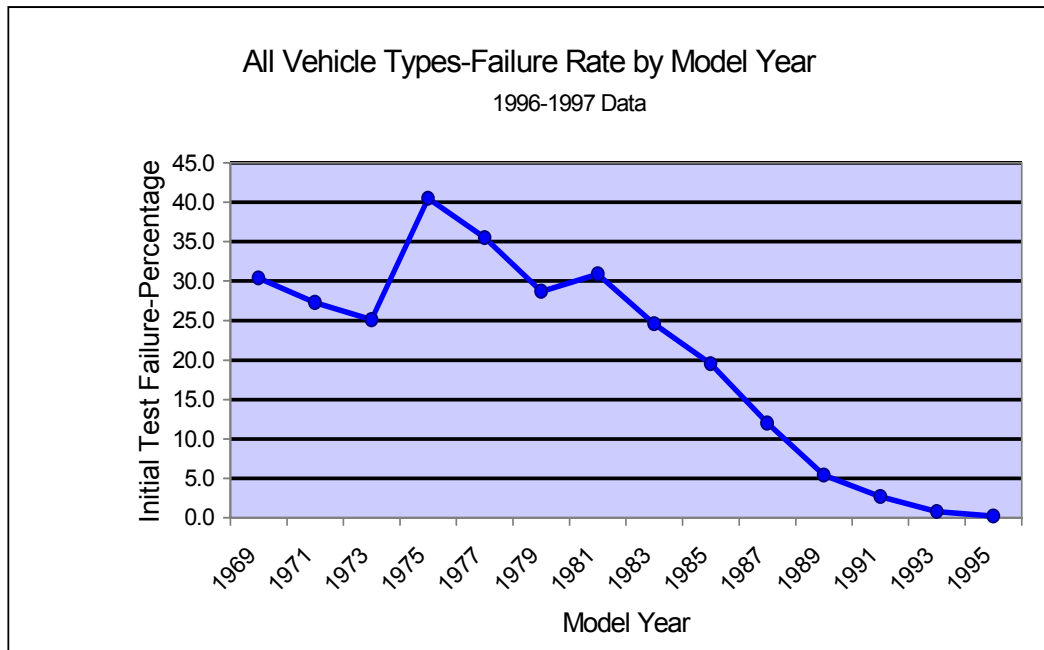


Table 5

Table 5 shows the rates of test failure in Washington by model-year (for vehicles tested during 1996/1997). While few newer vehicles fail the test, even these new vehicles show significant improvement when properly repaired. The number of older vehicles tested is low, but their failure rate is high. Overall, there are significant improvements in the emissions from the vehicles that failed their initial test and then passed a retest following repairs.

Table 6 shows the reduction in test readings at cruise for all gasoline vehicles that failed their initial test during 1996/1997. The initial tests show what the vehicles came in with (average) on their initial (first) emission test. The final tests show what the vehicles (average) had on their final test after repairs. The reductions of 17 percent and 29.1 percent and the combined reduction of 23 percent show the success rate being achieved with proper diagnosis and repairs.

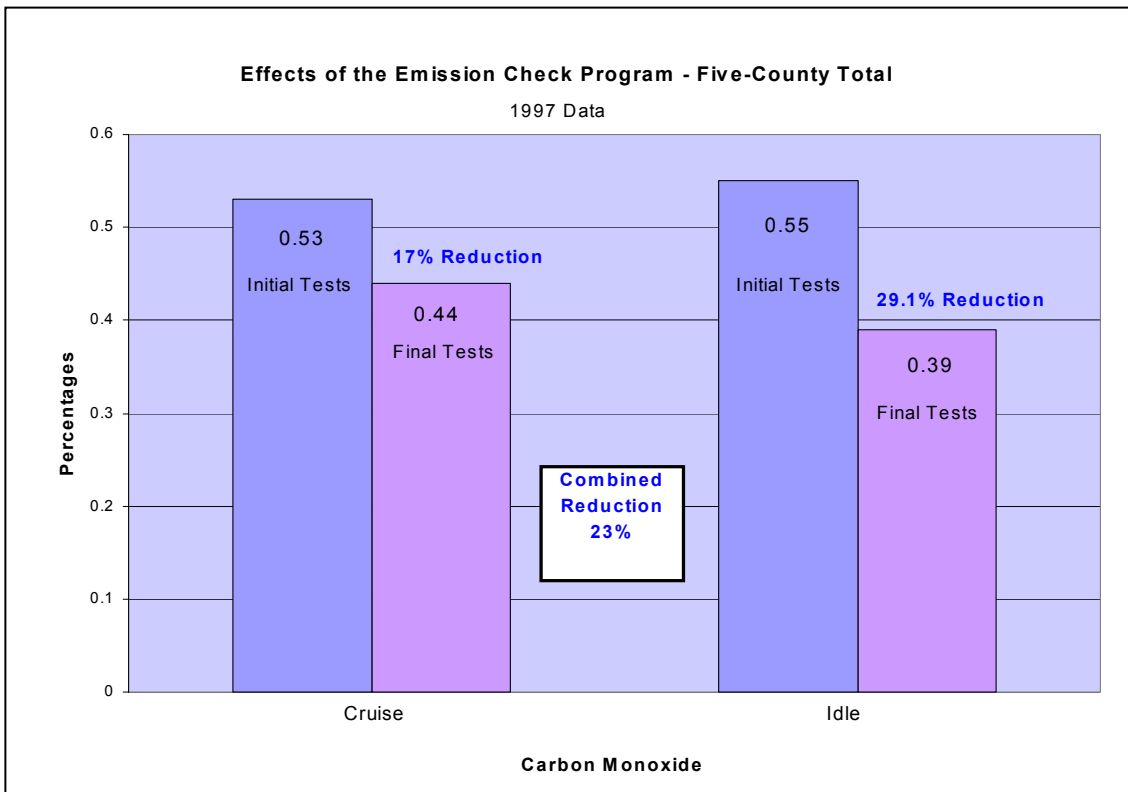


Table 6

Table 7 shows that the final average hydrocarbon emissions readings at cruise for gasoline vehicles that passed a retest after proper repairs were also near the levels of vehicles that passed their initial test.

Similarly, Table 8 shows that the average peak smoke readings of diesel vehicles that failed their first test and then passed a retest after proper repairs were reduced to near the levels of vehicles that passed their initial test.

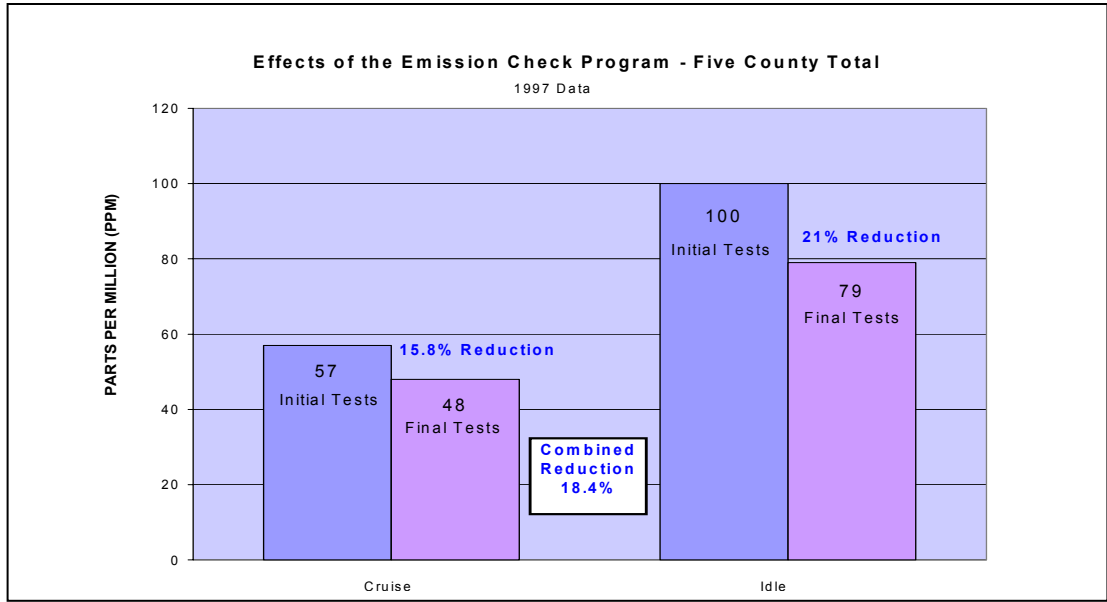


Table 7

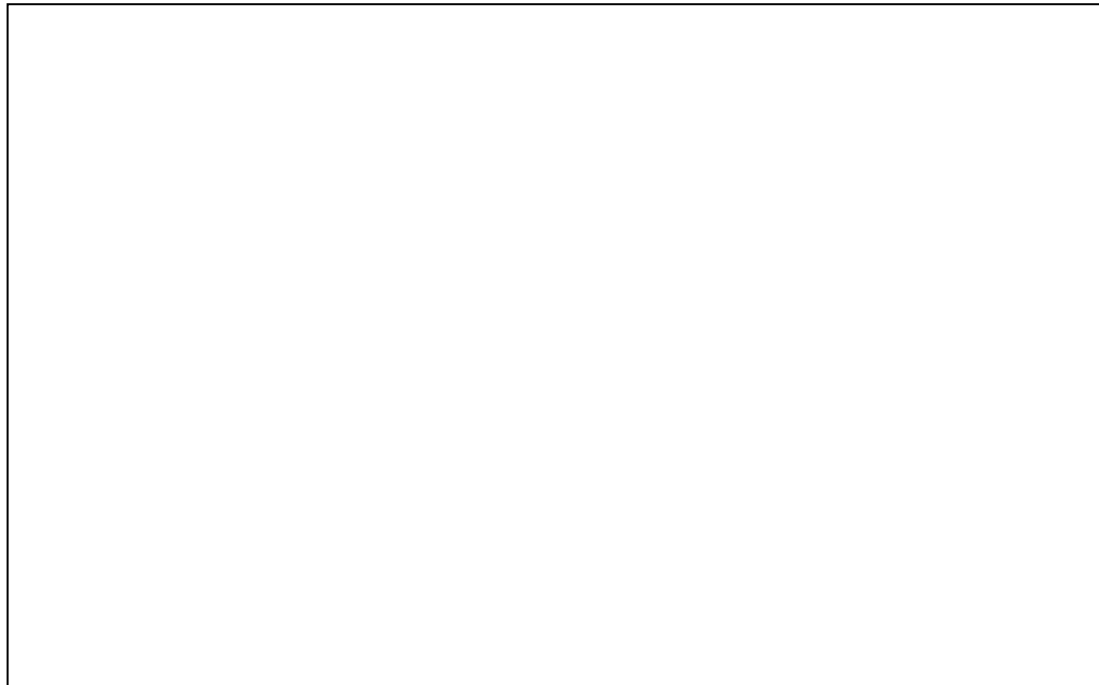


Table 8

Test standards and procedures

A well-maintained and operated vehicle will easily pass an emission test. Test standards are set at high levels in order to identify only grossly polluting vehicles that will benefit greatly from proper repairs.

Gasoline vehicles

Since June 1993, two exhaust emission tests have been used for gasoline vehicles:

- A “loaded test” has been used for two-wheel drive cars and trucks under 8,500 Gross Vehicle Weight Rating (GVWR). This test consists of an idle mode followed by a low-speed (22-35 miles per hour) cruise on a dynamometer, with a 2.8 to 10.8 horsepower load. If the vehicle fails during idle mode, a second-chance idle test is done after the cruise. The speed and load settings are based on the number of engine cylinders.
- A two-speed idle test is used for all four-wheel drive vehicles and trucks 8,500 GVWR and over. This test consists of an idle test followed by a no-load cruise at 2,500 revolutions per minute (rpm). If the vehicle fails during idle mode, a second chance idle test is done after the 2,500 rpm mode. EPA requires a second-chance test⁴ for the two-speed idle test, and allows it as an option for the loaded test. Some Ford and Honda vehicles must be turned off and restarted to ensure the emission control systems are working before these vehicles are tested.

Both the loaded test and the two-speed idle test are conducted per EPA specifications. An exception is that vehicles with automatic transmissions may be tested in drive for the idle mode, if the idle speed in neutral or park exceeds 1,100 rpm. However, the idle speed in drive cannot exceed 1,100 rpm, unless the vehicle manufacturer's specifications allow it.

Table 9 shows the carbon monoxide (CO) and hydrocarbon (HC) test standards used for gasoline vehicles with a “loaded” or two-speed idle test.

⁴ Ecology has dropped the second-chance 2,500 rpm mode during the two-speed idle test. The additional 90 seconds of testing was eliminated because it is suspected of resulting in several vehicle fires.

Standards for Gasoline Vehicles
 (“loaded test”, two speed and idle tests)

Model Year	CO	HC
1968-1974	6.0%	900 ppm
1975-1980	3.0%	600 ppm
1981-1999 (greater than 8500 GVWR)	3.0%	400 ppm
1981-1999 (0 – 8500 GVWR)	1.2%	220 ppm

Table 9

During 1997, the loaded test was revised in Spokane and Vancouver. The test now being used in those areas is the Acceleration Simulation Mode (ASM) emission test procedures and standards. ASM testing increases the dynamometer load on vehicle engines in proportion to the vehicle weight to simulate acceleration. The ASM test standards vary with the model year and weight of the vehicle. The use of ASM will detect a greater number of polluting vehicles and allow nitrogen oxide testing, if needed.

Gas cap leak checks began in 1998 in the Vancouver area as part of the ozone maintenance plan. These checks are conducted on the unvented gas caps that are a part of the evaporative control systems of most 1971 and newer gasoline vehicles.

Diesel vehicles

Diesel vehicles are tested at the same test stations as gasoline vehicles. Because the test for diesel vehicles is a fairly simple test that can be conducted almost anywhere, fleets and all heavy-duty diesel vehicles can conduct self-inspections or have it done by an Ecology-authorized technician.

Diesel vehicles are tested using smoke opacity testing. This measures the thickness (opacity) of the smoke being emitted from the tailpipe(s). This is done through a "snap-acceleration" test procedure⁵. This procedure requires diesel vehicles to pass three consecutive rapid openings and closings of the accelerator, while the exhaust plume (smoke) is measured with an opacity meter. The vehicle passes if three peak opacity readings are at or below the standard. Up to ten snap-acceleration tests can be performed in order for the vehicle to pass three (3) consecutive tests.

⁵ Snap-acceleration tests are not used on 1984 through 1987 BMWs, Volvos, and Peugeots because of potential transmission damage.

Washington's opacity standards for diesel vehicle smoke opacity apply to all diesel cars and light- and heavy-duty diesel trucks as shown in Table 10.

Opacity Standards for Diesel Vehicles

Model Year	Washington (% Opacity)
1968-1973	70
1974-1991	60
1992 and newer	40

Table 10

Test stations and contracted services

A private company, Envirotest Systems, Inc., operates Washington's Emission Check stations. On January 30, 1996, Envirotest purchased for \$3.2 million the company that had previously built and operated Washington's Emission Check stations through a competitively bid contract awarded in 1992. Envirotest is the largest operator of emission test stations in the United States and Canada, with operations in British Columbia, Colorado, Connecticut, Florida, Illinois, Indiana, Minnesota, Ohio, Tennessee, and Wisconsin in addition to Washington.

The Emission Check contractor is responsible for the construction, staffing, operation, and maintenance of the test stations. In 1996, Envirotest staff at 20 test stations performed 1,205,238 tests on gasoline vehicles, 24,075 tests on diesel vehicles and issued 10,324 waivers from passing the test. Waivers can be issued after staff inspect a vehicle to verify the repairs and that the emission control equipment has not been removed or tampered with. In addition, test station staff respond to customer inquiries and complaints in person and over the telephone during business hours. An informational recorded message instructs callers on how to call station personnel during businesses hours. Envirotest provides data for all tests completed at the test stations to Ecology and notifies the DOL as vehicles complete the testing requirements. Envirotest is also responsible for the collection and accounting of test fees and for transferring the state's portion of the collected fees to the State Treasurer.

Ecology monitors test station operations to ensure proper test procedures are followed and the testing equipment is working properly. Ecology staff conduct unannounced audits of the test station operations, including checks on:

- lane operation and performance of personnel, including testing, calibration, and data handling;
- fiscal and administrative procedures; training, operations and procedure's manuals; and
- all records, including test equipment calibration and maintenance logs.

Test cost

Washington motorists pay \$12 in cash at the test station for each test. Of this, about \$8.50 goes to the contractor and \$3.50 goes to the state General Fund. If a vehicle fails its initial test, there is one free retest. Subsequent retests are \$12 each. This is the lowest test fee in the nation for a self-supporting program. In other states, the test fee may vary depending on the owner, test location, age of the vehicle, type of test, or type of vehicle. In Washington, the same test fee applies to all vehicles. The low fee is partially possible because vehicles are tested on a “cash-only” policy. To obtain the lowest possible bids, Washington allows the contractor to require cash if they choose. This eliminates any collection actions for credit cards or dishonored checks. DOL sends vehicle owners (in the emission check areas) renewal notices 45 days prior to the tabs expiration date. This information is also provided on Ecology informational materials and recorded telephone messages.

During 1996, \$13,119,924 in fees was collected, of which the General Fund received \$4,397,584. Funds not spent to administer the program remain in the General Fund.

Repairs and Waivers

Ecology recognizes that the cooperation and skill of automotive repair technicians is vital to program success. When a vehicle fails an Emission Check, the motorist is provided information on how to obtain proper emission repairs and a telephone number where they can contact Ecology for assistance. A list of repair businesses that meet Ecology’s requirements for emission test equipment and trained repair technicians (Ecology Authorized Emission Specialists) is included with this information. There is no requirement that an Ecology Authorized Emission Specialist diagnose and repair a vehicle before the vehicle is retested. Anyone may repair the vehicle. However, only the cost of parts and labor from an Ecology Authorized Emission Specialist can be applied toward a repair waiver.

Ecology staff oversee repair facilities, technician-training programs, and emission-related repairs done by repair shops. Each Ecology field representative generally visits several repair shops per day to provide assistance. Each authorized repair shop is visited every 60 to 90 days. During these visits the accuracy of the shop’s emission testing equipment is checked. The repairs used by their customers to obtain a waiver from passing the test and other technical issues are discussed. The technicians are encouraged to contact their Ecology representative directly for assistance as the need arises. As vehicles and their testing have become more complex, Ecology has worked with community colleges and the repair industry to develop a more comprehensive training program for technicians. The training program is an ongoing process, and is evaluated and updated on a regular basis.

Ecology publishes a quarterly newsletter to keep repair technicians informed of program changes, technical assistance, automotive recalls, problem vehicles, tampering, training and certification requirements, and other automotive-related information. The newsletter is often quoted in other publications and is well-received by its over 4,500 readers.

To reduce the impact of the program on vehicle owners, Washington has a limit on the amount of money a vehicle owner is required to spend on emission repairs. Once the owner of a failing vehicle has spent a given amount on repairs by an Ecology Authorized Emission

Specialist, the vehicle may be waived from having to pass a retest. (The limits are \$100 on 1968 to 1980 vehicles and \$150 on 1981 and newer vehicles.)

Some states, including Oregon, have no limit on the cost of repairs or a much higher limit (typically \$450 on newer vehicles). Ecology's review found that vehicle owners are currently spending an average of about \$200 more for repairs than the required minimum. An Emission Repair Assistance Project in Clark County found that most failing vehicles could be repaired to pass the emission test for about \$300.

Impacts on vehicle owners

Evaluation results show that the major concerns of vehicle owners are the time it takes to get their vehicles tested and the possibility of having to pay for vehicle repairs. The time it takes to test a vehicle includes travel time to the test station, waiting at the station for the test, and the actual testing time. These times will vary depending on the test station, day of the week or month, and time of day. A vehicle owner whose vehicle fails the initial test also incurs more time and expense to obtain repairs and retest.

The benefits of emission repairs for vehicle owners are improved fuel economy and reliability, warranty-covered repairs, and lower emissions.

Compliance

Washington's method of achieving compliance with the Emission Check Program is to deny vehicle registration unless owners meet Emission Check Program requirements. DOL uses the address provided by the vehicle owner to determine the need for an emission test. Ecology has the authority to impose a \$250 fine on persons who reside in a test area but register their vehicle outside that area to avoid a test. Licensing agents may also be fined \$250 for issuing a vehicle license without requiring a test.

Other compliance issues are:

- When owners of vehicles that are out of the area during their license renewal/emission check schedule file an "Out-of-Area Emission Exemption Statement," they sometimes fail to complete the emission check as promised when they return to the area.
- Vehicles sold by dealers are exempt from the emission check process. Some of these sales are of vehicles that already have a failing record and are then sold (unknown to the new owner) in need of emission repairs. The new owner then discovers the vehicle requires expensive repairs.

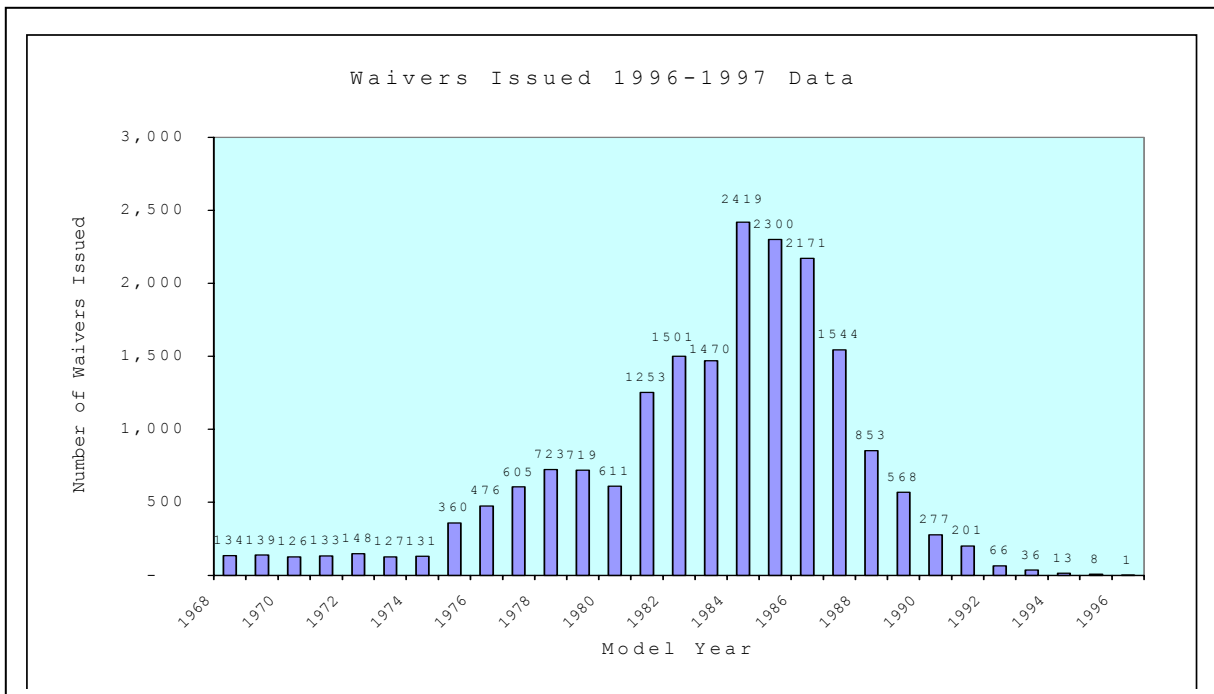


Table 10

Customer service

Customer service is a valuable piece of the Emission Check Program. The purpose of Ecology’s emission check outreach program is to ensure that customers are aware of the importance of their role in improving air quality in Washington State. Ecology staff provide information to all customers on various aspects of the program, including who must get an emission check and why, when and how to comply, where to get a vehicle tested and repaired, and who to contact for assistance.

Outreach staff educate and inform customers through three methods: person-to-person contact, public events, and written materials. Staff tailor communication strategies to specific audiences and regions to address their specific issues. For example, different information is needed depending on whether new test areas are added, testing procedures are changed, or test station construction projects are underway.

Staff provide direct service to the public and the repair industry through two 1-800 lines which provide information about the Emission Check Program. One line is staffed at Ecology Headquarters, and the other is a general information recorded message. Two Ecology staff handle the line at Ecology Headquarters. This line has been designed to deal with technical issues and questions. Recordings provide motorists with general information on emission testing, including test areas, zip codes affected, test station locations, testing based on vehicle model-year, and how to get more technical help. The general information

phone number is provided on nearly all Emission Check Program written materials, and is also listed on the back of every Vehicle Inspection Report issued by the test stations.

For customer service issues that cannot be resolved over the telephone, field staff have developed a process called a "referee." A referee is a direct intervention to resolve problems such as a discrepancy in test results or a dispute on emission testing rules. These problems can occur between test stations, repair shops, motorists, or any combination of the three. As part of the referee process, staff perform an inspection at the repair shop, an Ecology referee facility, a test station, or the motorist's home or place of employment. Based on their inspection, Ecology staff determine whether to "pass" the vehicle or require further action on the part of the motorist or the repair shop. Staff keep detailed records after final resolution of the problem. Ecology staff also support contractors and technicians in testing and repairing vehicles.

Conclusion

The program evaluation shows that Washington's current Emission Check Program has been successful in meeting its clean air goals and has been generally well accepted by the public. The relationships with the public and other clients are well established and appear to be very good. However, the program's design needs to be evaluated because of changes in air quality goals and vehicle and testing technology.

The following discussion of the results of the Emission Check Program evaluation will address: (1) possible changes to the Emission Check Program, and (2) options for implementing these changes in a way that could decrease the program's impact on vehicle owners while continuing to achieve air quality goals.

Emission Check Program History

1977 Federal Clean Air Act requires states to establish emission inspection programs where motor vehicles are responsible for air quality violations.

1979 Washington legislature authorizes:

Annual emission testing of gasoline vehicles to prevent air quality violations;
and
Test fee up to \$10.

1980 Ecology:

Sets a \$10 test fee; and
Selects a contractor through a bidding process for six Seattle-area test stations.

1982 Seattle-area test stations open.

1985 Ecology expands the Emission Check Program to Spokane with one test station.

1989 Legislature directs that:

Vehicles be tested every other year rather than annually;
The test fee cannot exceed \$18; and
Owners of failed vehicles get a list of authorized repair facilities.

Ecology sets test fee at \$16.

1991 Legislature directs:

Testing of 1968 and newer vehicles; and
Diesel vehicle testing.

Ecology:

Upgrades testing procedures to a non-loaded, two-speed test; and
Enhances repair technician training.

1993 Ecology:

Reduces the test fee from \$16 to \$12;
Adds Pierce (4 stations) and Clark (1 station) counties;
Expands test areas in King (adds 4 stations), Snohomish (adds 2 stations), and
Spokane (adds 1 station) counties; and
Starts diesel testing.

1995 Ecology adds new Clark County test station.

1997 Ecology upgrades Emission Check Program in Clark County to help maintain ozone standard by:

- Expanding test area;
- Starting Acceleration Simulation Mode (ASM) exhaust emission testing (to better detect polluting vehicles and allow nitrogen oxide testing, if needed);
- and
- Starts gas cap leak checks.

Ecology upgrades Emission Check Program in Spokane to help meet carbon monoxide air quality standard by starting ASM testing.

1997 Legislature:

- Exempts vehicles that are less than five years old or more than 25 years old beginning January 1, 2000; and
- Directs Ecology to (1) evaluate changes to the Emission Check Program that meet air quality objectives and lessen the effect of the program on the motorist, and (2) make recommendations for changes to the program to the appropriate standing committees of the Legislature by January 1, 1999.

Selection of Vehicles for Testing

Through the information gathered in the analysis of the current Emission Check Program and research on other testing programs, several alternative methods to the current method of selecting vehicles for testing were identified. This section addresses the question of how best to select vehicles for testing, and identifies potential effects of changing how vehicles are selected.

Selection methods

There are many ways to select vehicles for testing. Other states use a variety of methods. In Washington, the legislature requires that testing be limited to ZIP code areas in which vehicles are likely to contribute to air pollution levels that exceed air quality standards. Using traffic data, Ecology set the test areas to capture about 90 percent of the vehicles driving in nonattainment areas.

Presently, we test most 1968 model year and newer vehicles biennially. Odd model year vehicles are tested in odd calendar years and even model year vehicles are tested in even calendar years. Very new vehicles (model year the same or greater than the calendar year) are exempt. For example, 1996 model year vehicles were not required to test during 1996. The first scheduled test for 1996 model vehicles was during 1998. A test could be done the second or third time the license is renewed, depending on the year in which the vehicle was originally purchased. In addition to scheduled tests, a test is required to change registered owners. During 1997, a test may be required for a 1996 model year vehicle if there is a change of registered owner. Dealer sales, transfers between immediate family members, and those vehicles already tested for the current license are exempt from this requirement.

Concerns regarding selection methods

Changing the number or types of vehicles we test could increase emissions. The affected local air pollution control agencies have expressed a desire that Emission Check Program changes result in no loss of air quality benefits.

Several commonly received comments from the public include:

- New vehicles should not be tested because they generally pass the test.
- Older vehicles should not be tested because they are either collector cars or low mileage vehicles.
- Many polluting vehicles are coming into the area from outside the state or area and should be required to test. (This comment is received mainly in the Spokane and Vancouver areas.)

Other vehicle selection issues are:

- The present program requires vehicles that change ownership to be tested before they can be re-licensed. One major exception to that requirement is the exemption of vehicles sold by dealers

- Remote sensing is a technology that many states are considering as a way of identifying vehicles to be excluded from scheduled testing or identifying vehicles to be tested. Ecology conducted a pilot project to determine the feasibility of remote sensing in Washington.

Chart 1

Statewide - Failures and Waivers
1996-1997 Data

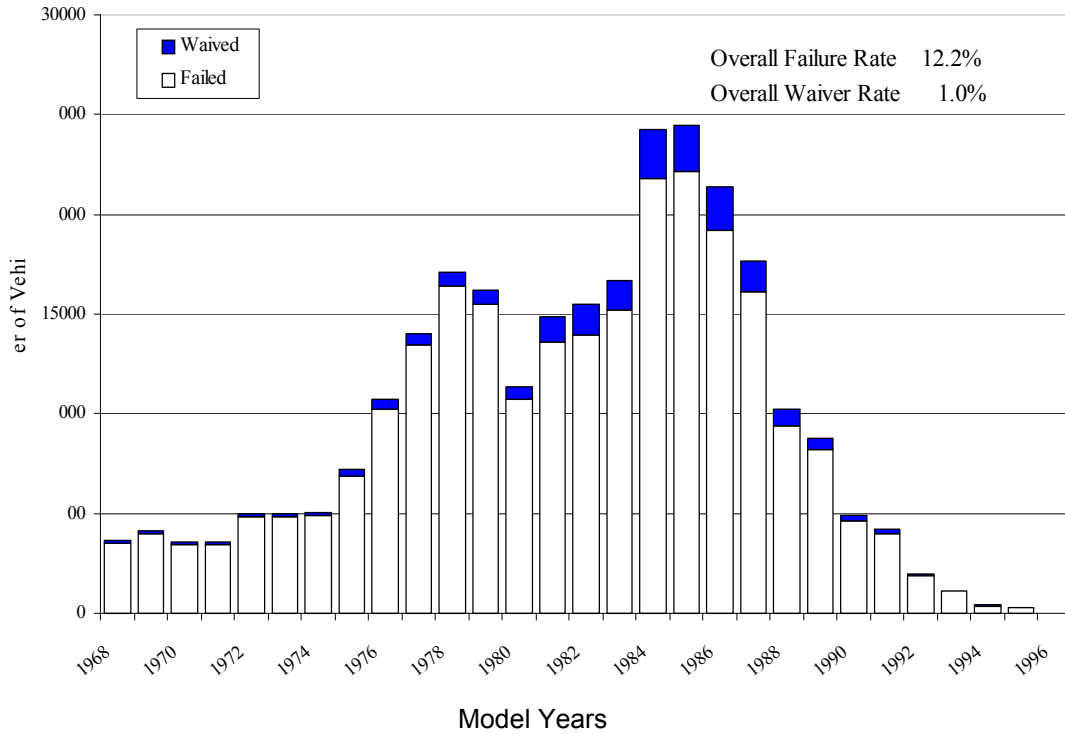
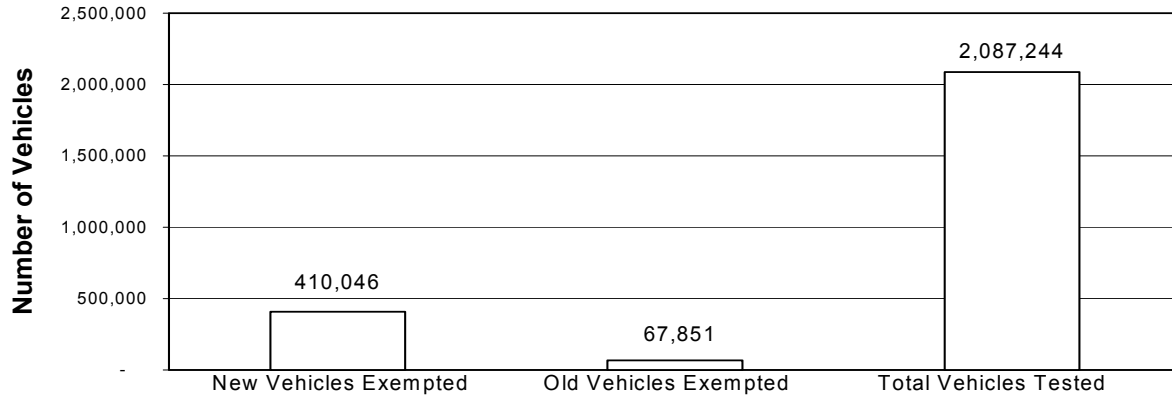


Chart 2

Vehicles Exempted Due to Proposed Changes - Statewide

1996-1997 Data

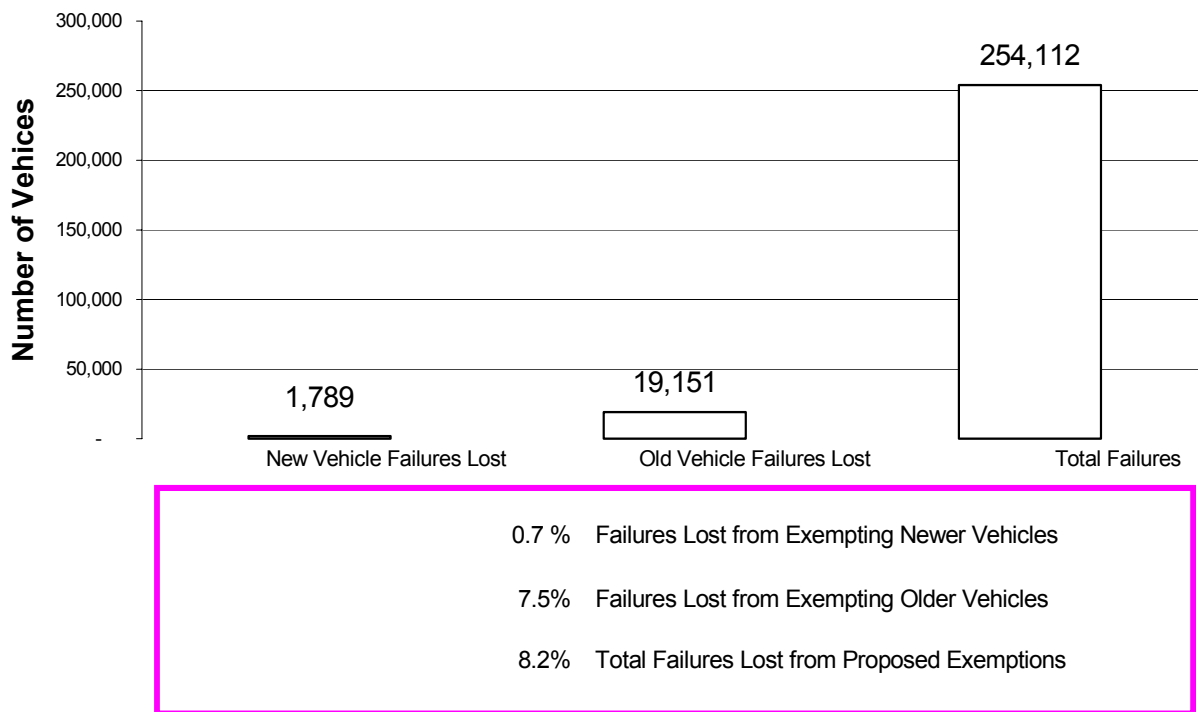


19.6% Loss from Exempting Newer Vehicles
3.3% Loss from Exempting Older Vehicles
22.9% Total Loss of Vehicles from Proposed Exemptions

Chart 3

Vehicle Failures Lost Due to Proposed Changes - Statewide

1996-1997 Data



Options

The following options were considered as alternative methods of vehicle selection.

Option 1: Exempt additional newer vehicles. This option would exempt additional newer vehicles from testing. Chart 1 shows that very few newer vehicles fail the emission check. The public views testing of their vehicles as pointless if they pass the test. Implementing this option, however, would have a mixed effect on the public. Testing fewer vehicles would reduce the waiting time at the stations, as well as reduce overall motorist inconvenience. Even some newer vehicles, however, can have excessive emissions. If additional newer vehicles are exempted from testing there will be a delay in identifying emission control equipment problems. In some cases, needed repairs would be the responsibility of the vehicle owner, rather than being covered under the overall emission warranty that is effective for two years/24,000 miles. However, somewhat negating this concern is the extended warranty for major emission control equipment that started with the 1995 models. The vehicle manufactures are now required by federal law to warranty the major emission control equipment such as catalytic converters and onboard diagnostic units for eight years/80,000 miles.

This option could not take effect prior to the year 2000 without a test fee increase. This is because with a decrease of about 400,000 vehicles tested, the present \$12 fee would not cover both the contractor cost and Ecology’s costs as required by state law. While the testing contractor is not guaranteed a given number of vehicle tests until the end of 1999 when the present contract expires, the state has committed to compensating the contractor for program changes that reduce the number of vehicles tested. While there would be a decrease in labor cost

for the testing contractor, many costs of operating the test stations are fixed. There would be some Ecology cost savings commensurate to the fewer failed vehicles. This because much of Ecology staffs time is spent assisting owners of failing older vehicles.

Option 2: Exempt additional older vehicles or those that are driven infrequently. This option addresses exempting vehicles older than 25 years and vehicles driven less than 2,500 miles a year. All states exempt some older vehicles based on the idea that these vehicles are not driven much or are collector cars. Older vehicles, however, are typically more polluting. The number of vehicles older than 25 years tested in Washington during 1996-97 was 67,851. Of these, 19,151 vehicles failed the test as shown in Chart 3. Presently, 1968 and newer vehicles are tested. Starting in 1998, collector plates for the oldest vehicles required to be tested (1968) may purchased. Each year an additional model year will be eligible for collector plates. No emission test is required to obtain collector plates. They are intended for vehicles that are infrequently driven.

The air quality impact of this option may be minimal. The Environmental Protection Agency's (EPA) current emission forecasting model does not even recognize that some vehicles are on the road after 25 years. In reality, however, there would be some loss in emission reduction. Since local air pollution control authorities have requested no net loss in emission reductions, the loss would need to be offset by other program revisions. (see the technical appendix for the projected increase in emissions.)

The owners of older vehicles would benefit from this option. Other vehicle owners would not be significantly impacted due to the limited number of vehicles exempted. The same would be true for the contractor and the Department of Licensing, who must register these vehicles.

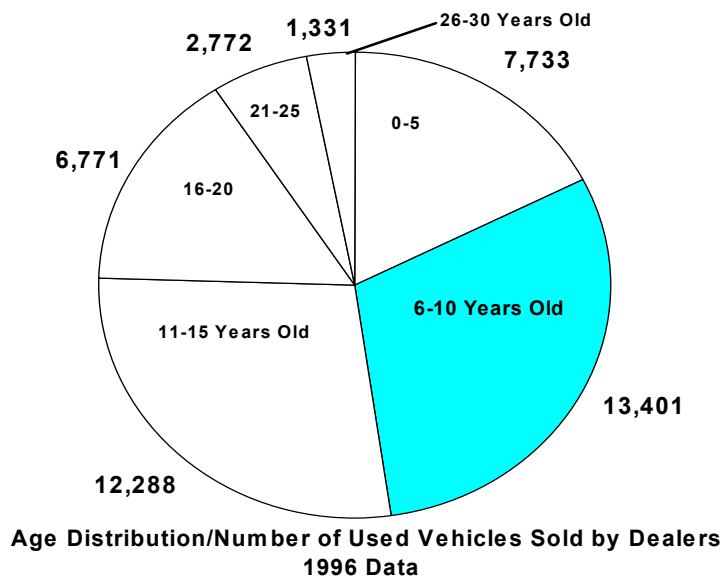
Option 3: Require testing of vehicles routinely driven to a location in a test area. This option addresses the concern that many vehicles outside the test area drive routinely into the test area but are not required to test. It would target people who drive into an area for school or employment. Although people drive into test areas for other reasons as well, identifying these vehicles would not be feasible. The best approach seems to be linking the test requirement to parking controlled by schools and employers. Remote sensing was also considered as a method of identifying out-of-area vehicles being driven in to the test areas. More information on remote sensing can be found in Option 5.

In this option, employers or schools in the test areas would require proof that their employees or students have completed an emission test before their vehicles could be parked at locations under the control of the school or employer. This proposal is similar to what Congress has required federal facilities to do in test areas. The requirement could be coordinated with the Commute Trip Reduction requirements and an emission inspection sticker (see section 7).

Air quality benefits of this option may not be substantial, since the number of additional vehicles that would be required to test is difficult to estimate. It is also uncertain whether employers or schools would effectively enforce such a requirement.

Public perception of this idea may be positive since we receive comments that out-of-state people should have to test. Because of the difficulty of realistically predicting the benefits of this option, however, it is doubtful that this proposal can be justified.

Option 4: Drop the dealer exemption. Although most of the ideas related to selecting vehicles addressed decreasing the number of vehicles tested, this option would increase the number of vehicles tested by eliminating the dealer exemption. Currently, a vehicle sold by a private party to anyone outside their family must be tested (unless it has been tested within the current registration period). If a dealer sells a vehicle, it does not require an emission check. Dealers sell some vehicles that fail their emission test to a new owner within a test area.



Many states require inspections of vehicles sold by dealers. Colorado, for example, allows the buyer three business days after taking possession of the vehicle to emission test the vehicle and return it to the dealer for repair or return if it does not pass.

The public is likely to approve of this change. We have constantly received complaints that vehicles sold by dealers go untested, while vehicles sold in private party sales must be tested. There is no indication; however, that vehicles sold by dealers are particularly cleaner than non-dealer sold vehicles. In fact, they very likely reflect the diversity of the fleet; some dirty, some clean. There is no apparent air quality benefit in exempting dealer sales.

The increase in the number of vehicles that would be tested if this exemption were removed is likely to offset some of the losses in emission reductions that would occur if we exempt additional model years (Options 1 and 2). This may be a way to address local agency concerns that there be no loss in air quality benefits due to Emission Check Program changes.

The air quality impact of this option has been estimated by reducing by half the presently assumed noncompliance rate in each area (see Page ??). This reflects the results of surveying vehicles parked overnight in the test areas and checking license numbers against emission testing records.

Option 5: Remote sensing to clean screen vehicles. The use and value of remote sensing is being evaluated nationally. A cursory review of its potential led us to investigate it as a method of selecting vehicles for testing rather than the simple “everyone test” method presently in use. Typically, there are three potential uses for remote sensing:

- Predicting the tailpipe emissions without the inconvenience of going to the test station for a test.
- “Clean screening” to predict which vehicles are “clean” and, therefore, do not need the routine emission check.
- Identifying the gross polluting vehicles.

The remote sensing device measures and records the exhaust emissions of vehicles as they drive by, along with the license plate numbers and vehicle speeds. Technologically, the remote sensor is not much different from the emission test at a test station. At the test station, the exhaust is pumped from the tailpipe into an instrument. In a remote sensing device, a narrow ray of infrared light is beamed across a lane of traffic and sensed by an infrared photoelectric detector. This detector converts the infrared energy to an electric signal. The greater the infrared energy detected, the higher the electric signal and the lower the emission reading. Dirtier cars absorb more of the signal. The main difference between remote sensing and testing at the test station is that the ability to control the operation of the vehicle at the test station makes consistent results more likely. Remote sensing also requires certain conditions: a single lane of traffic, slight and steady vehicle acceleration, dry streets, no fog, and low winds.

In August and September of 1996, a remote sensing device study was conducted in the Puget Sound area. A contractor took on-road emission readings in King, Pierce and Snohomish counties. The contractor tested for carbon monoxide, carbon dioxide, hydrocarbons and oxides of nitrogen. License numbers were recorded and linked with the emission readings of each vehicle. Vehicle speed-readings were taken before and after the test to ensure that the vehicle accelerated steadily during the test. Remote sensing readings were adjusted to estimate the differences in acceleration. (See Appendix ???)

Since one objective of the Ecology study was to determine if remote sensing could consistently predict emission results, three remote sensing readings were needed for each vehicle (identified by license plate) registered in the test area. The contractor provided valid readings from 137,000 vehicles, including 64,000 vehicles registered in the test area. Of these, 4,500 vehicles (only three percent) had at least three valid emission readings taken on separate days.

Results of the western Washington study indicate the following:

- Remote sensing does not accurately predict individual tailpipe emissions. There was no correlation of vehicles to actual test results.
- Remote sensing does not reliably identify “clean” and “dirty” vehicles. The percentage of vehicles with low remote sensing readings should be similar to the percentage of vehicles that have low tailpipe readings; however, the study showed a dirty vehicle has the same chance of scoring a low remote sensing reading as a clean vehicle. Based on our research, the odds of a correct prediction are about 50 percent, or equivalent to the toss of a coin.

- Western Washington’s climate may be a routine impediment to remote sensing. The remote sensing unit cannot be used during times of high wind, rain, or darkness. Wind will disperse the plume or dilute the sample. Rain or tire spray from wet pavement will obscure the signal to the analyzer. During a nine-month study in Colorado, only 100 days were adequate for remote sensing. Darkness will not allow for a picture of the license plate to be taken unless area lighting is used.

Remote sensing programs in other states

Clean screening:

Several states have proposed or are now using remote sensing devices to “clean screen” portions of their fleet, including Idaho, Massachusetts, Colorado, California, Missouri, Kansas, Arizona, Virginia, and Texas.

Clean screening relies on detecting a vehicle on several occasions with low emission readings. If successful, clean screening can greatly reduce the number of vehicles subject to an emission test. (For example, the Texas program plans to screen out ten percent of their fleet from testing and Idaho plans to screen 35 percent from testing.) In our experience, however, vehicles consistently found clean by remote sensing devices do not have a higher probability of passing the emission test than the general population of vehicles of the same age and type. Clean screening would improve public acceptance of the Emission Check Program by saving the time of owners of “clean” cars and reducing the wait time for others with vehicles not clean screened.

In Washington State, the number of locations in a test area that meet the necessary conditions (single lane of traffic, slight and steady vehicle acceleration, dry streets, no fog, and low winds) is limited. In addition, in our study, only three percent of all vehicles that passed through the remote sensing device sites met the minimum requirements. Washington’s study indicates there is not enough accuracy in using less than three readings. A very large number of vehicles would need to be tested in order to clean screen vehicles from the program. During our study, it took five weeks and 250,000 tests to achieve slightly less than 5,000 vehicles with at least three readings. The cost of clean screening will have to be borne by the vehicle owners still required to use the test stations.

Gross polluter identification:

Both Arizona and California have included gross polluter identification in their programs. Vehicles with tests showing very high emissions on several occasions are declared to be “gross polluters.” The cut-points for a gross polluter are typically double to triple the usual cut points for that vehicle. Once a vehicle has been declared a gross polluter, it can then be targeted for repairs and re-testing.

Identifying gross polluters could speed up air quality improvements because the sooner a gross polluting vehicle is identified; the sooner it can be repaired. Registration records would be required to note the date of the last emission test to prevent the owner from being continually re-run through the system even after repairs are completed or a waiver is granted.

The problems with this concept in Washington State are similar to those with clean screening. Washington State has a limited number of locations in test areas that meet the necessary

conditions (single lane of traffic, slight and steady vehicle acceleration, dry streets, no fog, and low winds). A very large number of vehicles would need to be tested in order to identify dirty vehicles. In Ecology's study, it took five weeks and 250,000 tests to achieve slightly less than 5,000 vehicles with at least three readings. Only three percent of all vehicles that passed through the remote sensing sites met the minimum requirements. Arizona reduced the number of readings from three to two in order to make the gross polluter identification system a possibility. Washington's study indicates that there is not enough accuracy in less than three readings.

Other issues

Remote sensing does not measure "evaporative" emissions (gasoline vapors that vent into the air from hot engines and fuel systems). Fuel evaporation can be an even greater source of hydrocarbon pollution resulting in ozone formation than tailpipe emissions on hot days. In western Washington, the Emission Check Program is now needed more to reduce ozone levels than carbon monoxide levels.

Studies by EPA and the California Air Resources Board have found that when remote sensing measurements are compared to emissions measurements made by EPA reference methods, the remote sensing device incorrectly identifies clean cars as dirty. Arizona gross emitter screening has a low compliance rate. Of the letters sent out to the operators of "dirty" cars only 40 percent responded. EPA studies indicate that remote sensing does not identify 80 percent to 90 percent of the dirty cars that need repair.

One issue we wanted to investigate was whether remote sensing could be used to identify vehicles traveling on a regular basis inside an emission test area that are registered outside that area. By identifying these vehicles, it can be determined whether a test area needs to be increased in size or whether these vehicles may be targeted for testing. The Arizona program has been successful in this endeavor.

Remote sensing can provide a method of enforcement against improper out-of-area registrations because only the vehicles operating within a select area would be seen by remote sensing.

Conclusions regarding remote sensing.

The good news about remote sensing is that it is mobile and can be used in all regions; testing vehicles by remote sensing has little or no impact on the driving public; and it can help identify out-of-area vehicles. However, a new method of ensuring compliance would need to be developed and legislation would be required.

The bad news is that remote sensing has not yet been shown to effectively identify individual vehicle emission levels. Site selection is limited and the ideal conditions for remote sensing are often not present in Washington.

Recommendations

- First test vehicles when they are five years old. For example, first test 1996 models in the year 2000 (a five-year difference between the year of the tabs being purchased and the model year of the vehicle).

- Last test vehicles when they are twenty-five years old. For example, last test 1976 models in the year 2000 (a 25-year difference between the year of the tabs being purchased and the model year of the vehicle)
- Test five- to 25-year-old vehicles sold by a used car dealer. This would apply only when a dealer located within a county with emission testing sells a vehicle to a resident of a test area. An emission test would not be required when a test has already been done to obtain current Washington tabs or while these tabs were on the vehicle.

Inspection Fee

Currently, a vehicle owner pays \$12 in cash at the test station for an emission check. The contractor that operates the test stations retains part of the fee and the remainder deposited into the state general fund. Ecology's administration of the Emission Check Program is funded from a general fund appropriation by the legislature. Over the state's two-year budget period, Ecology's Emission Check Program costs cannot exceed the fees deposited in the general fund. Any unspent funds and those received above what is appropriated for the Emission Check Program are available for other general fund uses.

Options

This section discusses options for alternative methods of paying for vehicle emission testing.

Option 1: Pay with registration. This option would have vehicle owners make one payment for emission testing and license renewal to the Department of Licensing. This would be convenient for vehicle owners who need to test before license renewal, and would speed the testing process for all vehicle owners due to less cash handling. Voluntary and change of ownership tests would still be paid for at the test stations. For the renewal customers, charges for the initial test and any retests would accumulate until the vehicle completes the inspection process.

The public may be confused because of this change. Some test station inspectors might fraudulently accept cash for the test. Problems could also result when cars are sold with unpaid test balances, if the new owner is charged for the tests of the previous owner.

The testing contractor would have the cost of changing accounting procedures and software. There would be some loss of income because of customers that do not complete the testing process. There would be a loss of interest income for the contractor, because they currently retain all test fees up to a week before transferring the state's portion. Because the contractor would handle less cash, however, there would be fewer losses due to robberies and employee fraud.

The Department of Licensing (DOL) would need to process the fees collected and transmit payments to the testing contractor. Agent and sub-agent training and software modifications would be required. A process for tracking test fee charges and returning mail-in renewals with proper payment would have to be devised and the renewal notice changed. A method of resolving disputes over charges and test fee refunds would also be required.

The Legislature would need to approve this option and may authorize DOL to collect processing costs that could result in an increased test fee.

Option 2: Include with vehicle licenses fees. An additional fee on the renewal of all vehicles within the inspection areas every other year when an emission test normally would be scheduled based on the model year being odd or even could replace collecting fees at the test stations. This option would allow any vehicle to be tested at anytime without the driver having to worry about paying. There would no charge for change of ownership tests and

voluntary tests. Some owners of vehicles not required to test may be upset for being “taxed” for emission testing. If any vehicle owners are exempted from the fee, the fee might increase for the remaining vehicle owners.

The contractor would have a revenue “gap” between the time of the test and receipt of payment. There would be a loss of interest income for the contractor, because they currently retain all test fees up to a week before transferring the state’s portion. Eliminating cash handing would save the testing contractor employee time and armor truck expense, and prevent losses due to robberies and employee fraud.

DOL would be required to collect, process, and transmit funds to the contractor and the general fund. There would be additional costs for staff training and software development and modifications. The renewal notice would require changes. DOL agents and subagents may face hostility from the public regarding this change.

The Legislature would need to approve this option and may authorize DOL to collect processing costs that could result in an increased test fee.

Option 3: Accept non-cash payments. All methods of payment (cash, checks, debit cards and credit cards) would be accepted at test stations. There might be an additional charge to use an alternative payment method.

Currently, the fee is paid to the lane operator at the test station. A person without cash is turned away. This policy is intended to help keep the test fee low as possible. The policy has been well advertised for many years, and is generally known and accepted.

While there are costs to handling cash, it is the least costly payment option. All other payment methods have greater handling costs. Banks charge a fee for each transaction handled by check, debit card or credit card. The bank fees vary considerably, but to handle all payment options, the cost would likely range from 50 cents to one dollar per test.

Non-cash payment would be more convenient for some motorists. All owners of vehicles being tested, however, might face increased test fees and testing time due to the time to write checks or use cards. Wait times could increase significantly during busy periods.

Rather than accept all methods of payment, one non-cash payment might be selected as a unadvertised back-up or emergency policy. For example, the test stations could accept checks. While a test fee increase might not be needed, some persons might feel it is unfair not to advertise it. Without offering all payment options, some vehicle owners could still be turned away.

Option 4: Vary test fee based on cost of test. The same \$12 test fee currently is charged in all test areas. The actual cost of testing and Ecology’s costs varies between test areas. The test fee was not increased to reflect the cost of upgrading the testing in Spokane and Vancouver that took place during 1997.

Current law allows the test fee to vary between test areas. It is expected, however, that a negative reaction from Clark and Spokane County vehicle owners and legislators would

prevent legislative approval for a fee in these areas greater than the one in the Puget Sound area.

Recommendation

Implement Option 2, which would replace fees at the test stations with an additional fee on the renewal of all vehicles within inspection areas every other year (an emission test normally would be scheduled based on whether the model year is odd or even).

Testing Procedures and Standards

The Emission Check Program identifies vehicles with excessive emissions and requires their repair. The intent of the program is for a well-maintained vehicle to easily pass an emission test regardless of age or mileage.

A major focus of the Emission Check Program is working closely with repair technicians so they will accurately understand and explain to their customers why their vehicle failed an emission test. When the cause of an emission test failure cannot be found by a repair technician, it can be very frustrating for the vehicle owner and damaging to the public's trust in the program. This frustration is the reason for most of the complaints about emission testing, and results in a large workload for Ecology staff that investigate cases in which the owner or repair technician question the test results.

The air quality benefit from the Emission Check Program depends on both the test used to identify high emitting vehicles, and the diagnostic skill of automotive repair technicians. The test standards are set at levels high enough to enable repair technicians to identify needed repairs if a vehicle fails an emission test. The exhaust test standards must also be set at a high enough level to allow for the factors that increase a vehicle's emissions, including the design of the emission control systems, normal emission control system deterioration, fuel composition, and weather conditions. The length of time the vehicle was driven prior to the test and how long it waited in line to be tested directly influence engine and catalytic converter temperature.

Diagnostic skills are important in minimizing emissions from vehicles both when repairing a vehicle that failed a test and when repairing a vehicle for any other reason. In the early 1980s, to assist repair technicians in diagnosing engine problems, vehicle manufacturers started to install on-board diagnostic (OBD) systems that collect information about engine malfunctions. This information is codes were stored in on-board computers and could be accessed by auto technicians through the "Check Engine" light flashes. Starting with 1996 models, upgraded and standardized OBD II systems will allow problems found by the OBD to be printed out on the emission test form. Since OBD systems detect problems that occur during all driving conditions, the repair of problems detected by an OBD would reduce emissions to a greater extent than those repairs just needed to pass an emission test.

Gasoline vehicles

Since June 1993, two exhaust emission tests have been used for gasoline vehicles.

- A "loaded test" has been used for two-wheel drive cars and trucks under 8,500 Gross Vehicle Weight Rating (GVWR). This test consists of an idle mode followed by a low-speed (22-35 miles per hour) cruise on a dynamometer, with a 2.8 to 10.8 horsepower load. If the vehicle fails during idle mode, the idle is repeated after the cruise. The speed and load settings vary with the number of engine cylinders.
- A "two-speed idle" test is used for all four-wheel drive vehicles and trucks 8,500 GVWR and over. This test consists of an idle mode followed by a no-load 2,500 revolutions per minute (rpm) engine speed mode. If the vehicle fails during idle mode, the idle is

repeated after the 2,500 rpm mode. Some vehicles, 1981-87 Ford Motor Company vehicles and 1984-85 Honda Preludes, must be turned off and restarted before they are tested to ensure the emission controls are working.

Both tests are conducted per EPA specifications, except that the second-chance 2500 rpm mode during the “two-speed idle” test has been dropped. The additional 90 seconds of testing was suspected of resulting in several vehicle fires and unnecessarily prolonging the test.

The carbon monoxide (CO) and hydrocarbon (HC) test standards used with a “loaded” or “two-speed idle” test for both the idle mode and higher speed mode are found below.

Table 1
Gasoline Vehicles Exhaust Emission Standards
(“loaded test” and “two speed idle” tests)

Model Year	CO	HC
1968-1974	6.0%	900 ppm
1975-1980	3.0%	600 ppm
1981-1999 (greater than 8500 GVWR)	3.0%	400 ppm
1981-1999 (0 – 8500 GVWR)	1.2%	220 ppm

In 1997, the “loaded test” was revised in Spokane and Vancouver. The cruise mode of the test was replaced with an Acceleration Simulation Mode (ASM2525) to achieve greater emission reductions. ASM testing simulates acceleration by increasing how hard the vehicle must work on the dynamometer in proportion to the vehicle’s weight.

The ASM test standards are stated as the concentration (percent or ppm) of the pollutant in the exhaust. Because light-duty vehicles are designed to meet grams per mile emission standard regardless of vehicle weight, the ASM test standards decrease as the vehicle weight increases. This reflects the greater control required to meet the same grams per mile standard with greater exhaust volume. The ASM test standards vary with the model year and weight of the vehicle to reflect the emission standards these vehicles were designed to meet. ASM testing can detect a greater number of polluting vehicles than the “loaded” or “two-speed idle” test, and allows nitrogen oxide (NO_x) testing if needed.

The increasing sales of minivans, trucks, and sport utility vehicles that are certified to a more lenient gram per mile emission standard than cars, are resulting in reduced benefits of ASM testing. These minivans and trucks are being used primarily for personal transportation in place of cars. Many of these trucks do not receive a dynamometer test because they are either four-wheel drive vehicles or heavy-duty vehicles (gross vehicle rating exceeds 8,500 pounds). The use of four-wheel dynamometers would be expensive and time consuming.

The front and rear dynamometer rollers must be adjusted to match the distance between the front and rear tires for each four-wheel drive vehicle.

Table 2 Gasoline Vehicles Exhaust Emission Standards (ASM 2525 mode)

Model Years	1968-74		1975 -80		1981 & Newer	
Test Wt Lbs.	CO %	HC ppm	CO %	HC ppm	CO %	HC ppm
1750	7.3	690	4.2	400	1.8	250
1875	6.8	650	4.0	380	1.7	240
2000	6.5	620	3.8	350	1.6	220
2125	6.1	580	3.6	340	1.5	210
2250	5.8	550	3.4	320	1.5	200
2375	5.5	520	3.2	300	1.4	190
2500	5.2	500	3.0	290	1.3	180
2625	5.0	470	2.9	270	1.3	180
2750	4.7	450	2.8	260	1.2	170
2875	4.5	430	2.7	250	1.1	160
3000	4.3	410	2.6	240	1.1	160
3125	4.2	400	2.5	230	1.0	150
3250	4.0	400	2.4	220	1.0	150
3375	3.9	400	2.3	220	1.0	150
3500	3.7	400	2.2	210	1.0	150
3625	3.6	400	2.1	200	1.0	150
3750 & greater cars	3.5	400	2.1	200	1.0	150
3750 & greater trucks	4.0	500	2.5	300	1.5	200

At the Vancouver test stations, the first step in the test process for most gasoline vehicles is a gas cap check. If the cap passes a pressure test, the vehicle proceeds to exhaust emissions test. Gas cap checks are conducted on unvented gas caps that are a part of a vehicle's evaporative emission control system. These systems are on all 1971 and newer passenger vehicles and trucks and all 1985 and newer trucks. The unvented gas caps prevent gasoline

vapors from escaping from the fuel tank into the atmosphere. During driving, the gasoline vapors that have been stored in a charcoal canister are drawn into the engine and burned.

Diesel vehicles

Diesel smoke opacity testing is done using a "snap-acceleration" test procedure. Since the snap-acceleration test procedure is a simple test it can be used almost anywhere by the vehicle owner, repair technician or on road enforcement personnel. The Society of Automotive Engineers (SAE) recommends that the snap-acceleration test procedure be used for smoke testing of heavy-duty diesel vehicles. The peak opacity of the exhaust smoke is measured with an opacity meter. The vehicle passes if three peak opacity readings are at or below the standard. Up to ten snap tests can be performed in order to pass the vehicle.

Smoke opacity standards for Washington and California heavy-duty diesels are shown below. In Washington, the snap-acceleration test and opacity standards are also applied to diesel cars and light duty trucks. However, the snap-acceleration test is not used on 1984 through 1987 BMW, Volvos, and Peugeot's diesel cars because of possible transmission damage.

Diesel Vehicles Opacity Standards

Model Year	Washington (% Opacity)	California (% Opacity)
1968-1973	70	55
1974-1991	60	55 (40 ,1991)
1992 and newer	40	40

Options

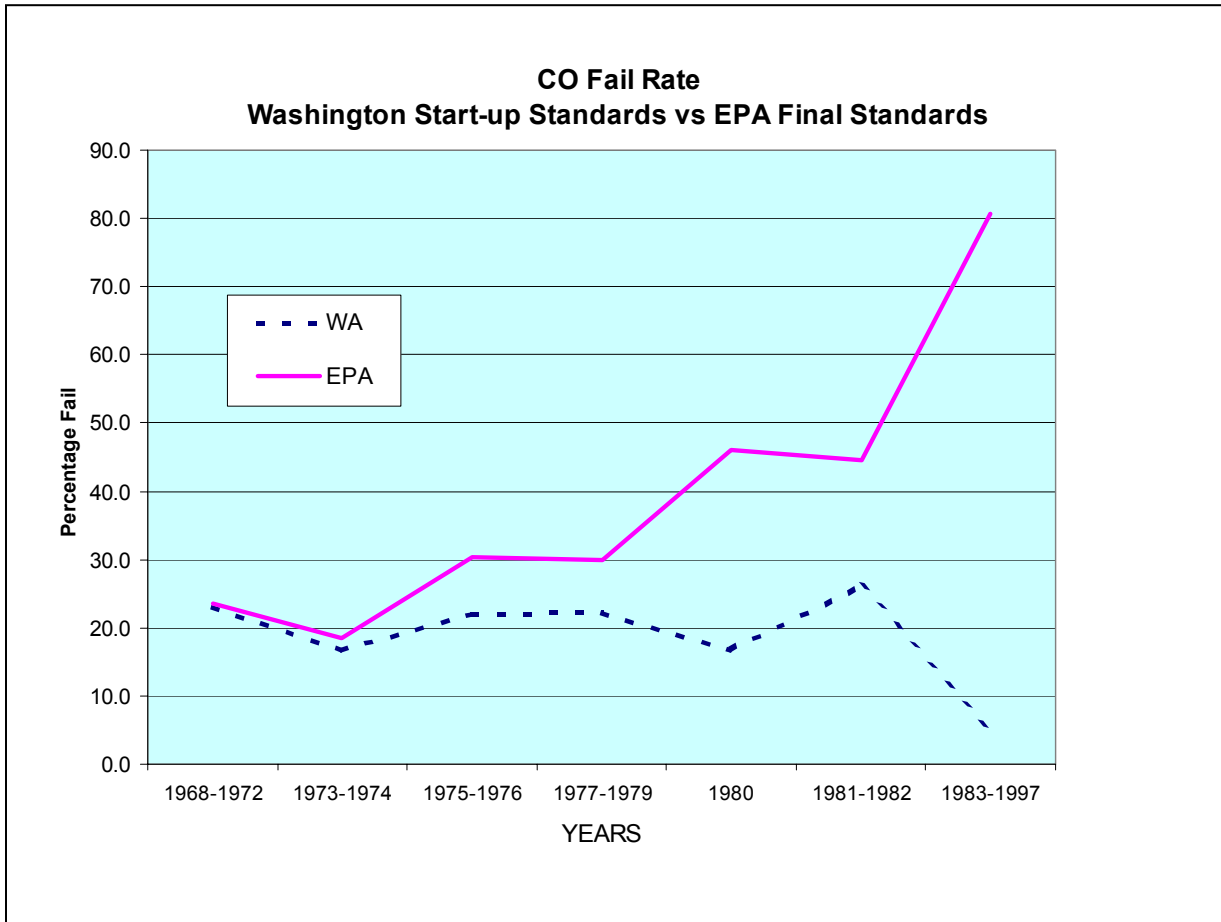
The following options were considered for achieving greater emission reductions or providing better service to motorists through testing procedures and standards.

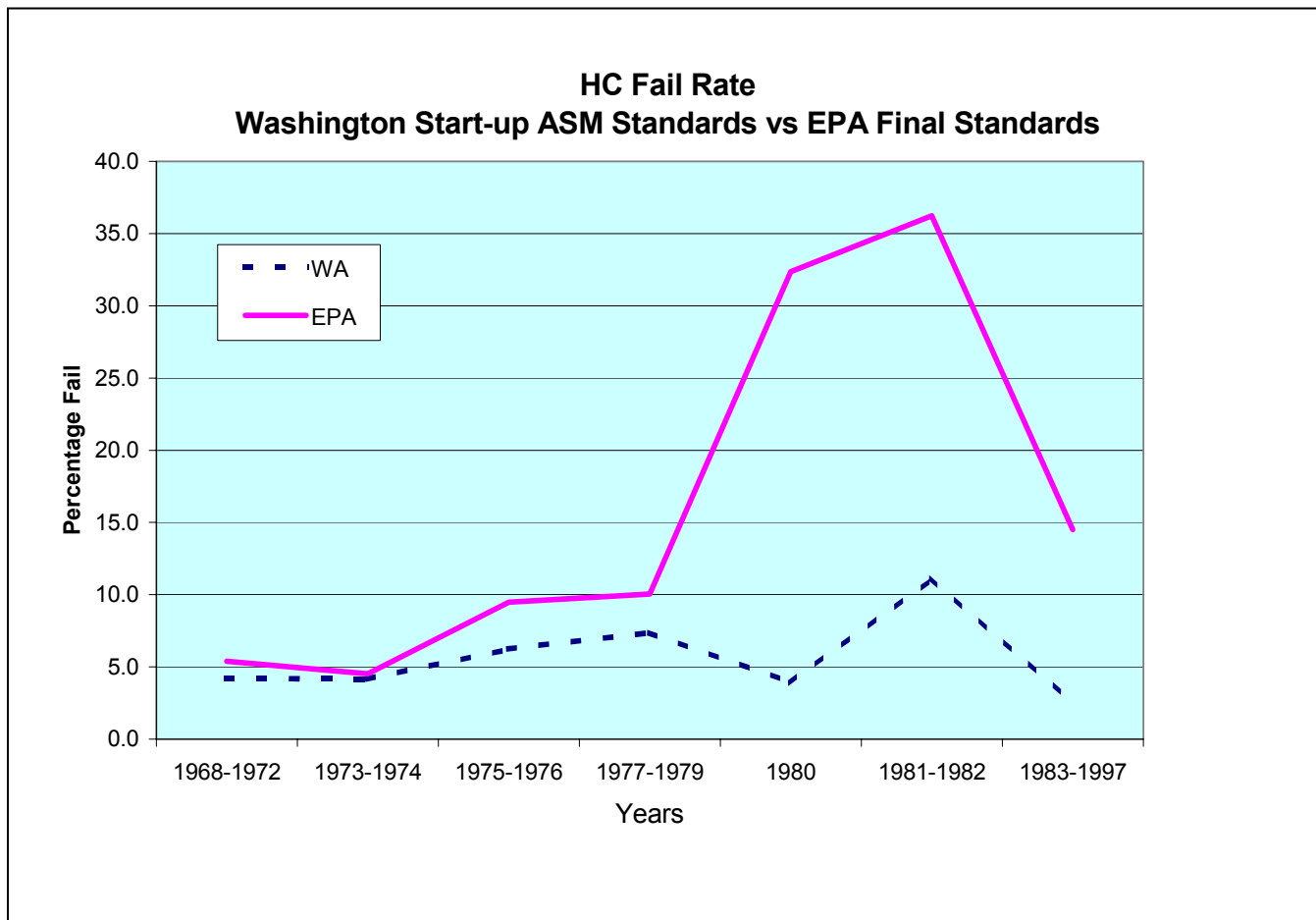
Option 1: Tighten test standards (ASM testing in the Puget Sound area). The acceleration simulation mode (ASM) test standards for light duty gasoline vehicles being used in Spokane and Vancouver are start-up standards. It is anticipated that, after the first cycle of testing is completed (24 months), repair technicians in these areas will have gained sufficient experience with diagnosing needed repairs so that the test standards could be tightened in 2000. In the Puget Sound area, additional emission reductions would be achieved by converting to ASM testing using the start-up standards. Again, this would give the repair technicians a chance to gain experience they won't have at the start-up date before the final standards are set.

The failure rates of several possible ASM standards have been evaluated. These evaluations use the test results from Spokane ASM testing (HC, CO) that started in May 1997 and

Vancouver ASM testing (HC, CO, NOx) that started in October 1997. The use of the EPA-recommended final ASM standards would result in an unacceptably high failure rate. Following are the comparison charts that detail the current failure rate with Washington's start up standards and the projected failure rate using EPA final ASM standards.

Ecology staff are analyzing failure rates using Washington ASM standards with slightly modified (tightened) standards.





State law requires that the failure rate not exceed 30 percent. Failure rates above 30 percent are not acceptable because of the likelihood that appropriate repairs could not be diagnosed and reasonably repaired by technicians. The cost of repairs accelerates rapidly as the stringency of standards increases, especially on marginal vehicles. Most vehicle owners do not equate vehicle performance with an emission test failure. Most feel that, “if the vehicle is running fine why spend a lot of money just to pass an emission test.” Because of this, a more stringent standard means Ecology would experience a greatly increased demand for assistance from vehicle owners and repair technicians with marginal vehicles that needed repairs, but the emission problem could not be readily identified.

The cost of converting to ASM testing in the Puget Sound area is expected to be minimal since no additional testing equipment or software development would be needed. However there will be the additional expense of installing and operating upgraded indoor air quality monitoring equipment and increasing the air flow of the ventilation fans. These safety precautions are needed due to the larger volume of exhaust generated with the greater engine loading during ASM testing. Whether or not a test fee increase would be needed can not be determined until after the cost of the present test is established for the years after 1999.

Option 2: Evaporative control system checks (Gas cap checks in the Puget Sound area).

Gasoline evaporative emissions are becoming a larger percentage of the estimated VOC emissions, especially in hot weather when ozone levels are the highest. Some gasoline evaporation takes place even if the vehicle is not running. Since 1971, most vehicles have a system to prevent gasoline vapors from escaping that includes a sealed gas cap. This system uses engine vacuum to draw the vapors from the fuel tank into an activated carbon canister. Later, while driving, the vapors stored in the canister are drawn into the engine and burned.

Some states have added evaporative control system checks to their emission inspection programs. The basic two types of evaporative control system checks are:

- A purge test that measures the flow of vapors from the carbon canister to the engine.
- A pressure test that includes checking the gas cap for leaks and applying pressure at the fuel inlet to check the rest of the evaporative emission system for leaks. About half of the emission reduction achieved is from replacing the gas cap.

The testing and repairing of evaporative control systems has been very difficult and delayed in many areas. Most automotive technicians have little if any training with evaporative controls, as it is the least troublesome emission control unit on a motor vehicle. Often there are no moving parts or electronics, so little maintenance or attention beyond replacing the canister filter is needed. A complete evaporative control system check (adding a gas tank pressure test and purge test to the gas cap checks) would greatly increase the demand on Ecology for assisting vehicle owners and repair technicians with vehicles where needed repairs are difficult to identify or the test results are questionable. Often, the evaporative carbon canister will not purge during an exhaust emission test, so a false failure where repairs are not actually needed may result. Even if the evaporative checks correctly determine that there are vapor leaks in the gas tank or vapor lines, these leaks are often difficult to locate.

The Vancouver test stations are checking for leaking gas caps as a result of the ozone maintenance plan for that area. In the Puget Sound area, if additional VOC emission reductions were needed beyond the present contingency measure of less volatile gasoline, this could be achieved by gas cap checks. The cost of gas cap checking equipment is not significant; however, based on the testing contractor estimate for the additional labor needed to conduct gas cap checks at the Vancouver stations, the cost of testing would increase by about two dollars. Much of this estimated labor cost was due to the use of two test positions in the Vancouver test lanes. This conversion was done to ensure adequate testing capacity during the expansion of the Clark County test area and the conversion to ASM testing and gas cap checking. No such conversion from single-position testing to two-position testing would be needed in the Puget Sound area, since the demand for testing there is expected to decrease rather than increase. Whether or not a test fee increase would be needed cannot be determined until after the cost of the present test is established for the years after 1999.

Option 3: Dynamometer testing of light-duty diesel vehicles. Since 1993, a snap-acceleration test is used for all diesel vehicles. Some owners of light duty diesels have expressed concern that engine damage could result from the high engine speed during the full throttle portion of the test. EPA recommends the diesel snap-acceleration test be used for heavy-duty diesel vehicles but has no recommendation on how to test light-duty diesel vehicles. The same ASM test used for light-duty gasoline vehicles could be used for light-duty diesel vehicles.

The benefits of using a dynamometer test for light-duty diesel vehicles are:

- It avoids vehicle owner concern with the acceleration of their diesel engines.
- It prevents the difficult-to-control inconsistencies of the snap-idle test.
- It better represents actual driving conditions of light duty vehicles.

The drawbacks of dynamometer testing are the same as with gasoline vehicles:

- Proper control of some vehicles while on the dynamometer is difficult.
- Front-wheel drive vehicle operators must exit their vehicles so that test station personnel can conduct the test.
- The test will be slightly longer than the “snap-idle” test.

Recommendations

- Tighten ASM test standards, especially for late model vehicles.
- Phase in ASM tests for the Puget Sound area if this can be done without a fee increase.
- Consider gas cap checks for the Puget Sound area if the ozone contingency measure of less volatile gasoline is activated.
- Start a pilot project for dynamometer testing of diesel passenger cars and light-duty trucks.

Repairs

Both air quality and the vehicle owner benefit when vehicles with high emissions are correctly diagnosed and properly repaired. To assist vehicle owners in obtaining proper repairs, a list of shops with Ecology Authorized Emission Specialists (AESs) is given to drivers of vehicles that fail an emission test. Emission Check Program staff spend much of their time resolving complaints about repairs and the effectiveness of the repairs when vehicles fail an emission test.

While ideally all needed emission repairs will be made, failing vehicles may be relicensed (waived) if a minimum amount of money has been spent on emission repairs done by an AES (\$150 for 1981 and newer model year vehicles, \$100 for 1968 to 1980 vehicles). Some states have no limit on the cost of repairs, and some have a much higher limit. Washington State law authorizes an increase in the waiver amount to \$450 only if needed to avoid federal sanctions.

Ecology's Emission Check Program staff oversee repair facilities and automotive repair technician-training programs, and review the repairs used to obtain a waiver. Ecology staff assist repair technicians by telephone and in person to help get the most practical emission reduction from repairs of vehicles that fail an emission check. In cooperation with community colleges and the repair industry, Ecology has developed a training program for technicians on the diagnosis and repair of emission failures.

During 1997, of the 1,084,276 vehicles tested, 127,622 or 12 percent failed their initial test. Of these failed vehicles, about 74 percent eventually passed a retest, and almost ten percent obtained a waiver from having to pass.

Options

Four options for obtaining greater emission reductions from repairs are discussed below.

Option 1: Increase the cost of repairs needed to obtain a waiver. Increasing the repair cost limit might increase the number of vehicles that are properly repaired. Ecology's field staff reviews the appropriateness of all repairs used to obtain waivers. On average, vehicle owners spend about \$100 more on repairs than the amount needed to obtain a waiver. During 1997, the owners of 1981-1998 vehicles on average spent about \$265 (\$150 repair limit). The average amount spent by owners of 1968-1980 vehicles was about \$186 (\$100 repair limit). A pilot low-income assistance project in Clark County found that most failing vehicles could be repaired to pass the emission test for about \$300 or less.

A possible unintended effect of increasing the repair cost limit could be that the possibility of additional expense could deter more vehicle owners from even attempting to repair failing vehicles. Rather than repairing these vehicles, more owners might avoid testing by trading in their vehicle to a dealer, or by fraudulent means such as registering the vehicle to an address outside the test area. (See Compliance section.)

Option 2: Assist low-income vehicle owners in properly repairing their vehicles.

Assisting low-income vehicle owners with properly repairing their vehicles after failing an emission test would improve air quality. A federally funded pilot Emission Repair Assistance Project in Clark County demonstrated that most failing vehicles could be repaired to pass the emission test for about \$300 or less. Between August 4 and October 31, 1997, 94 low-income owners of failing vehicles were qualified by the Salvation Army to receive up to \$450 in emission-related repairs. Federal funds were obtained by the Southwest Air Pollution Control Agency to pass through to the Salvation Army to continue this assistance after October 1998. Based on the Clark County experience, an ongoing statewide assistance program would cost about \$5,000,000 a biennium, or an additional two dollars per test. These assistance projects have not increased Ecology field staff workload. However, it is uncertain whether the Clark County experience (excellent cooperation between automotive repair businesses and the social service agency screening the prospective beneficiaries of the assistance program) could be maintained over a long period of time in larger urban areas without increased Ecology staff oversight.

The legislature has already addressed concerns about the potential economic hardship from the Emission Check Program by setting a limit on the amount paid for repairs that must be done before a vehicle can be licensed; limiting the test fee amount; and providing the first retest at no charge. The 1998 legislature reduced the test fee limit from \$18 to \$15. It reduced the number of vehicles to be inspected by further exempting newer and older vehicles from emission testing, starting in the year 2000. Since the Emission Check Program is required to be self-supporting, a test fee increase might be needed to assist low-income vehicle owners if state funds were used.

Option 3: Provide vehicle owners with a rating of repair shop effectiveness. Having vehicles that failed an emission test repaired by the most competent repair technicians would benefit vehicle owners and air quality. One measure of repair technicians' competence is how successful they are in repairing vehicles that fail an emission test. Several states rate repair businesses on the overall reductions in readings from the failing vehicles they repaired. The intent is to encourage the use of a highly ranked repair business so that more vehicles will pass the emission test.

However, there are many difficulties in keeping a performance rating of repair businesses. First, accurate data collection is difficult. The current system of relying on the test station staff to enter the number written on the previous test form by the repair technician is not reliable. Data collection could be improved; for example, each technician could issue bar-code stickers to be placed on the test forms of the vehicles they repair. However, even if data collection were 100 percent accurate, the constantly changing employment of many repair technicians and the wide variations in the vehicles they repair tend to cause any shop rating to be misleading.

Option 4: Require listed shops to have a four-gas or five-gas analyzer. Air quality would benefit from improved diagnosis of failed vehicles to more accurately identify needed repairs. Repair businesses included on the list given to drivers whose vehicles fail an emission test now agree to have a properly maintained and calibrated exhaust analyzer. Currently, most exhaust analyzers in use meet or surpass the 1990 California Bureau of

Automotive Repair's (BAR) performance specifications for the measurement of hydrocarbons (HC) and carbon monoxide (CO) emissions. California now requires five-gas exhaust analyzers that measure carbon dioxide (CO₂), oxygen (O₂) and oxides of nitrogen (NO_x) in addition to HC and CO emissions.

Since many shops have purchased five-gas exhaust analyzers or four-gas analyzers that measure HC, CO, CO₂, and O₂ emissions to better diagnose vehicles, requiring such an upgrade for all listed shops appears reasonable. Currently listed shops without a four-gas or five-gas analyzer could be allowed three years to purchase a four-gas analyzer that could be upgraded to include measuring NO_x. Shops seeking to be listed for the first time would need a five-gas analyzer.

Recommendations

- Request that the legislature increase the repair cost limit only if the number of vehicles being waived greatly increases.
- Request funds from the legislature to financially assist low-income motor vehicle owners with repairs only if matching funds become available.
- Publish ratings of repair shop effectiveness only if accuracy concerns are resolved. Attempt to develop technician effectiveness rating for internal use first.
- Phase in a four-gas analyzer requirement for listed repair shops. Shops seeking to be listed for the first time would need a five-gas analyzer.

Customer Service

Customer service is a valuable piece of Washington State's Emission Check Program. The purpose of the outreach program is to ensure that customers are aware of the importance of their role in improving air quality in Washington State. Ecology provides information to all Emission Check Program customers on various aspects of the program. The services we provide identify who must participate in the program and why they need to, when and how to comply, where to test and repair vehicles, and who to contact for assistance if there is a problem. We also support the contractors and technicians in their work to test and repair the vehicles towards licensing requirements.

Ecology staff design and implement communication strategies to educate and inform customers using three distinct methods of outreach: person-to-person, public events, and written materials. Consumer protection, as directed by EPA's Motor Vehicle Inspection and Maintenance Program, is an element of each of these outreach methods. Ecology staff tailor communication strategies to specific audiences and regions of the Emission Check Program to address a variety of issues. Ecology provides ongoing support and oversight to the contractors and repair shop technicians and endeavors to keep them updated on all aspects of the program. Staff make every effort to maintain positive working relationships with all customers.

It is very difficult to quantify air quality benefits resulting from customer service efforts. This is because behavior change, the outcome or measurement of our education efforts, may take years to manifest.

Customers

Ecology's Emission Check Program customers are comprised of the following groups:

- the motoring public;
- Authorized Emission Specialists (AESs);
- Authorized Repair Shops;
- contractors; and
- partners.

Ecology staff surveyed each customer group to determine the quality of customer service provided to them. Descriptions of customers and survey results are as follows.

Motoring public

Washington's motoring public in parts of Clark, King, Pierce, Snohomish and Spokane counties test their vehicles every two years to ensure they are driving clean, efficient vehicles that pollute less. Ecology provides information, assistance, referees, and avenues for public input into program changes.

Survey results: Surveys of the motoring public showed a high degree of satisfaction with both refereeing services provided by Ecology staff, including refereeing services and information provided through Ecology's technical assistance line (see pages 3 and 4 for more

information). As well, the majority of those surveyed had no difficulty finding test stations, felt test station staff were courteous and professional, and felt they received clear instructions at test stations. Most people indicated they waited in line at test stations between one and 15 minutes. A slim majority would like to be able to pay the test fee by means other than cash, but the vast majority are not willing to pay a service charge in order to make alternative methods of payment available.

Authorized Repair Shops and Authorized Emission Specialists

An Authorized Repair Shop must employ at least one Authorized Emission Specialist (AES) who is in good standing, and maintain and operate emissions equipment and records to meet Ecology standards. The role of the is to diagnose and repair vehicles in order to enhance air quality. Ecology provides program information and technical, conducts or provides classes and workshops, performs audits, and participates in referees.

Survey results: Survey results indicate the majority of AESs at repair shops surveyed feel that they are provided a satisfactory and productive service by Ecology representatives. They find Ecology representatives courteous and respectful, understand the reasons for visits from Ecology representatives, and feel their concerns are resolved by representatives. Most feel that any corrective action is carried out in a positive manner and feel comfortable challenging representatives if necessary.

Contractors

- *Clallam Bay Correction Center (CBCC)* serves the motoring public with personal responses to basic program questions.

Survey results: The supervisor at CBCC indicated a high regard for Ecology and the Emission Check Program staff response. She indicated she receives a return call from Ecology staff within one day of her initial call, and is provided timely information on changes or new developments.

- *Envirotest* performs the vehicle testing role, hires and supervises testing personnel, coordinates test station services, and works with Ecology to provide fast, efficient, and courteous service to the motoring public. Ecology provides up-to-date information and materials to supervisors.

Survey results: Results of a survey of Envirotest indicate that, generally, calls made by Envirotest staff to Ecology staff are returned within two hours. In the regions where an Emission Check Program staff person is assigned to telephone duty, calls are usually returned within 10 minutes. Responses indicate calls generally go well, with the exception of those regarding waivers. The problem appears to be a lack of consistency regarding how waivers are handled, depending on both the area of the state and the staff member who responds to the call. In addition, problems result from the unavailability of Ecology staff on Wednesday evenings and Saturdays when test stations are open.

Ecology's communications with Envirotest survey respondents indicate that information provided by Ecology is not always consistent, or distributed consistently, statewide.

Responses indicate that one contact person at Envirotest and one contact person at Ecology may be needed to ensure more consistent communication.

Partners

The Washington State Department of Licensing (DOL) coordinates licensing-related aspects of the program, vehicle registration, tab renewal, and temporary exemptions to testing and licensing. Ecology provides a liaison, up-to-date information, materials, and technical assistance.

Survey results: Twenty licensing agents were surveyed regarding the services provided by Ecology staff. Most agents found Ecology staff to be professional, courteous, informative, and cooperative. However, two of the agents consistently rated their interactions with Ecology staff negatively – one field staff and one HQ 1-800 line staff. Thirteen percent identified a need for more public information.

Definitions and current procedures

There are 20 test stations and 1,052 authorized shops in Washington State:

- Northwest Regional Office currently has 12 stations, 684 shops and 10 FTEs. Field staff provide assistance to an average of 69 shops each.
- Eastern Regional Office has two test stations, 173 shops, and three FTEs. Field staff work with an average of 58 shops each.
- Southwest Regional Office has two sections: Pierce County has four test stations, 136 shops and 3.8 FTEs, averaging 35 shops for each inspector. Clark County has two test stations, 92 shops, and two FTEs for an average of 46 shops for each inspector.

Referees

A “referee” is any situation that requires direct intervention of Ecology field staff to resolve a discrepancy in test results, or a dispute concerning interpretation of emission testing rules. These discrepancies or disputes can be between test stations, repair shops, or motorists, or any combination of the three.

A referee situation usually begins with a phone call to Ecology. This can be from a repair shop, a motorist, or a test station. If the situation is not resolved by phone, an appointment is made to examine the vehicle and associated paperwork. This inspection can be done at a variety of locations: the repair shop, an Ecology referee facility, the test station, or even the motorist’s home or place of employment. After the inspection, the Inspector decides whether to “pass” the vehicle or require further action on the part of the motorist or shop. Detailed records are kept and recorded on a database after final resolution.

Survey results: Survey results on the referee process reflect polite, prompt, professional service. Most of those surveyed have a high level of satisfaction with the referee process.

Repair shop visits

Each authorized repair shop is audited every 60 to 90 days. These audits give technical assistance, check the accuracy of exhaust analyzers, and make sure that all paperwork is properly completed.

Ecology field staff generally visit several shops in a given day. Shops may also contact inspectors directly for assistance. Shop records are evaluated for accuracy and completeness. AES status and “shop residence” are also verified. Waivers obtained through the shop are discussed, and current Emission Check Program information is provided.

Survey results: Survey results indicate that the vast majority of AESs find the Ecology representative to be courteous, respectful, and forthright. They agree that the Ecology representatives provide them quality services and the time spent is productive. Even corrective action is carried out in a positive manner. Eighty-nine percent feel comfortable challenging the concerns of the Ecology representative. A majority of technicians felt that their concerns were resolved with the Ecology representative; however, 21 percent at SWRO felt they did not get resolution.

1-800 Information lines

Ecology currently has two 1-800 lines for the public and the repair industry to use to get information about the Emission Check Program. One is based at Ecology Headquarters, the other is contracted with Clallam Bay Corrections Center (CBCC). (The CBCC line has been changed to a recorded message line subsequent to the start of this evaluation.)

Two Ecology employees staff the Headquarters connection. This line was originally designed to deal with technical issues, but currently, technical information is being handled directly by three of the four regional offices. Direct lines for regional offices are provided on brochures, information packets provided to vehicle owners whose vehicles fail the test, and test forms.

Survey results: Several people (technicians included) reported that when calling the 1-800-272-3780 for technical assistance, they did not get a timely response and would prefer access to a live person. A few reported that having the 1-800 number was good for registering concerns and for getting a different point of view. Some reported that finding the 1-800 number was a challenge. Some reported that the staff was not knowledgeable.

Inmates of that institution staff the CBCC connection. Four lines are available. The staff is there to assist motorists with *general* information on emission testing. Testing areas, zip codes affected, test station locations, determinations of the need to test based on vehicle year, and determining the need for more “technical” help are the most common calls. The number for CBCC is on nearly every brochure printed by Ecology that refers to the Emission Check Program. The number is also on the back of every Vehicle Inspection Report issued by the test stations. (This line has been changed to a recorded message line subsequent to the start of this evaluation.)

Survey results: Ecology staff, posing as the general public needing assistance, made approximately 30 phone calls to the CBCC information line. Results indicate that the calls were handled in a courteous manner, appropriate responses were given for questions asked, and calls were referred to Ecology appropriately. This is an improvement over previous reports.

Technical training

Authorized Emission Specialists (AESs) are trained to repair emission control components for motorists failing the emission test. The goal is to diagnose and repair vehicles in order to enhance air quality. Technicians seeking to be a part of Washington's AES program are required to attend technical training. The required classes are 40 hours and 20 hours long (Phase I and Phase II) respectively.

In the past, Ecology's Emission Check Program staff conducted a four-hour workshop on the Emission Check Program. As vehicles became more technical and testing more complex, Ecology decided to have professional trainers teach this class at technical and community colleges with automotive programs. Classes were designed to reinforce the basics of automotive emission repair and educate about proper testing procedures and program rules and regulations. EPA's regulations on the required number of hours of technical training assisted in making this decision.

Survey results: Through Ecology's "Update" newsletter, technicians requested more frequent information about needed training. They would like more knowledgeable instructors at the institutes. Training expectations are becoming more stringent and imposing. Technicians would like an opportunity to test first, then attend classes if needed.

Written materials

Written materials include a newsletter, brochures, fact sheets, direct mail pieces, display ads, letters, posters, press releases, and the AES handbook. These materials provide an avenue to get our information and messages out to a large audience efficiently and relatively inexpensively. However, one of the problems with written materials is that, even though they are widely distributed, they may not be read. Ecology education/outreach staff work with technical staff and public information officers to design and implement communication plans. These plans identify target audiences and strategies for getting messages to audiences. Strategies often include written materials that are created by regional and Headquarters staff.

Survey results: Comments received on the newsletter include:

- Provide information quarterly on classes, rule changes, and program and procedure changes.
- Provide more informal avenues for obtaining information regarding rule changes, classes, etc.

Fairs and trade shows

The Emission Check Program has used fairs to educate the public about air quality issues in their region and specifically about emission testing. Ecology staff set up booths and displays and provide staff to answer questions.

The Emission Check Program also participates in trade shows to exhibit environmental information specific to that trade or craft. In the past, staff have coordinated with the Hazardous Waste and Toxics Reduction Program to present information to the automotive industry. Exhibiting at trade shows allows the program to target a specific audience.

Programs in other states

We reviewed the Inspection and Maintenance programs of Arizona, Colorado, Oregon and British Columbia. Most of the outreach efforts are similar to those of Washington's Emission Check Program: information phone lines, written materials, technician training. However, there are some significant differences. In Colorado, the contractor, Envirotest, runs the public information and repair industry liaison portions of the program. In Oregon, the state runs the testing facilities and the public information program. Some states perform less frequent shop visits. Advertising campaigns are dissimilar – some states do annual campaigns while others put minimal funds into these services. Another difference is the use of repair effectiveness ranking by other states. All successful programs put great effort into customer service, as it is key to achieving national clean air goals.

Examples of other states' programs and procedures are given in the Technical Appendices.

Options and Recommendations

Options for enhancing customer service are described below.

Option 1: Direct technical information calls by phone function key to appropriate regional staff. AESs and repair shops could easily connect with their assigned field inspectors through a menu-driven information line that would direct calls to all four regions. Policy questions would still be directed to Headquarters. Initially, the staffed 1-800 line at Headquarters was necessary to provide quick responses to questions as the Emission Check Program expanded. Now that the program expansion is in its fifth year, the systems run efficiently and effectively, allowing field inspectors time to personally respond to regional assistance calls. Having the line handled by regional field staff would provide more personal, effective, and technically current responses to customers. Also, this personal contact keeps regional staff closer to local issues and to AESs in their area, fostering better relationships with repair shop owners and staff. This, in turn, ensure better partnerships in maintaining our state's vehicle fleet.

Although implementing this option would require some regional staff time to be taken away from field work to answer phones, the regions currently using this method feel it improves relationships with customers, contractors, and partners. The direct approach decreases customer confusion and saves Ecology time and money. Response time is also cut by having incoming calls directly channeled to the appropriate regions. Regional staff are familiar

with their shops' performance, and are therefore better able to identify issues and procedures relevant to a specific shop.

This option would result in loss of two positions at Headquarters, as well as redirection of roles and responsibilities in the regions. Costs for equipment and use would be \$100,000 or more, which could be balanced by reduced staffing costs at Headquarters.

Recommendation

Adopt this option to save time and money and improve customer relations.

Option 2: Design and implement vehicle maintenance classes for the general public.

Although Emission Check program staff have been available in the past to give presentations on request, general vehicle maintenance classes are needed by the public as a reminder and reinforcement of proper vehicle maintenance principles. This option would cut down on calls to regional offices, as information about appropriate repairs and proper maintenance would be covered in the training sessions. Classes could be set up monthly in each region on an initial start-up basis. If consistent classes were set up statewide, there would be a better chance of getting appropriate information out to the consumer. A formal procedure would need to be established to set up and conduct these classes. A process for repeatability in providing vehicle maintenance information would also need to be established. An outreach program would be needed to publicize the classes and to develop, print, distribute, and maintain Emission Check Program information and education materials.

Recommendation

Adopt this option for air quality benefits and outreach potential.

Option 3: Broadcast information at each test station via a dedicated radio channel. A dedicated radio channel would broadcast information at test stations, targeting motorists while they are waiting in line at or approaching stations. The recording could include information on type of payment needed, wait times at stations, why to leave a car running, new test procedures, rear and front-wheel drive tests, 1-800 information line number, web page information, and total savings resulting from proper vehicle maintenance. It should also encourage reducing trips in single occupant vehicles, provide assistance in computing expenses per mile, provide general education, and express appreciation for customer efforts. Currently, some of this information is provided in brochures and on registration renewal notices.

Recommendation

Set up a pilot using the AM station, and try it out at one test station.

Option 4: Ensure that emission inspections are discussed during driver training

courses. The purpose of this option is to increase awareness of the link between vehicles and pollution through Driver's Education training. Currently, Ecology has contracted with the Department of Licensing to publish a small amount of information on the Emission Check Program in the Driver's Training Handbook; however, the materials in the handbook are not part of the curriculum taught in the driver's training classes. Ecology would design a

curriculum to be included in current Driver's Training classes. Class materials would cover topics such as basic air chemistry, the air quality impacts of mobile sources, car care tips, and vehicle testing information.

Recommendation

Adopt this option as a cost-effective avenue or partnership for disseminating the air quality message.

Option 5: Decrease routine technical assistance visits to shops. Ecology field staff visit repair shops at about 90-days intervals. The purpose of the visits is to enable field staff are to determine technician's abilities to duplicate inspections, diagnose, and repair vehicles. Field staff also use this visit to determine the technicians' general attitude. Ecology currently enjoys a good rapport with the repair facilities and the Authorized Emission Specialists. Refereeing goes more smoothly and the public receives better service due to technical assistance visits.

This option would decrease the frequency of technical assistance visits to shops from quarterly to semi-annually or annually. It would also require a shift in resources: shop visits may be reduced, but referees may increase because of less effective repairs. Cost to the public in time and money may increase if there is less Ecology contact.

Recommendation

This option is not recommended for adoption. A decrease in routine technical assistance negatively affects the public, the state's air quality, and the partnerships we have established.

Option 6: Conduct routine customer surveys. This option would design and implement surveys of the motoring public to ensure customer satisfaction with the Emission Check Program. Surveys would be conducted periodically, as needed, at test stations during the emission check.

Ecology has already done one pilot survey at test stations. Motorists were given a survey card when they arrived for testing. Some of the questions could be answered as they waited, and the rest after testing. A box was placed near the exit for placing the cards into as the motorists left. Motorists also had the option of mailing the cards at a later time. In addition, Envirotest randomly surveys motorists during busier times of the month. the information they gather is not shared with Ecology, and therefore these surveys do not meet our evaluation needs.

Recommendation

Adopt this option to allow the motoring public in test areas to give feedback and information to Ecology.

Option 7: Expand the “Greeters Program.” This option would expand the authorization for a greeters program at the test stations to include additional days and stations. A greeters program has been authorized for eight of the busiest emission check stations, located in north Seattle, Bellevue, Kirkland, Tacoma, Vancouver (two stations), and Spokane (two stations). Greeters are positioned at the entrance to the stations during the last three test days of each month and on the first two test days of the following month. Greeters assist motorists when they arrive by determining if they actually need to have their vehicle tested, answering motorists’ questions, and distributing contractor-provided maps and directions to stations with shorter wait times.

Expanding this program to include more stations and more days would assist the public by answering their questions, preventing unnecessary testing, and improving customer relations. There is no effect on the fee paid by the public.

Recommendation

Authorize greeters for additional stations at times when prolonged waiting is likely to occur.

Option 8: Provide Ecology support during extended test station hours. This option would mean Ecology would provide field staff to answer questions and give technical assistance to motorists, station managers, and technicians during the test station extended hours of business (Wednesday from 6:00 p.m. to 8:00 p.m., and Saturday from 9:00 a.m. to 2:00 p.m.). Currently, regional staff is available from 7:00 a.m. to 6:00 p.m. (NWRO and ERO also have a dedicated phone person from 8:00 a.m. to 5:00 p.m. Monday through Friday). This means there are gaps on Wednesday evenings and Saturdays when regional staff is not available. The contractor has been directed to assist motorists during these time periods, and has been authorized to issue time extensions to motorists that do not meet the criteria for a repair waiver (motorists must meet criteria for a time extension as well). Time extensions allow the contractor and regional staff to discuss the situation and work with the motorist and repair facility if needed during regular Ecology staff hours. Time extensions also allow motorists to obtain license tabs and drive legally while awaiting a waiver determination.

Over the last 11 months, the average throughput for all 20 stations has been 138 vehicles on Wednesdays and 76 vehicles on Saturdays.

Recommendation

This option is not recommended. Field inspectors feel the current procedures adequately address most situations.

Option 9: Provide other services at test stations in addition to emission tests. This option would collocate the Washington State Patrol (WSP) and the Department of Licensing (DOL) at test stations to provide vehicle identification number (VIN) inspections, title transfers, and the purchasing of license tabs.

The Vancouver test station was designed and built to accommodate the WSP inspection facility. A State Patrol VIN inspection lane and office are located there. However, this space will be vacated by the WSP once a joint DOL/WSP facility is built next door.

Recommendation

Ecology is willing to accommodate other agencies if they express interest in collocating. We should renew our offer to have the testing contractor accommodate the State Patrol or the Department of Licensing or their agents if they desire to locate at a test station.

Compliance

The emission reduction from a vehicle emission inspection program depends on the number of tested vehicles that are properly repaired. Everything being equal the greater the number of vehicles tested, the greater the emission reduction achieved. The Environmental Protection Agency (EPA) model for estimating vehicle emissions includes an inspection program compliance rate. The compliance rate is the percentage of the group of vehicles selected for testing that finish the test process (either passing the test or being waived after repairs). Untested vehicles include those vehicles legally exempted such as dealer sales.

Washington has committed to EPA in its State Implementation Plan (SIP) to sufficient enforcement to ensure a 90 percent compliance rate in the Puget Sound and Vancouver test areas, and a 96 percent compliance rate in the Spokane test area.

Washington's compliance rate

Based on a limited early morning field survey of vehicles parked in several residential areas (100 vehicles in Spokane, 230 vehicles in Tacoma), it appears possible that 15 to 21 percent of the vehicles that should be tested have not been tested. The dealer exemption was found to be the largest single reason for untested vehicles.

The SIP levels of compliance are based on an audit of vehicles with a September 1990 license expiration that required an emission test. In this sample, after removing the vehicles that had not been licensed, were licensed outside the test area, or obtained an out-of-area exemption, 90 percent of the Seattle vehicles had completed the testing process. Dealer sales accounted for about half of the ten percent that had not completed the testing process. In Spokane, a 96 percent compliance rate with only a few dealer sales was found. Compliance rate check done in 1997 using this method indicated a 90 percent statewide compliance rate.

Air quality impacts of non-compliance

The impact of compliance on the effectiveness of the inspection program is greater than the number of untested vehicles alone suggests. The EPA model for estimating vehicle emissions assumes that untested vehicles have higher emissions than tested vehicles. For example, the EPA model estimates that an inspection program in Puget Sound with a 90 percent compliance rate is about 16 percent less in effective than one with a 100 percent compliance rate. An 80 percent compliance rate results in about a 28 percent loss in effectiveness.

Enforcing inspection requirements

In other states, inspection requirements are enforced either by registration denial (proof of inspection required prior to registration), comparison of registration records and inspection records to ascertain compliance, or use of an inspection sticker. The effectiveness of these three approaches can vary greatly. Enforcement using comparison of registration records and inspection records to determine compliance can be effective if cancellation of vehicle and driver licenses results from noncompliance. The use of inspection stickers can be successful when the inspection requirement applies statewide and enforcement is a priority for law

enforcement agencies. However very low compliance have been common where stickers were the only enforcement method.

Washington's enforcement methods

Washington uses registration denial to enforce the inspection requirement. Vehicles are not registered unless Emission Check requirements have been met. Ecology has the authority to impose a \$250 fine on persons who register their vehicle outside of the test area to avoid the inspection. Licensing agents may also be fined \$250 for issuing a vehicle license without requiring an emissions test.

The Department of Licensing uses the address given by the vehicle owner to determine the need for an emission test. Some licensing agents report suspicious situations to Ecology. (Example: The inspection requirement is removed by changing the registered owner's address, but the tabs are purchased with a check showing an address inside a test area.) Currently, Ecology enforcement efforts emphasize securing vehicle owner and licensing agent cooperation rather than fines. During the start-up of the program in Seattle it was necessary to fine licensing agents who were not requiring an emission test before licensing vehicles. Today, licensing agents generally follow the proper procedures by either requiring an emission test or the filing of an exemption statement. However false statements by vehicle owners still allow some vehicles to be licensed without an emission test.

Options

Options for supplementing Washington's registration denial method of enforcement are described below.

Option 1: Inspection compliance sticker. In Washington, unlike some states, there is no visual proof of inspection provided or required. A distinct license tab for vehicles that complete the inspection process could be issued. Having an inspection sticker affixed at the test station was not evaluated because of the extra cost. A visual proof of inspection would:

- Encourage voluntary compliance and reporting of noncompliance.
- Facilitate the enforcement of possible new testing requirements for vehicles routinely driven into the test area. For example, employers and public agencies, including schools, in the test areas could require an emission sticker for parking in areas under their control.

There may be some additional costs to the Department of Licensing and the licensing agents.

Option 2: Routine field compliance surveys. Field compliance surveys could be conducted on a regular basis. These surveys could be conducted by Ecology staff or by a contractor, possibly local law enforcement agencies. Field surveys would help update current knowledge of compliance levels. If enforcement action result from these surveys the public and licensing agents might believe there is a real possibility of penalties for fraudulently avoiding testing requirements. This belief should improve voluntary compliance and reporting of fraudulent avoidance of testing requirements.

Option 3: Monitor the validity of the reasons for not emission testing. Since inspection requirements are enforced by registration denial (proof of inspection required prior to registration), periodic reviews of the vehicle registration records could be done to determine the changes in the apparent levels of compliance and the reasons for non-compliance. Previous special surveys have indicated an apparent compliance level of about 90 percent. The ability to crosscheck the registered vehicle owner addresses with that of the driver would improve compliance level estimates. (See Option 5.)

Monitoring the level of compliance and the reasons for non-compliance would allow Ecology to judge where program changes and enforcement should be focused.

Option 4: Increased penalty for fraudulent noncompliance. Inspection requirements are enforced by registration denial (proof of inspection required prior to registration). Some persons will register their vehicle to an address outside the test area or make other false statements to avoid the test requirement.

Ecology has the authority to impose a \$250 fine on persons who register their vehicle outside a test area to avoid the inspection. Licensing agents may also be fined \$250 for issuing a vehicle license without requiring an emission test. Improved compliance could result if the penalty for fraudulent noncompliance was strengthened by either using denial of off-year tab as renewal back-up enforcement mechanism; or increasing the maximum fine for non-compliance from \$250 to \$1,000.

Legislation would be needed to increase the penalty or and add an additional penalty.

Option 5: Verification of vehicle registered owner address by licensing agents. Requiring licensing agents to compare the registered owner address with their driver's license before licensing a vehicle without an emission test should improve compliance emission Currently, the Department of Licensing allows vehicle owners to register their vehicle to any address. Some licensing agents, however, compare vehicle registration address with that on the payment check and inform Ecology of suspicious registrations

The Department of Licensing should automate this requirement to prevent licensing delays.

Recommendations

- Ecology should routinely monitor vehicle owner compliance by conducting field compliance surveys and computer searches of the vehicle registration records.
- Ecology should seek legislation that directs the Department of Licensing to also require an emission test of vehicles based on their registered owner's driver license address in addition to the address given on the vehicle registration.

Contractor Performance

Ensuring contractor performance

The contract for emission testing provides for damages when the contractor (Envirotest):

- fails to provide inspections;
- provides questionable inspections;
- has excessive waiting times; or
- fails to meet minimum staffing levels.

Ecology monitors test station operations to ensure accurate and timely testing. Ecology staff routinely check the accuracy of the test equipment and observe the testing procedures, staffing levels and wait time at the stations. Due to travel time and other duties, however, it is neither possible nor the best use of their time to constantly monitor station operation.

Major concerns with contractor performance

Concerns with the accuracy of the test and lane operator conduct have generally been minor and quickly dealt with by Envirotest. The major problem has been the continuing possibility of long waiting lines. Excessive waiting and the false failures that may result from prolonged waiting are the major public complaints about the Emission Check Program. The “false failure” of a vehicle results in the vehicle owner having to pay a diagnostic charge without any problem being found and returning to the test station for a retest that the vehicle now passes.

Envirotest records indicate that less than one percent of the time did customer wait time exceed 15 minutes. However, a one-time Ecology survey of vehicle owners at several busy test stations found that 72 percent waited in line one to 15 minutes and 27 percent waited 15 to 30 minutes. At the beginning and the end of the month, there is the possibility the wait for a test could be as long as an hour or more at some stations.

Options

Monitoring wait times was considered as a way to enhance contractor performance. Options for monitoring wait times without requiring Ecology staff to be present at the stations are described below.

Option 1: Video surveillance cameras. This system allows the station vehicle-waiting areas to be viewed on Ecology staff’s computers and at the test station contractor headquarter. There is the possibility that these view could be made available to the public through the Air Program’ Internet home page. Single-frame black and white cameras that do not run all the time can be used. These cameras would operate only when triggered to see how many vehicles are sitting in line. Privacy should not be an issue since the image would only be adequate to count vehicles, not to identify vehicles or the persons in them.

Option 2: Vehicle detectors. Sensors at the test station entrance and exit could count the vehicles entering and leaving the station. From this information an average wait time could continuously determined and available to the contractor and Ecology staff and possibly the public on the Internet and the station’s public message telephone line.

Option 3: Time stamp. Vehicles arriving at the test station would receive a time-stamped slip similar to those used to determine the cost of parking at some locations. This time would be scanned and entered into the data collection system to record the waiting time of each vehicle. Average waiting time at each station could be continually calculated and available to the contractor and Ecology staff and possibly the public through the Internet and the station's public message telephone line.

Recommendations

- Install video surveillance cameras at all test stations with the intent that the public will also be able to view the test station waiting areas.
- On a pilot basis, install a time-stamp system at the busiest stations.

TECHNICAL APPENDICES

Costs of Current Procedures

There are approximately 2.2 million residents impacted in our biennial program. Of the \$12 test fee, Emission Check Program receives approximately \$3.50. The staff budget, per biennium, includes 32 Full-Time Equivalent (FTE) positions: 27 regional inspectors, five outreach staff, and 10 other staff that charge to the program, totaling \$7 million. Eleven percent of the budget (or .40 cents of the \$3.50) is for outreach.

Costs associated with referee and repair shop assistance are \$115,000 per FTE. Ecology estimates about 60 percent of field inspector time is spent on these two services. We have 15 inspectors for a total of \$1,725,000.

Costs for the 1-800 information lines are \$115,000 per FTE for staff costs (\$138,000 for 1.2 FTEs). Hotline costs are \$100,000.

The cost for one FTE to coordinate technical training is \$115,000.

FTE costs associated with providing written materials and staffing of meetings and shows are \$115,000 per FTE (3.8 FTEs at \$437,000). Management and overhead costs are 2.5 FTEs at \$115,000 each, totaling \$287,500. Costs for the Update newsletter is about \$50,000 for printing of materials.

Programs in Other States

Air Care, British Columbia

Vancouver, BC

- Conditional pass
- AirCare Update – monthly newsletter

Arizona Department of Environmental Quality

Vehicle Emissions Training Unit

Alex Studem - 602-207-7008

Enhanced I/M 240, 81 and newer

- Evening workshops for technicians: 6-8 months prior to the change to I/M 240

- Contractor, Gordon Darby and state did minimal advertising, info in renewal notices, etc. They have been testing for the last 20 years, and have not funds for ad campaign
- Provided 8 hour advanced diagnostic class for technicians
- Started a program to assist technicians with difficult vehicles
- Non-mandatory technician certification in Az.
- Technicians apply to get on the list of repair facilities in the fail booklet - need 65% repair record
- Newsletter to technicians
- National train the trainer, Aspire - First and Edge class - trained community college instructors
- State trainers now work with the contractor to assist in the training of contractor inspectors to insure correct and consistent training

Colorado Department of Health - Air Quality - Science of program

Envirotest, Nancy Reubert, 303-456-7025 Runs public information aspects of program, consumer information, liaison with repair industry, except announce reg. Figures

Colorado Department of Revenue - 303-866-2216, handles complaints on repair shops, consumer protection

Envirotest:

- Repair liaison - visits, inspects shops -- 600 shops -- visit once per year
- Hotline - local exchange, don't need 1-800
- Repair effectiveness index booklet - # rating
- Fail brochures
- Quarterly repair technician night with awards to outstanding techs, to public
- Seminars for technicians
- Newsletter
- Test and train repair technicians through community colleges
- Station tours for students

- Comment cards at test stations - random, periodically give card to everyone on a given day
- 81 and older -- test bar 90 at independent stations or Envirotest, 82 and newer -- dyno, first 4 years exempt
- Annual advertising campaign -- get hotline # out, get traffic to slower test stations, calm controversy, let's clear the air campaign
- Public opinion survey - annual - when tested, start 2nd year
- Public information office committee - includes 2 oversight agencies: Health and Revenue, this committee reviews all outreach materials

Oregon Department of Environmental Quality

Vehicle Inspection Program

- Renew tabs at test station
- Emission inspection appointments during slack hours
- Enhanced emission inspection program – media campaign
- Clean Air Action Days – pollution prevention
- State run inspection stations

PUBLIC INVOLVEMENT APPENDICES

Emission Check Program Evaluation Customer Service Surveys

Data Analysis

Survey #1: How well is the staff on Ecology’s 1-800 technical information line providing service?

For questions in which respondents were asked to rate Ecology staff performance as satisfactory or needing improvement, 154 out of 182 total responses (85 percent) were “Very Satisfied.” Twenty-eight of 182 total responses (15 percent) indicated staff performance “Needs Improvement.”

Of the eight comments received about the 1-800 information line, seven (99 percent) were positive. The only negative comment was regarding difficulty in finding the information line number.

Survey #2: How well is the staff on 1-800-453-4951 (Clallam Bay) providing service?

All 30 calls were handled in a courteous manner; appropriate responses were given for questions asked; and calls were referred to Ecology appropriately.

Previously, Ecology had received a number of complaints from the public that inappropriate information was being given out over the CBCC line. These survey results show improvement.

Survey #3A: How well is the staff at the Department of Ecology’s Emission Check Program providing service to Envirotest shops managers and/or assistant managers?

Question 1: Does the staff provide information requested in a reasonable amount of time?

All 19 respondents indicated they were satisfied. All respondents said they receive a response to their requests for information within 10 minutes, with the exception of those served by SWRO. Those served by SWRO said they receive a response within two hours.

Question 2: Do they convey information to you in a way that is easy to understand?

All 19 respondents indicated they were satisfied.

Question 3: Do they remain patient and understanding?

All 19 respondents indicated they were satisfied.

Question 4: Did they follow through on any agreement that they made?

All 19 respondents indicated they were satisfied.

Question 5: Are there concerns and, if yes, what are they?

All 19 respondents expressed the same concerns: (1) a lack of consistency among regional offices regarding how waivers are handled (each regional office handles waivers differently, and individuals within the regional offices handle them differently as well); and (2) problems caused by unavailability of Ecology staff on Wednesday evenings and Saturdays when test stations are open.

One respondent also expressed the concern that information provided by Ecology is not always consistent, or distributed consistently, statewide. The respondent suggested that one contact person at Ecology and one contact person at Envirotec be established to ensure more consistent communication.

Survey #3B: How well is the staff at the Department of Ecology's Emission Check Program providing service to Clallam Bay Correctional Center? (Survey of supervisor)

The supervisor indicated a high degree of satisfaction with the performance of Ecology's information line staff for all questions asked. She indicated she receives timely information on changes or new developments in the program, and always receives a return call from Ecology staff within one day of her initial call.

Survey #3C: How well is the staff of the Department of Ecology's Emission Check Program providing service to the Department of Licensing?

In the telephone survey, two of the people contacted consistently rated their interactions with Ecology staff negatively.

The most common comments for both surveys had to do with problems with transfer of ownership testing (16 percent combined total), confusion about the new rule (13 percent combined total), and a need for more public information (13 percent combined total). All other comments received were less than 10 percent of the combined total comments.

Survey #4: How well is Ecology staff providing service to repair shops?

Question 1: Survey results indicate that the vast majority of the people surveyed (99 percent) find the Ecology representative to be courteous and respectful. The only negative response (one response) was at ERO.

Question 2: Survey results indicate that all those surveyed understand the reason for visits from the Ecology representative.

Question 3: Survey results indicate that the majority of people surveyed (95 percent) feel their concerns get resolved with the Ecology representative. The highest percentage of those who felt their concerns do not get resolved was at SWRO (21 percent).

Question 4: Survey results indicate that the majority of those surveyed (96 percent) feel comfortable challenging the concerns of the Ecology representative. The only negative responses were at ERO (three percent) and NWRO (four percent).

Question 5: Survey results indicate that the majority of those surveyed (97 percent) feel the Ecology representative provides them a service. Negative responses were at ERO (one percent), NWRO (five percent), and SWRO (one percent). Vancouver had no negative responses.

Question 6: Survey results indicate that the majority of those surveyed (96 percent) feel corrective action is carried out in a positive manner. All regional offices had between one and three negative responses. The highest percentage of negative responses was at NWRO (four percent). **This is the only question for which the Vancouver office received any negative response (one response).**

Question 7: Survey results indicate that the majority of those surveyed (98 percent) feel the time they spend with the Ecology representative is productive. Negative responses were at ERO (one percent), NWRO (three percent), and SWRO (one percent).

ERO's ratio of positive to negative responses is 98 percent positive to two percent negative; NWRO's ratio is 97 percent positive to three percent negative; SWRO's ratio is 95 percent positive to five percent negative; and Vancouver's ratio is 99 percent positive to one percent negative.

Survey #5: How well is Envirotest staff providing service at test stations?

Question 1: Did you have difficulty finding the test station?

Survey results indicate that the majority of people surveyed (90 percent) did not have difficulty finding the test stations. The highest percentages of people who had difficulty were at the Kent (22 percent), Bellevue (17 percent), Vancouver West (17 percent), Fife (15 percent), North Seattle (14 percent), Puyallup (13 percent), Tacoma South (11 percent), and Kirkland (10 percent) test stations. For all other test stations surveyed, the rate of people who had difficulty finding the station was under 10 percent.

Question 2: Which alternative payment methods would you like to use?

Survey results indicate that the majority of people surveyed (56 percent) would like to pay the test fee by check. The remainder of the responses was split almost equally between those who wanted to pay by debit card and those who wanted to pay by credit card. Many people marked more than one preference. The survey results at individual test stations are fairly consistent with

the overall results. This question did not address those people who may prefer to continue paying cash for the test.

Question 3: Would you be willing to pay a service charge for the other methods of payment?

Survey results indicate that the vast majority of people surveyed (85 percent) are not willing to pay a service charge in order to have alternative methods of payment available. The highest percentages of people who indicated they would be willing to pay a service charge were at the Auburn (22 percent) and Kent (21 percent) test stations. The lowest percentages of people willing to pay a service charge were at the Renton (seven percent) and Fife (nine percent) test stations.

Question 4: Was the staff courteous and professional?

Survey results indicate that the vast majority of people surveyed (98 percent) felt test station staff was courteous and professional. All test stations surveyed had at least 90 percent of responses indicating staff was courteous and professional.

Question 5: How many minutes did you have to wait to have your vehicle tested?

Survey results indicate that the majority of people surveyed (72 percent) waited in line one to 15 minutes. Results varied widely for individual test stations. The highest percentages of people who waited 15-30 minutes were at the Vancouver West (63 percent) and Renton (59 percent) test stations. The highest percentages of those who waited over 30 minutes were at the Pine Street (32 percent), Vancouver West (19 percent), and Fife (10 percent) test stations.

Question 6: Did you receive clear instructions during the testing procedure?

Survey results indicate that the vast majority of people surveyed (99 percent) felt they received clear instructions. Survey results at individual test stations are consistent with the overall results.

Survey #6: How well is Ecology staff providing “refereeing services” to members of the public?

All 11 respondents indicated satisfaction with Ecology staff performance.

Emission Check Program Evaluation

Focus Groups

The purpose of conducting focus group sessions was to get feedback on the proposed changes to the Emission Check Program before presenting the changes to the general public. A presentation was given to groups in King, Pierce, and Clark counties explaining the changes to the program being proposed as a result of the program evaluation, and asking for comments. These proposed changes are:

1. Exempt more new vehicles
2. Exempt vehicles older than 25 years
3. Drop the exemption for dealers
4. Pay for testing when licensing vehicles
5. Tighten test standards
6. Change to a better test in the Puget Sound area
7. Improve customer service

King County Focus Group

This group consisted of six people: two representing environmental interests, two classic car enthusiasts, one with profound knowledge of the automobile industry, and one representing the American Lung Association (health interests).

Discussion of Proposed Changes

General comments

- Explain in what areas testing is required
- Work on graphs
- Is the program really necessary?
- Show gross numbers reflecting overall emission rates in a pie chart (already done: see overhead, page 11)

1. Exempt more new vehicles

All six people in the group agreed that newer cars should be exempted from testing.

Comments:

- Warranty issue for 1995 and newer vehicles: repairs may not be covered under 8,000 – 80,000 mile warranty or 2,000 – 24,000 mile warranty

The presentation:

All six people agreed that the presentation made the idea of exempting new vehicles easy to understand.

2. Exempt vehicles older than 25 years

Three people said yes, one said no and two were undecided.

Comments:

- If this exemption is tied to the dealer exemption, once person who voted “no” would change their vote to “yes”
- Older cars are harder to repair
- People care deeply about their older cars
- Need to identify “older” cars versus “junkers”
- Make vehicle air pollution a primary offense so that the State Patrol can issue tickets for polluting

The presentation:

- Explain what .07 percent represents on the overhead
- Economies of scale
- Incentives vary
- Include a consistent scale for reference

All six people agreed that the presentation made the idea of exempting older cars easy to understand.

3. Drop the dealer exemption

The group agreed that there was not enough information available to make a decision about dropping the dealer exemption.

Comments:

- What would be the result/is it quantifiable? (Information is available to answer this.)
- Are there any drawbacks to dropping the exemption for dealer sales? (Answer: Yes. It would affect the cost of the vehicle.)
- Define “dealer” sales as opposed to “private” sales

The presentation:

The group agreed that the presentation made the idea of dropping the exemption for dealer sales easy to understand.

4. Pay for testing when licensing vehicles

Four people said no and two said yes.

Comments:

- What is the benefit of changing the method of paying for the test fee at the time of licensing? (Answer: One payment convenience.)
- Exempt vehicle owners could still have their vehicles tested if desired
- This appears to be a tax
- Don't charge the exempt vehicles

The presentation:

The group agreed that the presentation made the idea of collecting test fees when vehicles are licensed easy to understand.

5. Tighten test standards

Three people said yes, and three said no.

Comments:

- What is the benefit of tightening the test standards?
- More information is needed

The presentation:

- Use a scientific approach
- Cost/benefit analysis
- Include industry, environmentalists, etc.
- Explain what the benefits are
- More information needed
- What is the context for tightening the standards and what are the benefits?

6. Change to a better test in the Puget Sound area

Three people said yes, and three said no.

Comments:

- Are the costs for moving to the better test in the Puget Sound area worth the air quality gains?
- Demonstrate improvement in air quality
- Better collaboration is needed between dealers, industry, government, and the general public
- Need more information on cost/benefit improvements
- Take more time to work on this

The presentation:

The group agreed the presentation made the idea of changing the test easy to understand.

Comments:

- Use bullets
- Use the word “enhance” instead of “change”

7. Improve customer service

The group agreed that customer service should be improved. Two people said customer service should be improved to reduce wait time; two said direct access to regional staff should be provided; one said assistance should be increased at test stations; and one said vehicle owners should be trained on car maintenance. All participants agreed that new drivers should be educated on the benefits and consequences of car maintenance.

Comments:

- Direct access to regional staff may cause less consistency of information provided
- Identify which services are more important than others

The presentation:

The group agreed that, with further clarifications, the presentation made the proposed customer service enhancements easy to understand.

Summary

<u>Proposed change</u>	<u>Group response</u>
Exempt more new vehicles	Yes
Exempt vehicles older than 25 years	Yes, under certain conditions
Drop the dealer exemption	Yes
Pay for testing when licensing vehicles	Four yes, two no
Tighten test standards	Three yes, three no
Change to a better test in the Puget Sound area	Three yes, three no
Improve customer service	Yes

Comments:

The group agreed that the overall package of proposed changes makes sense. Four people felt that the exemptions were the most important part of the package; however, the exemptions were also listed as the element of the package that should be dropped. Paying for the test when licensing a vehicle and customer service were listed as least important. The group felt more information was needed on tightening the standard. Five people indicated they would support raising the test fee if needed; one indicated they would not.

Pierce County Focus Group #1

This group consisted of five people:

Discussion of Proposed Changes

1. Exempt more new vehicles

All five people in the group agreed that newer cars should be exempted from testing.

Comments:

- Massive miles are driven in some newer vehicles (more pollution)
- On-board diagnostics would indicate problems, but the driver may not respond appropriately
- Start with the year 2000
- 8,000 - 80,000 mile warranty would be in effect by the year 2000

The presentation:

- Graphs are needed to demonstrate the effects (for example, 10M0 tested/50failed/25 repaired)
- An explanation of ozone is needed
- Show an industry comparison

2. Exempt cars older than 25 years

Three people said yes, one abstained, and one gave incomplete participation.

Comments:

- We have to lower the numbers
- Older cars do pollute
- The “beater” is always going to be there

The presentation:

The group agreed that the presentation made the ideal of exempting older cars easy to understand.

3. Drop the dealer exemption

The group agreed that the dealer exemption should be dropped.

Comments:

- This would require legislative change
- Incurs a cost to dealers that is hard to pass on
- Would provide public protection
- There is a line-item veto available to the Governor on this

The presentation:

The group agreed that the presentation made the idea of dropping the exemption for dealer sales easy to understand.

4. Pay for testing when licensing vehicles

One person said yes and four people said no.

Comments:

- There is no benefit to changing the method of paying for the test, except to the state

The presentation:

The group agreed that the presentation made the idea of changing the method of paying for the test easy to understand.

5. Tighten test standards

The group felt they needed more information to determine whether test standards should be tightened in the Puget Sound area.

Comments:

- Use the test form as a tool
- Identify benefits
- Include industry

The presentation:

- Include graphs and diagrams with more information
- Need more information

6. Change to a better test in the Puget Sound area

Two people said yes and two said no.

The presentation:

Three people felt the presentation made the idea of changing to a better test in the Puget Sound area easy to understand; one person felt more information was needed on cost effectiveness and actual results.

7. Improve customer service

The group agreed that improved customer service should be provided. One person said customer service should be improved to reduce wait time; three said vehicle owners should be trained on car maintenance, combined with education for new drivers.

Comments:

- Increase assistance at test stations by giving more notification of times open, posting signs earlier, and staffing in the proper place

The presentation:

The group agreed that the presentation made the proposed customer service enhancements easy to understand.

Summary

<u>Proposed change</u>	<u>Group response</u>
Exempt more new vehicles	Yes
Exempt vehicles older than 25 years	Yes
Drop the dealer exemption	Yes
Pay for testing when licensing vehicles	No
Tighten test standards	Three no/More information needed
Change to a better test in the Puget Sound area	Two no, two yes
Improve customer service	Yes

Comments:

The group felt the overall package of proposed changes makes sense with changes as described. They felt the most important parts of the package are exempting more new vehicles and dropping the exemption for dealers. They felt the least important part was paying for testing when licensing vehicles, and that this element should be dropped from the package. Three people would support raising the test fee, and one would not.

Pierce County Focus Group #2

This group consisted of four people, all general public.

Discussion of Proposed Changes

1. Exempt more new vehicles

The group agreed that newer cars should be exempted from testing.

Comments:

- This would result in a revenue loss for Envirotest

The presentation:

The group agreed that the presentation made the idea of exempting new vehicles easy to understand.

2. Exempt cars older than 25 years

The group agreed that older cars should be exempted.

Comments:

- Concerns about effects on nonattainment/attainment designations

The group agreed that the presentation made the idea of exempting older vehicles easy to understand.

3. Drop the dealer exemption

After discussion, the group agreed that the dealer exemption should be dropped.

The presentation:

The group agreed that the presentation made the idea of dropping the exemption for dealer sales easy to understand.

4. Pay for testing when licensing vehicles

The group agreed that the test should be paid for when vehicles are licensed

Comments:

- Less hassle, more convenient for motorists

The group agreed that the presentation made the idea of changing the method of paying for the test easy to understand.

5. Improve customer service

The group agreed that improved customer service should be provided. They prioritized the elements of customer service to be improved as follows:

1. less wait time
2. increased assistance at test stations
3. direct access to regional staff
4. training for vehicle owners on car maintenance
5. education for new drivers

The presentation:

The group agreed that the presentation made the proposed customer service enhancement easy to understand.

Summary

<u>Proposed change</u>	<u>Group response</u>
Exempt more new vehicles	Yes
Exempt vehicles older than 25 years	Yes
Drop the dealer exemption	Yes
Pay for testing when licensing vehicles	Yes
Improve customer service	Yes

Comments:

The group felt the overall package of proposed changes makes sense. They considered exempting more new vehicles and more older vehicles, dropping the dealer exemption, and changing the method of paying for tests the most important parts of the package. They felt that improving customer service was less important. They did not feel any elements of the package should be dropped. One person would support raising the test fee if needed, depending on whether the increase would be passed on to the contractor, or to the state where necessary customer education would best take place. The remainder of the group felt the changes could probably be made to the program without increasing the test fee.

Clark County Focus Group

This group consisted of four people: two Authorized Emission Specialists, one automotive dealer, and one local government representative.

Discussion of Proposed Changes

General Comments

- What percent of carbon monoxide is contributed from vehicles? (Answer: 13 percent)

1. Exempt more new vehicles

The group agreed that more new vehicles should be exempted from testing.

Comments:

- One drawback is that the mileage will have eliminated warranty coverage by the time the cars have their first test

The presentation:

The group agreed that the presentation made the idea of exempting new cars easy to understand.

2. Exempt vehicles older than 25 years

The group agreed that vehicles older than 25 years should be exempted from testing.

Comments:

- Somewhat higher auto emissions are still contributing to air pollution
- Kids tend to “soup up” these older vehicles

The presentation:

The group agreed that the presentation made the idea of exempting older cars easy to understand.

3. Drop the dealer exemption

The group disagreed with dropping the dealer exemption.

Comments:

- What is the intent?
- Test avoidance
- The State Patrol does site inspections
- This would be a hardship for dealers; one dealer is the only one at his lot and would have to test 10-15 cars a month
- One dealer often performs pre-purchase inspections at his shop
- Some people don't realize they should not buy a vehicle unless it has passed a test
- Dealers receive \$2.50 when they do the transaction for their customers when getting license plates
- Large and small businesses would be affected
- Equipment would be too expensive to handle

The presentation:

The group agreed that the presentation made the idea of dropping the exemption for dealer sales easy to understand.

4. Pay for testing when licensing vehicles

The group disagreed with paying for testing when vehicles are licensed.

Comments:

- No fee change
- No cash only – add credit cards, checks
- Check the current charge to making credit cards and checks available, as charges are less than they were several years ago

- People will retest several times if they only have to pay once, which may be a disincentive to test
- It does not make sense to charge vehicle owners that do not need to have their cars tested
- The cost of the state reimbursing the contractor is higher than the cost of the contractor performing the operation

The presentation:

The group agreed that the presentation made the idea of paying the test fee when licensing vehicles easy to understand.

5. Tighten test standards

Three people said test standards should be tightened, and one said they should not be.

Comments:

- A very competent AES is unable to duplicate the test
- A ping-pong effect is occurring between the test station and the repair shop
- This would force shops to have a dynamometer, and a cost/benefit analysis would have to be performed

The presentation:

The group agreed that the presentation made the idea of tightening the test standards easy to understand.

6. Change to a better test in the Puget Sound area

The group did not want to offer an opinion on this part of the package.

7. Improve customer service

The group agreed that improved customer service should be provided. One person felt we should improve customer service to reduce wait time; three people felt we should provide direct access to regional staff; two people felt assistance at test stations should be increased; five people felt new vehicles owners should be educated about car maintenance; and four felt we should provide education to new drivers.

Comments:

- The region (SWRO) is understaffed, as there is a one to two day wait for a response, which creates difficulty for customers

- One difficulty is not being allowed to grant waivers if the readings themselves don't improve
- Higher wages are needed for emission test employees, as this is a challenging job due to weather, hours, customers (the incentives issue was explained)
- One person indicated their repair shop had considered withdrawing from the program

The presentation:

The group agreed that the presentation made the idea of improved customer service easy to understand.

Summary

<u>Proposed change</u>	<u>Group response</u>
Exempt more new vehicles	Yes
Exempt vehicles older than 25 years	Yes
Drop the dealer exemption	No
Pay for testing when licensing vehicles	No
Tighten test standards	Three no, one yes
Change to a better test in the Puget Sound area	No opinion
Improve customer service	Yes

Comments:

The group felt the overall package of proposed changes makes sense with changes as described. They felt the most important part of the package was exempting more new vehicles. They felt the least important parts were dropping the dealer exemption, paying for testing when licensing vehicles, and tightening the test standards. The group would support raising the test fee if needed.

