Fee Analysis for AirCheck Texas Vehicle Emission Inspection Program:
Austin
El Paso
Houston-Galveston-Brazoria
Dallas/Fort Worth
Nonattainment Areas

Prepared for:

Texas Commission on Environmental Quality
Austin, TX 78711

Prepared by:

Eastern Research Group, Inc.
Austin, TX 78731
Lexington, MA 02421

August 31, 2007

TCEQ Contract No. 582-07-84004-02
Work Order No. 2

TABLE OF CONTENTS

LIST OF TABLES

EXECUTIVE SUMMARY

ES.1 BACKGROUND

As of 2007, vehicles in four regions of the state must undergo annual air emissions testing through the Texas Inspection and Maintenance Program administered by the Department of Public Safety and the Texas Commission on Environmental Quality (TCEQ). These regions are: (1) Austin, (2) El Paso, (3) Houston-Galveston-Brazoria (HGB), and (4) Dallas/Fort Worth (DFW). Independently owned and operated inspection stations are permitted to charge up to $16.00 (Austin), $14.00 (El Paso), or $27.00 (other regions) per emissions test, with a provision for one free re-test within 15 days for failing vehicles. The Texas Legislature charged TCEQ with the need to balance the two major competing interests in the inspection industry—inspection stations and motorists. Inspection stations have an interest in generating a reasonable rate of return on their investments in the program, while motorists have an interest in obtaining required emissions inspections at the lowest necessary cost and inconvenience. TCEQ contracted Eastern Research Group, Inc. to survey the inspection stations in these regions and to evaluate the adequacy of the fee.

ES.2 SURVEY

TCEQ provided inspection station data for the 12-month period of May 1, 2006 through May 1, 2007. We first divided the stations by region, regardless of whether they offered testing only or both testing and repair services (Test-only or Test-and-Repair). Next, we divided the stations by the type of test equipment. In Houston-Galveston-Brazoria (HGB) and Dallas/Fort Worth (DFW) , the types of test equipment are on-board diagnostics only [OBD-only] or both acceleration simulation mode and OBD [ASM/OBD]. In Austin and El Paso, the types of test equipment are OBD and/or Two-Speed Idle [TSI].

In the HGB and DFW regions, a substantial portion of the population occurred in one stratum—Test-and-Repair ASM/OBD. We divided this stratum into four substrata. Three substrata are based on the annual number of initial inspections (less than 2,000; between 2,000 and 5,000; and more than 5,000 inspections) while the fourth isolated stations that began testing in 2007 (and therefore might not represent a full year of operation). The sampling plan is described in Appendix A.

We developed two survey instruments, each with three regional variations. The survey instruments are based on the business model, that is, Test-Only facilities and Test-and-Repair facilities. The regional variations correspond to the test fees of $14.00 (El Paso), $16.00 (Austin), and $27.00 (HGB and DFW) and the equipment used (OBD, ASM, TSI, or a combination thereof). The survey instruments are included in Appendix C.

TCEQ is required to analyze the test fees on a biannual basis, providing the opportunity to generate data for future time series analyses, if appropriate. To ensure year-to-year comparability in terms of question, content, and wording, the survey instruments are very similar to that used in the 2005 analysis (ERG, 2005).

ERG administered the survey in both paper and electronic format. The respondent could log into a Web-based survey instrument via a user identification number and unique password. The combination directed the respondent to the appropriate business model and regional variation of the survey. We found, however, that less than seven percent of the respondents used the electronic format.

The survey design included several contacts with the respondents: a prenotification letter, the survey package including cover letter and survey, a follow-up post card, and a secondary mailing of the survey if necessary. The overall response rate was 27 percent and ranged from 15 percent to 36 percent among the strata. In addition, three percent of the surveys were returned as "not deliverable." Appendix B presents the methodology for adjusting the survey weights for reclassification and non-response.

ES.3 SURVEY FINDINGS

We analyzed responses for Austin and El Paso separately. Testing is new to both areas and different fees apply in each area. In contrast, testing has been underway for several years in the HGB and DFW regions, and the 2005 analysis indicated that data from these regions could be pooled for analysis.

Observations include:

- The program in Austin is new and only a partial year of inspection data is available. The typical monthly volume of inspections has a very strong effect on the ability of a station to recover both variable and fixed costs. At the time the data were downloaded for the analysis, a station that added building space to accommodate emissions testing might not test a sufficient number of

vehicles in order to cover the fixed costs of the building addition. However, as the program becomes more established and stations increase the number of inspections, this situation is expected to ease. If a station did not incur costs to add space, the fee covers costs at a lower volume of inspections (i.e., ~130/month).

- It was not uncommon for stations to report maintenance costs beyond what was paid for the maintenance warranty. The median additional maintenance costs ranged from $800 to $2,000 per station for calendar year 2007.

- A small number of stations are taking advantage of the ability to charge less than the cap on the emissions fee.

We examined the adequacy of the fee by (1) evaluating what the respondents said in the surveys, (2) modeling the costs for typical stations in each stratum, and (3) examining the number of stations joining the program over time.

Table ES-1 provides the percentage of stations in each stratum that said:

- The fee covered the costs of emissions testing.
- The station performed inspections without charge and beyond the 15-day retesting period.
- The station offered testing at a fee less than the regional cap.

The last two questions were worded "did you ever..." that is, the survey responses indicate that free and reduced-fee inspections happen but do not indicate the frequency with which such inspections happen.

All Test-Only stations in Austin reported that the fee did not cover costs. Only 14 percent of Test-and-Repair stations said the fee covered the costs. This is consistent with a new program getting underway and less than a full year's data on the number of inspections for these stations. Once established in the market, it is likely that test volumes will increase for many stations, thereby increasing their ability to cover costs with the existing fee.

Station owners in the El Paso region were more positive than their counterparts in Austin. In this case, 14 percent of Test-Only stations and 40 percent of Test-and-Repair stations reported that the fee covered the costs. In the HGB-DFW region, nine out of ten OBD-only stations reported that the fee covered the costs. The percentage drops to 38 when a Test-only station offered both OBD and ASM testing. This is consistent with the comment that the fee covered OBD testing but not ASM testing (see Section 6). If a station in this region offered both testing and repair services, 43 percent of the OBD-only

stations reported that the fee covered the costs. If a Test-and-Repair station offered both OBD and ASM testing, between 18 and 28 percent of the stations reported that the fee covered the costs. The number of inspections performed appears not to have a large effect on the percentage of stations that report the fee covers the costs.

Table ES-1. Percentage of Respondents Claiming Test Fees Cover Their Costs

Conceptual Model	Test Type	Number of Inspections Per Year	Fee Covers Costs	Free Inspections Given	Fee Less Than Cap Charged
Austin Test-Only			0%	14%	14%
Austin Test-and Repair			14%	14%	0%
El Paso Test-Only			40%	40%	0%
El Paso Test-and Repair			14%	29%	10%
HGB and DFW Test-Only	OBD-only		93%	37%	57%
	ASM/OBD		38%	35%	12%
HGB and DFW Test-and-Repair	OBD-only		43%	16%	4%
	ASM/OBD	<= 2000	18%	21%	9%
		2000<x<=5000	21%	47%	12%
		>5000	21%	47%	12%
		began in 2007	28%	0%	0%

ERG developed nine model stations (two for Austin, two for El Paso, and five for the HGB-DFW region) using median values from the survey. These models are discussed in more detail in Section 7. For eight of the nine model stations, the fee appears adequate to cover costs. For the ninth model, whether the fee permits a station to recover its fixed and variable costs depends on whether a station needed to add building space to accommodate testing, and the number of inspections performed. As the program becomes more established and stations increase the number of inspections performed, the fee is more likely to cover costs.

From the survey comments, free inspections appear to be given to avoid complaints from people whose vehicle failed an initial inspection but returned to the station after 15 days for retesting. Other responses indicate free emissions tests were given to local emergency vehicles or charity cases. Based on these responses, free inspections do not appear to be a "loss leader" to draw in business for other station operations.

When a station offers emissions tests at less than the regional cap, the station is more likely to be relatively new (i.e., started testing in 2007), to establish a new business or to increase the number of inspections to better cover fixed costs.

TCEQ keeps records of the number of active inspection stations. The counts for the HGB-DFW region from the TCEQ Vehicle Identification Database (VID) were:

- April 29, 2003: 2,246 stations
- April 30, 2004: 2,692 stations
- April 30, 2005: 2,849 stations
- May 1, 2007: 2,969 stations

There is a net growth in the number of stations in these areas offering emissions testing with a 20 percent increase from 2003 to 2004, a 6 percent increase from 2004 to 2005, and a 4 percent growth from 2005 to 2007. The slowing rate of increase in the number of stations offering emissions testing is indicative of a maturing market.

ERG also investigated how often a vehicle that failed an emissions test did not return to the station for a re-test. In this case, the station collected the fee but did not have to pay the state for a sticker. From the survey responses, this appears happen at many stations but for a relatively small number of vehicles. Thus, they do not appear to constitute a major revenue stream for the station. Comments from the station owners indicate that they consider the free re-tests as uncompensated costs because they still incur the labor, materials, and fixed costs. However, the requirement to provide a free retest within 15 days was known to the station owner prior to the decision to offer emission testing. Thus, the effort involved in retests should have been taken into account in the decision whether to offer testing at the station. An examination of TCEQ test database revealed that the number of re-inspections exceeds the number of failed inspections; however, this may reflect how a station records a free inspection (see Table ES-1).

1. INTRODUCTION

The Texas Inspection and Maintenance Program (I/M) is administered by two Agencies—the Department of Public Safety (DPS) and the Texas Commission on Environmental Quality (TCEQ). The I/M program relies on a system of independently owned and operated inspection stations. A station must offer safety testing in addition to an emissions inspection to participate. This study focuses on four regions: Austin, El Paso, Houston-Galveston-Brazoria (HGB), and Dallas/Fort Worth (DFW). Stations are permitted to charge for the safety inspection and up to a set fee for the emissions testing. Table 1-1 lists the safety and emissions testing fees for each region.

Table 1-1. Safety and Emissions Testing Fees

Region	Safety Inspection Test Fee	Emission Inspection Test Fee (Maximum)	Total Inspection Fee (Maximum)
Austin	$12.50	$16.00	$28.50
El Paso	$12.50	$14.00	$26.50
HGB	$12.50	$27.00	$39.50
DFW	$12.50	$27.00	$39.50

The Texas Legislature charged TCEQ with the need to balance the two major competing interests in the inspection industry—inspection stations and motorists. Inspection stations have an interest in generating a reasonable rate of return on their investments in the program, while motorists have an interest in obtaining required emissions inspections at the lowest necessary cost and inconvenience.

Section 2 outlines four conceptual business models for participating stations in the I/M program. This, in turn, structures how we stratify the population of emissions inspection stations (Section 2.2, sample design) and the questionnaires (Section 2.3, survey design).

The survey findings are presented in separate sections by region. Section 3 presents the data from Austin while Section 4 presents the data from El Paso. Data for HGB and DFW are presented on a combined basis in Section 5. Section 6 provides a preliminary discussion of the factors identified by stations as contributing to an inability to cover the cost of offering emissions inspections. ERG developed a series of model emission testing stations from the survey and TCEQ data. These are presented in Section 7

2. METHODOLOGY

2.1 CONCEPTUAL BUSINESS MODELS

The study begins with the conceptual business models for stations that offer I/M services. This discussion is based on work done by Texas A&M University (TAMU, 2004). The models are then compared to the data in the TCEQ data sets and collected by the survey (see Sections 2.2 and 2.3). Figure 2-1 illustrates the four conceptual business models. For the HGB and DFW regions, these models are based on whether or not the station (a) offers repair services in addition to testing, and (b) performs Acceleration Simulation Mode (ASM) testing for 1995 and older vehicles in addition to Second Generation On-Board Diagnostics (OBD) testing for 1996 and newer vehicles. The conceptual business models for Austin and El Paso differ only in the type of emission testing offered—Two Speed Idle (TSI) and/or OBD testing.

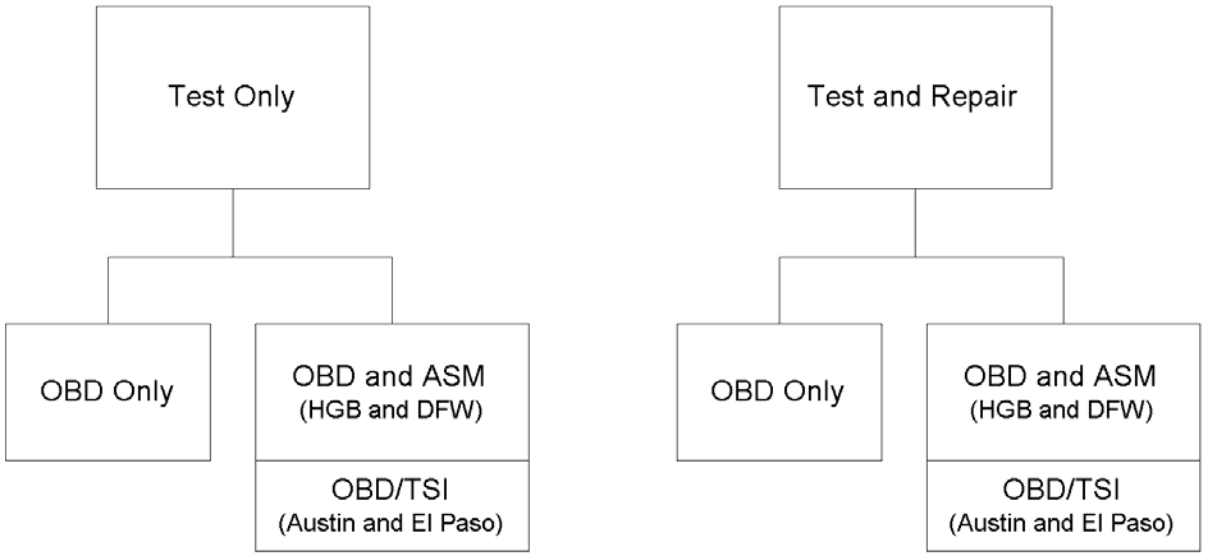

Figure 2-1. Conceptual Business Models

2.1.1 Test-Only

Test-Only stations offer only safety and emissions testing services. These stations must generate sufficient revenue solely from testing services to cover all costs plus a reasonable return to stay in

business. Conceptually, then, these stations would be expected to perform a substantially larger number of tests than Test-and-Repair stations (see Section 2.1.2 below) because they do not have other revenue streams, such as repairs.

The Test-Only category is subdivided by whether or not ASM or TSI testing is offered. ASM testing is performed on 1995 and older gasoline-powered vehicles (up to 24 years old) and involves measuring a vehicle's emissions while it is driven at constant loads and speeds on a dynamometer. ASM equipment ranges in price between $32,500 and $37,000. TSI testing involves testing tailpipe emissions at a high-speed phase (2200-2800 RPM) and an idle phase (350-1200 RPM). TSI/OBD analyzers cost between $14,500 and $16,500. In contrast, OBD equipment downloads information from a vehicle's computer pertaining to the performance of the emissions control equipment, fuel metering system, and ignition system. OBD-only test equipment used in I/M programs generally ranges from $7,000 to $9,000. A station may choose to offer only OBD testing, however, the station is limited by law to 1,200 inspections or fewer per year. Hence, a Test-Only/OBD-only station and a Test-Only/ASM&OBD station may have different conceptual business models due to the larger investment needed for a station to offer either ASM or TSI with OBD testing.

2.1.2 Test-and-Repair

"Test-and-Repair" stations have a second income stream from the repair of vehicles. For these stations, the cost of testing emissions may be considered a "cost of doing business" in order to attract repair work. That is, for Test-and-Repair stations, it is desirable but not necessary for the emissions testing fee to cover all emissions testing costs. As with the Test-Only category, Test-and-Repair stations are subdivided by whether or not ASM or TSI testing is offered in addition to OBD testing.

2.1.3 Non-market Business Models

In the 2005 analysis, ERG identified facilities that performed emissions testing but were highly unlikely to participate in market transactions for this service (ERG, 2005). One group of facilities serviced government vehicles while a second group serviced their own fleets. Examples of the former include the U.S. Postal Service and examples of the latter include Verizon, Federal Express, and UPS. For these companies, emissions testing is done as part of their cost of business (i.e., to maintain their fleet

of vehicles) and the operators do not offer these services to the public. For these business models, the question of whether the fee is adequate is not germane. Thus, we removed them from the sample frame prior to drawing the sample for the survey (see Section 2.2 and Appendix A for more details).

OBD-only stations participate in a constrained market because there is a cap on the number of inspections they can perform. However, if the average number of inspections per OBD-only station is well below the cap, the cap has a minimal effect on the market.

2.2 SAMPLE DESIGN

We designed a stratified sampling plan for this project (Table 2-1). The three primary strata are:

- Region—Austin, El Paso, HGB, and DFW
- Business Model—Test-Only or Test-and-Repair
- Equipment—OBD-only, or OBD with ASM or TSI

We further stratified the Test-and-Repair ASM/OBD stratum for the HGB and DFW regions based on the number of inspections and whether they had begun offering services in 2007. Sample weights for observations within a stratum are the inverse of the sampling fraction for that stratum. We corrected the sampling weights for non-response, out-of-business, and misclassification (e.g., a station in TCEQ's database as a Test-Only station reports doing repairs as well), see Appendix B.-

Table 2-1. Sampling Plan

Station Type	Equipment	Number of Inspections	Population				Sample				Sample Percent			
			Houston-Galveston-Brazoria	Dallas-Fort Worth	Austin	El Paso	Houston-Galveston-Brazoria	Dallas-Fort Worth	Austin	El Paso	Houston-Galveston-Brazoria	Dallas-Fort Worth	Austin	El Paso
Test Only	OBD		120	112	33	47	60	56	33	47	50.0%	50.0%	100.0%	100.0%
	ASM/TSI/OBD		333	377			67	75			20.1%	19.9%		
Test and Repair	OBD		301	362	271	134	61	72	68	60	20.3%	19.9%	25.1%	44.8%
	ASM/TSI/OBD	<2000	306	323			60	64			19.6%	19.8%		
		2000<x <5000	257	311			52	62			20.2%	19.9%		
		>5000	49	65			49	65			100.0%	100.0%		
		began in 2007	16	27			16	27			100.0%	100.0%		
Subtotal			1382	1577	304	181	365	421	101	107				
Grand Total						3,444				994				

2.3 SURVEY DESIGN

2.3.1 Survey Instrument

We developed two survey instruments; Test-Only stations and Test-and-Repair stations. For each instrument, we developed three regional variants. These are included in Appendix C. The survey focused on information that is not otherwise obtainable from TCEQ and DPS databases or for which general estimates are not available from public sources. These data sources are discussed in more detail in Section 7. Seventeen questions are common to both forms with seven additional questions for the Test-and-Repair facilities.

Question 1 is a screening question to remove stations that no longer offer testing.[1] Question 2 asks the respondent to identify its revenue streams. If the station is in the survey, we know it has a revenue stream from emissions testing. We ask the station to identify whether it is a Test-Only or a Test-and-Repair facility, and whether it has any other revenue streams.[2] Question 3 was tailored to each region. Surveys sent to HGB and DFW asked the station to identify whether it offers ASM testing in addition to OBD testing. Surveys sent to Austin and El Paso asked respondents to check boxes to identify whether they offered OBD, TSI, or both types of testing.[3] The responses to Questions 2 and 3 are also used to correct misclassifications in the original sample frame.

The costs of offering emissions inspections are incremental to the costs of offering safety inspections. Therefore, we included questions about whether they incurred capital expenses (equipment, associated tools, space, or land) or staff to begin offering emissions testing. If no expenses were incurred, such as building additional space or hiring additional mechanics, there is still an opportunity cost associated with the use of existing space and staff. If staff and garage space is occupied performing emissions tests, they cannot be used to repair vehicles or change oil.

---

[1] One respondent returned the survey after identifying that the station did not offer emissions testing.

[2] The third revenue stream, whatever it might be, might be supporting the rest of the business. In New England, for example, store sales may account for as much as 60 percent of gas station profits (Belkin, 2005).

[3] Although all stations in the Austin and El Paso regions should have checked both boxes, i.e., they offer both OBD and TSI testing, not all of them did so.

We asked about the number of inspectors on the staff, whether they were full- or part-time, and wage rates. For Test-and-Repair stations, we also asked the proportion of time spent performing emissions testing by full- and part-time inspectors.

We asked how the station financed the purchase of emissions inspection equipment, the lease-to-purchase or loan period, and the interest rate. We asked about equipment maintenance package costs and whether costs beyond the package were incurred to maintain the equipment. These factors form costs that must be recovered when considering whether the fee is adequate.

A station owner can charge up to the cap allowed for emissions inspection fees ($14.00, $16.00, or $27.00 depending on the region) and has the option of charging less than that figure to optimize staff use or smooth peak demand. We asked whether the station owner ever charged less than the fee cap and, if so, what was the lowest amount charged. We also asked whether the station owner thought the cap fee covered the costs of offering emissions inspections at the station. Asking whether a station owner recovered costs is not the same as asking whether a station owner considers offering the service to be profitable; we do not know what level of return is needed for the station owner to consider an enterprise "profitable" rather than "making a living" or "breaking even."

Several questions were directed specifically to Test-and-Repair stations. These included whether the station had space dedicated solely to emissions testing, the proportion of repair revenues directly related to emissions testing, the monthly frequency of such repair jobs, and a typical cost associated with a failed emissions test. These questions provide us with an understanding of the relative importance of the emissions testing to the repair work done at the station. Previous survey efforts by ERG indicate that people are unlikely to respond to direct questions concerning income.

2.3.2 Survey Implementation

The survey instruments were pre-tested for the 2005 effort (ERG, 2005). Due to the time frame for the project, we used a modified Tailored Design Method (Dillman, 2000) with four contacts:

- Prenotification letter
- Cover letter and survey
- Follow-up postcard

- Re-mailed survey.

We also set up an e-mail address and telephone number for the survey effort. Very few people made use of either option. In two cases, the station owner received the prenotification letter and asked for the information to complete the survey online. In one case, we got a complaint from a person to stop sending the repeated requests for survey information to several stations and to redirect all inquiries to him. When he learned that 13 stations in the franchise were in the sample, he refused to complete the survey. The choice of the one individual markedly affected the response rate for the particular stratum.

After adjusting for reclassification, the response rates varied from 2 to 44 percent. The response rates by region and stratum are reported in Appendix B, where they are used to adjust the survey weights for the respondents.

3. AUSTIN SURVEY RESULTS

Questions 1 through 3 in each survey ask the station owner to provide data to confirm it has been placed in the correct stratum. Question 4 asked the year in which the station first offered emissions testing. Responses for these questions have not been tabulated. All results reported below have been weighted using techniques outlined in Appendix B. Not all respondents answered every question. When a respondent did not answer a question it is listed as missing.

3.1 STARTUP COSTS AND HIRING

Questions 5 and 6 asked station owners about costs and hiring needed to begin offering emissions tests. Tables 3-1 and 3-2 correspond to Question 5 in the survey. Table 3-1 reports the number of stations that added equipment, tools, space, or land before they began performing tests. Table 3-2 provides statistical data on the amount spent on these items. For both strata, testing equipment was purchased most often and land the least. In Table 3-2 costs were generally higher for stations offering both types of testing.

Table 3-1. Items Added or Acquired When Emissions Testing Was Offered

	Frequency			Percent		
	Yes	**No**	**Missing**	**Yes**	**No**	**Missing**
TEST-ONLY						
Emissions Testing Equipment	49	-	-	100%	0%	0%
Tools and Other Equipment	13	8	28	26%	17%	57%
Building Space	6	8	35	11%	17%	71%
Land	1	6	42	3%	11%	86%
TEST-AND-REPAIR						
Emissions Testing Equipment	255	0	0	100%	0%	0%
Tools and Other Equipment	146	61	49	57%	24%	19%
Building Space	73	121	61	29%	47%	24%
Land	12	170	73	5%	67%	29%

Table 3-2. Additional Costs for Added or Acquired Items

	Average	Median	Mode	Minimum	Maximum
TEST-ONLY					
Emissions Testing Equipment	$17,188	$17,000	$15,000	$15,000	$22,000
Tools and Other Equipment	$567	$400	--**	$300	$1,000
Building Space	$49,000	$49,000	--**	$18,000	$80,000
Land		--*		$15,000	$15,000
TEST-AND-REPAIR					
Emissions Testing Equipment	$18,205	$17,000	$16,000	$14,000	$40,000
Tools and Other Equipment	$1,814	$1,000	--**	$250	$9,000
Building Space	$7,166	$4,500	--**	$1,500	$20,000
Land		--*		$20,000	$20,000

* Population estimates cannot be calculated due to small sample size.

** More than one mode

Tables 3-3 and 3-4 report data collected in Question 6. The question asked if the station needed to add staff, such as inspectors, mechanics, or supervisors before offering testing. If a station hired staff, they were asked how many of each type were hired. Table 3-3 provides the number of stations that added staff, by job type, while Table 3-4 details the numbers of employees added for each category.

Inspectors were hired the most frequently with much lower totals reported in other categories. When hiring took place, stations usually took on one person, although 12 stations reported adding 4 inspectors.

Table 3-3. Additional Staff When Station Began Offering Emissions Testing

	Frequency			Percent		
	Yes	No	Missing	Yes	No	Missing
TEST-ONLY						
Inspectors	35	14	-	71%	29%	0%
Other Mechanics	7	35	7	14%	71%	14%
Supervisors	-	42	7	0%	86%	14%
Others	-	42	7	0%	86%	14%
TEST-AND-REPAIR						
Inspectors	170	73	12	67%	29%	5%
Other Mechanics	36	121	97	14%	47%	38%
Supervisors	24	121	109	9%	47%	43%
Others	12	134	109	5%	53%	43%

Table 3-4a. Number of Staff Hired When the Facility Began Offering Emissions Testing

Employee Type	Number	Frequency	Percent
TEST-ONLY			
Inspectors	1	28	57%
	3	7	14%
	Missing	14	29%
	Total	**49**	**100%**
Other Mechanics	1	7	14%
	Missing	42	86%
	Total	**49**	**100%**
Supervisors	--*		
Others	--*		

* Population estimates cannot be calculated due to small sample size.

Table 3-4b. Number of Staff Hired When the Facility Began Offering Emissions Testing

Employee Type	Number	Frequency	Percent
TEST-AND-REPAIR			
Inspectors	1	97	38%
	2	49	19%
	3	12	5%
	4	12	5%
	Missing	*85*	*33%*
	Total	**255**	**100%**
Other Mechanics	1	24	9%
	2	12	5%
	Missing	***219***	***86%***
	Total	**255**	**100%**
Supervisors	1	24	10%
	Missing	*231*	*90%*
	Total	**255**	**100%**
Others	2	12	5%
	Missing	*243*	*95%*
	Total	**255**	**100%**

3.2 CURRENT EMPLOYMENT AND WAGES

Questions 7 through 9 collected data on how many people are currently employed at the facility and their average salary. The survey asked about average wages by job category in Question 7. Results in dollars per hour are reported in Table 3-5. The median and mean wages for inspectors fell between $10 and $14 dollars per hour for both strata. Data are provided for other job categories, but the number of observations in each is low, so numbers provided should be viewed cautiously.

Table 3-5a. Current Wage Paid ($/hr)

	Average	Median	Mode	Minimum	Maximum
TEST-ONLY					
Inspectors	$11.13	$10.00	$10.00	$10.00	$16.80
Other Mechanics	$9.50	$9.50	--**	$9.00	$10.00
Supervisors	--*			$15.00	$15.00
Others	--*				

* Population estimates cannot be calculated due to small sample size.
** More than one mode.

Table 3-5b. Current Wage Paid ($/hr)

	Average	Median	Mode	Minimum	Maximum
TEST-AND-REPAIR					
Inspectors	$13.95	$12.50	--**	$8.00	$30.00
Other Mechanics	$22.31	$20.00	--**	$12.50	$32.00
Supervisors	$22.40	$21.35	--**	$12.50	$40.00
Others	--*			$12.50	$12.50

* Population estimates cannot be calculated due to small sample size.
** More than one mode.

For Question 8 respondents listed the number of inspectors currently employed by the station. The results listed in Table 3-6 report the frequency of responses. More than half of the Test-Only stations have three emissions inspectors. None of the Test-Only stations reported having more than four inspectors. Test-and-Repair stations typically have two inspectors but may have as many as five inspectors.

Table 3-6. Number of Emissions Inspectors Currently Working at the Station

Number	Frequency	Percent
TEST-ONLY		
1	7	14%
2	7	14%
3	28	57%
4	7	14%
Missing	0	0%
Total	**49**	**100%**
TEST-AND REPAIR		
1	24	10%
2	109	43%
3	85	33%
4	12	5%
5	24	10%
Missing	*0*	*0%*
Total	**255**	**100%**

For Question 9, the respondent listed the number of full- and part-time employees. Table 3-7 indicates that typical Test-Only and Test-and-Repair stations have two to three full-time emissions inspectors. About half of the Test-Only stations have one part-time inspector (Table 3-8) who worked either 10 or 20 hours per week (Table 3-9). The frequency of missing values for the Test-and-Repair stations make the data somewhat difficult to interpret, but the results suggest that the stations primarily employ full time employees.

Table 3-7. Number of Full-time Emissions Inspectors

Number	Frequency	Percent
TEST-ONLY		
1	7	14%
2	28	57%
3	14	29%
Missing	0	0%
Total	**49**	**100%**
TEST-AND-REPAIR		
1	36	14%
2	121	48%
3	61	24%
4	12	5%
5	12	5%
Missing	*12*	*5%*
Total	**255**	**100%**

Table 3-8. Number of Part-time Emissions Inspectors

Number	Frequency	Percent
TEST-ONLY		
0	12	25%
1	25	50%
2	12	25%
Missing	-	0%
Total	**49**	**100%**
TEST-AND-REPAIR		
0	24	10%
1	24	10%
2	12	5%
3	12	5%
Missing	*182*	*71%*
Total	**255**	**100%**

Table 3-9. Work Hours of Part-time Emissions Inspectors

Number	Frequency	Percent
TEST-ONLY		
10	25	50%
20	25	50%
Missing	-	0%
Total	**49***	**100%**
TEST-AND-REPAIR		
5	12	5%
15	12	5%
20	12	5%
Missing	*219*	*85%*
Total	**255**	**100%**

* Numbers do not sum due to rounding of survey weights.

At this point, the Test-and-Repair and the Test-Only questionnaires differ. The Test-and-Repair questionnaire asked two additional questions about the proportion of time the inspectors spend performing inspections. For these Test-and-Repair stations Table 3-10 reports the data for full-time inspectors while Table 3-11 reports the data for part-time inspectors.

Table 3-10. Of Inspectors That Work Full-Time, How Many Spend…?

Percent of Time Performing Inspections	Median	Mode	Minimum	Maximum
50 % or more	2	1	1	3
About 25%	1	1	1	3
About 15%	1	1	1	2
About 10%	2.5	--**	1	4
About 5% or less	2.5	--**	2	3

** More than one mode.

Table 3-11. Of Inspectors That Work Part-Time, How Many Spend…?

Percent of Time Performing Inspections	Median	Mode	Minimum	Maximum
50 % or more	1.5	--**	1	2
About 25%	2	--**	1	3
About 15%	1	--**	0	2
About 10%	--*			
About 5% or less	--*			

** More than one mode.

3.3 DEDICATED EMISSIONS TESTING SPACE

Test-and Repair facilities were asked what percent of the total workspace was used only for emissions testing. The bay must be readily available for an inspection. The space may be used for other activities as long as it does not interfere with the inspection process, e.g., washing a car or changing oil if no one is waiting for an inspection. However, there may be an opportunity cost to the space if it is used for such activities or remains idle for a substantial portion of time. Table 3-12 presents the responses. Depending on the station, anywhere from zero to half of the workspace is dedicated to emissions testing.

Table 3-12. Percent of Workspace Used Only for Emissions Testing

Mean	Median	Mode	Minimum	Maximum
19%	20%	--**	0%	50%

3.4 REPAIR OPERATIONS

The survey asked three questions relating to repair operations at Test-and-Repair facilities. These are:

- What proportion of the repair revenues at the station result directly from failed emissions inspections? (Table 3-13)
- In any given month, what is the typical number of repair jobs from failed emissions tests? (Table 3-14)
- What is the typical repair cost for an emission test failure? (Table 3-15)

For the large majority of stations, less than 10 percent of total repair revenues result directly from failed emissions tests. Nearly 20 percent of the stations did not respond to this question. However, for those that responded, stations do not rely on failing vehicles to generate most of the station's repair revenues. The median number of failed inspections that result in repair work for the station is five per month with a typical cost of $250 per repair.

Table 3-13. Proportion of Repair Revenues Results From Failed Emission Inspections

Proportion of Repair Revenue	Frequency	Percent
0%	24	10%
Less than 10%	158	62%
About 25%	24	10%
About 50%	0	0%
About 75%	0	0%
Between 75% and 95%	0	0%
More than 95%	0	0%
Missing	49	18%

Table 3-14. Typical Number of Repair Jobs per Month Resulting from Failed Emissions Tests

Mean	Median	Mode	Minimum	Maximum
8	5	20	0	20

Table 3-15. Typical Repair Cost for an Emissions Test Failure

Mean	Median	Mode	Minimum	Maximum
$263	$250	--**	$0	$500

3.5 FINANCING EQUIPMENT PURCHASES

From this point on, the Test-Only and Test-and-Repair surveys contain the same questions.[4] Table 3-16 reports the findings on how the station owner financed the purchase of emissions testing equipment. For the Test-Only stations, nearly 60 percent of the stations have a "lease-to-purchase" agreement with the vendor. About 30 percent pf the stations used a bank loan to purchase the equipment and the remaining 14 percent paid cash. For Test-and-Repair stations, about 30 percent paid cash, an

[4] The number for a particular question now differs between the Test-Only and Test-and-Repair surveys.

additional 30 percent took a bank loan, and the remainder used a lease-to-purchase agreement with the vendor.

Table 3-16. Financing Mechanisms for Purchasing Emissions Testing Equipment

Finance Type	Number of Stations	Percent
TEST-ONLY		
Paid Cash	7	14%
Lease-to-Purchase Agreement Arranged with Vendor	28	57%
Loan from Bank	14	29%
TEST-AND-REPAIR		
Paid Cash	73	29%
Lease-to-Purchase Agreement Arranged with Vendor	109	43%
Loan from Bank	73	29%

The next two questions were targeted at owners who took out a loan or entered into a lease-to - purchase agreement. Those who paid cash were excluded from this analysis. Table 3-17 indicates that a 5-year term is the most common arrangement. No one reported paying more than 15 percent in interest and the most commonly reported interest rate is 12 percent.

Table 3-17. Lease-To-Purchase or Bank Loan Term (Years)

Business Model	Average	Median	Mode	Minimum	Maximum
TEST-ONLY	5	5	5	3	5
TEST-AND-REPAIR	4	5	5	0	10

Table 3-18. Interest Rate for Lease-To-Purchase or Bank Loan

Business Model	Average	Median	Mode	Minimum	Maximum
TEST-ONLY	9%	9%	12%	0%	15%
TEST-AND-REPAIR	8%	8%	--**	0%	15%

** More than one mode.

3.6 MAINTENANCE COSTS

Table 3-19 reports the cost of the maintenance packages for the emissions testing equipment. For Test-Only facilities, the costs are consistently between $1,700 and $1,800 per year. However, Test-Only stations incurred between $200 and $1,500 in equipment maintenance costs beyond that covered by the package (Table 3-20). Typical extra costs were about $400 to $425. Test-and-Repair stations paid about $1,600 in annual maintenance costs and typical additional costs were about $325. However, at least one station reported as much as $6,000 in additional maintenance costs.

Table 3-19. Annual Maintenance Package Costs

Business Model	Average	Median	Mode	Minimum	Maximum
TEST-ONLY	$1,765	$1,780	$1,800	$1,700	$1,800
TEST-AND-REPAIR	$1,592	$1,550	--**	$475	$5,400

** More than one mode.

Table 3-20. Extra Maintenance Cost in 2007

Business Model	Average	Median	Mode	Minimum	Maximum
TEST-ONLY	$658	$425	$400	$200	$1,500
TEST-AND-REPAIR	$809	$320	--**	$0	$6,000

** More than one mode.

3.7 EMISSIONS TEST FEE

The survey asked the station owner if, other than a retest within 15 days of failing a test, they ever gave tests for free (Table 3-21). Only about 14 percent of the Austin stations offered free emissions tests. Reasons cited include after a major repair, low-income customers, and city librarians.

Table 3-21. Free Emissions Tests
(Other Than Re-testing a Vehicle within 15 Days of Failing an Emissions Test)

Business Model	Test Given	Frequency	Percent
TEST-ONLY	Yes	7	14%
TEST-AND-REPAIR	No	42	86%
	Yes	36	14%
	No	219	86%

The survey asked the owner if they ever charge a reduced fee. Table 3-2 contains the responses. Almost no Test-Only and no Test-and-Repair facilities report charging a reduced fee. Those that did charge lower fees did not specify the amount they charged.

Table 3-22. Fee Less Than $16.00

Business Model	Charged Less Than $16?	Frequency	Percent
TEST-ONLY	Yes	7	14%
TEST-AND-REPAIR	No	42	86%
	Yes	0	0%
	No	255	100%

3.8 FAILED VEHICLES NOT RETURNING FOR RETEST

When a vehicle fails an emissions test, the station collects the test fee but does not incur the sticker charge because a sticker is not applied. The vehicle can be retested for free if it returns to the station within 15 days and passes the emissions test. The station then incurs the sticker charge for the vehicle. If a vehicle fails to return, however, the station retains the sticker charge as income. The survey asked whether a failed vehicle did not return to the station for a retest within the most recent two months. As Table 3-23 indicates, this happened for 60 to 76 percent of the Austin stations. However, with rare exceptions, this happens to one car per month (Table 3-24).

Table 3-23. Failed Vehicles Not Returning For Retest within Last Two Months

Business Model	Not Return?	Frequency	Percent
TEST-ONLY	Yes	28	57%
TEST-AND-REPAIR	No	21	43%
	Yes	194	76%
	No	61	24%

Table 3-24. Number of Failed Vehicles Not Returning For Retest within Last Two Months

Business Model	Average	Median	Mode	Minimum	Maximum
TEST-ONLY	7	2	--**	2	20
TEST-AND-REPAIR	4	2.5	--**	1	20

** More than one mode.

3.9 ADEQUACY OF EMISSIONS TEST FEE

The final question asked if the fee covers the owners' costs of administering the emissions test. For the Test-Only facilities, the response was consistent and overwhelmingly negative. The fee does not cover the costs. Reasons given include comments that the equipment breaks down twice a month and they have no options on who can make repairs to needing more traffic.

Table 3-25. Does Fee Cover Emissions Testing Costs?

Business Model	Fee Cover Costs?	Frequency	Percent
TEST-ONLY	Yes	0	0%
TEST-AND-REPAIR	No	49	100%
	Yes	36	14%
	No	219	86%

4. EL PASO SURVEY RESULTS

Questions 1 through 3 in each survey ask the station owner to provide data to confirm it has been placed in the correct stratum. Question 4 asked the year in which the station first offered emissions testing. Responses for these questions have not been tabulated. All results reported below have been weighted using techniques outlined in Appendix B. Not all respondents answered every question. When a respondent did not answer a question it is listed as missing.

4.1 STARTUP COSTS AND HIRING

Questions 5 and 6 asked station owners about costs and hiring needed to begin offering emissions tests. Tables 4-1 and 4-2 correspond to Question 5 in the survey. Table 4-1 reports the number of stations that added equipment, tools, space, or land before they began performing tests. Table 4-2 provides statistical data on the amount spent on these items. For both strata, testing equipment was purchased most often and land the least. In Table 4-2, costs were generally higher for stations offering both types of testing.

Table 4-1. Items Added or Acquired When Emissions Testing Was Offered

	Frequency			Percent		
	Yes	**No**	**Missing**	**Yes**	**No**	**Missing**
TEST-ONLY						
Emissions Testing Equipment	38	-	-	100%	0%	0%
Tools and Other Equipment	30	-	8	80%	0%	20%
Building Space	23	8	8	60%	20%	20%
Land	8	8	23	20%	20%	60%
TEST-AND-REPAIR						
Emissions Testing Equipment	143	0	0	100%	0%	0%
Tools and Other Equipment	102	27	14	71%	19%	10%
Building Space	20	95	27	14%	66%	19%
Land	7	109	27	5%	76%	19%

Table 4-2. Additional Costs for Added or Acquired Items

	Average	Median	Mode	Minimum	Maximum
TEST-ONLY					
Emissions Testing Equipment	$12,299	$14,500	--**	$3,000	$16,000
Tools and Other Equipment	$1,000	$750	$500	$500	$2,000
Building Space	$3,933	$5,000	$5,000	$1,800	$5,000
Land	$125,000	$125,000	--**	$ -	$250,000
TEST-AND-REPAIR					
Emissions Testing Equipment	$15,022	$15,000	$15,000	$4,000	$41,000
Tools and Other Equipment	$2,579	$2,000	--**	$200	$10,000
Building Space	$1,818	$2,500	--**	$400	$2,553
Land		--*		$100	$100

** More than one mode.

Tables 4-3 and 4-4 report data collected in Question 6. The question asked if the station needed to add staff, such as inspectors, mechanics, or supervisors before offering testing. If a station hired staff, they were asked how many of each type were hired. Table 4-3 provides the number of stations that added staff, by job type, while Table 4-4 details the numbers of employees added for each category.

Inspectors were hired the most frequently with much lower totals reported in other categories. When hiring took place, stations usually took on one or two employees.

Table 4-3. Additional Staff When Station Began Offering Emissions Testing

	Frequency			Percent		
	Yes	No	Missing	Yes	No	Missing
TEST-ONLY						
Inspectors	15	15	8	40%	40%	20%
Other Mechanics	-	23	15	0%	60%	40%
Supervisors	-	23	15	0%	60%	40%
Others	8	23	8	20%	60%	20%
TEST-AND-REPAIR						
Inspectors	75	68	0	52%	48%	0%
Other Mechanics	54	75	14	38%	52%	10%
Supervisors	20	95	27	14%	66%	19%
Others	0	109	34	0%	76%	24%

Table 4-4a. Number of Staff Hired When the Facility Began Offering Emissions Testing

Employee Type	Number	Frequency	Percent
TEST-ONLY			
Inspectors	1	8	20%
	2	8	20%
	Missing	22.8	60%
	Total	**38**	**100%**
Other Mechanics		--*	
Supervisors		--*	
Others	1	8	20%
	Missing	30	80%
	Total	**38**	**100%**

* Population estimates cannot be calculated due to small sample size.

Table 4-4b. Number of Staff Hired When the Facility Began Offering Emissions Testing

Employee Type	Number	Frequency	Percent
TEST-AND-REPAIR			
Inspectors	1	34	24%
	2	20	14%
	3	14	10%
	Missing	75	52%
	Total	**143**	**100%**
Other Mechanics	1	34	24%
	2	20	14%
	Missing	89	62%
	Total	**143**	**100%**
Supervisors	1	20	14%
	Missing	123	86%
	Total	143	100%
Others		--*	

* Population estimates cannot be calculated due to small sample size.

4.2 CURRENT EMPLOYMENT AND WAGE

Questions 7 through 9 collected data on how many people are currently employed at the facility and their average salary. The survey asked about average wages, by job category, in Question 7. Results in dollars per hour are reported in Table 4-5. The median and mean wages for inspectors fell between $7 and $9 dollars per hour. Some data are provided for other job categories, but the number of observations in each is low, so no values are provided.

Table 4-5a. Current Wage Paid ($/hr)

	Average	Median	Mode	Minimum	Maximum
TEST-ONLY					
Inspectors	$7.88	$7.88	--**	$7.00	$8.75
Other Mechanics			--*		
Supervisors			--*		
Others			--*		

* Population estimates cannot be calculated due to small sample size.
** More than one mode.

Table 4-5b. Current Wage Paid ($/hr)

	Average	Median	Mode	Minimum	Maximum
TEST-AND-REPAIR					
Inspectors	$11.32	$9.00	--**	$5.85	$25
Other Mechanics	$13.80	$11.63	$10.00	$7	$27.50
Supervisors	$24.50	$24.50	--**	$24	$25
Others			--*		

* Population estimates cannot be calculated due to small sample size.
** More than one mode.

For Question 8 respondents listed the number of inspectors currently employed by the station. The result listed in Table 4-6 report the frequency of responses. More than half of the Test-Only stations have a single emissions inspector while the majority of Test-and-Repair stations have one or two inspectors. None of the Test-Only stations reported having more than three inspectors while Test-and-Repair stations reported as many as seven inspectors.

Table 4-6. Number of Emissions Inspectors Currently Working at the Station

Number	Frequency	Percent
TEST-ONLY		
1	23	60%
2	8	20%
3	8	20%
Missing	0	0%
Total	**38**	**100%**
TEST-AND REPAIR		
1	20	14%
2	75	52%
3	34	24%
6	7	5%
7	7	5%
Missing	*0*	*0%*
Total	**143**	**100%**

For Question 9, the respondent listed the number of full- and part-time employees. Table 4-7 indicates that a typical Test-Only station has one or two full-time emissions inspectors. Most of the Test-Only Stations did not report information on the number of part-time inspectors (Table 4-8), and those that did indicated the inspector worked 30 hours per week (Table 4-9). The frequency of missing values makes the data somewhat difficult to interpret, but the results suggest that stations rely primarily on a small number of full time employees. Most Test-and-Repair stations have between one and three full-time inspectors with very few part-time inspectors.

Table 4-7. Number of Full-time Emissions Inspectors

Number	Frequency	Percent
TEST-ONLY		
1	23	60%
2	15	40%
Missing	0	0%
Total	**38**	**100%**
TEST-AND-REPAIR		
1	20	14%
2	68	48%
3	41	29%
6	7	5%
7	7	5%
Missing	*0*	*0%*
Total	**143**	**100%**

Table 4-8. Number of Part-time Emissions Inspectors

Number	Frequency	Percent
TEST-ONLY		
0	19	50%
1	19	50%
Missing	-	0%
Total	**38**	**100%**
TEST-AND-REPAIR		
0	7	5%
1	7	5%
Missing	*129*	*90%*
Total	**143**	**100%**

*Numbers do not sum due to rounding of survey weights.

Table 4-9. Work Hours of Part-time Emissions Inspectors

Number	Frequency	Percent
TEST-ONLY		
30	8	20%
Missing	30	80%
Total	**38**	**100%**
TEST-AND-REPAIR		
28	7	5%
Missing	136	95%
Total	143	100%

At this point, the Test-and-Repair and the Test-Only questionnaires differ. The Test-and-Repair questionnaire asked two additional questions about the proportion of time the inspectors spend performing inspections. Table 4-10 reports the data for full-time inspectors while Table 4-11 reports the data for part-time inspectors.

Table 4-10. Of Inspectors That Work Full-Time, How Many Spend…?

Percent of Time Performing Inspections	Median	Mode	Minimum	Maximum
50 % or more	1	1	0	3
About 25%	2	--**	1	6
About 15%	0.5	--**	0	1
About 10%	1	--**	0	2
About 5% or less	1.5	--**	0	5

** More than one mode.

Table 4-11. Of Inspectors That Work Part-Time, How Many Spend…?

Percent of Time Performing Inspections	Median	Mode	Minimum	Maximum
50 % or more	1.5	--**	1	2
About 25%	-*			
About 15%	-*			
About 10%	-*			
About 5% or less	-*			

* Population estimates cannot be calculated due to small sample size.
** More than one mode.

4.3 DEDICATED EMISSIONS TESTING SPACE

Test-and Repair facilities were asked what percent of the total workspace was used only for emissions testing. The bay must be readily available for an inspection. The space may be used for other activities as long as it does not interfere with the inspection process, e.g., washing a car or changing oil if no one is waiting for an inspection. However, there may be an opportunity cost to the space if it is used for such activities or remains idle for a substantial portion of time. Table 4-12 presents the responses. Depending on the station, anywhere from five percent to half of the workspace is dedicated to emissions testing.

Table 4-12. Percent of Workspace Used Only for Emissions Testing

Mean	Median	Mode	Minimum	Maximum
12%	25%	25%	5%	50%

4.4 REPAIR OPERATIONS

The survey asked three questions relating to repair operations at Test-and-Repair facilities. These are:

- What proportion of the repair revenues at the station result directly from failed emissions inspections? (Table 4-13)
- In any given month, what is the typical number of repair jobs from failed emissions tests? (Table 4-14)
- What is the typical repair cost for an emission test failure? (Table 4-15)

In El Paso, more than half the stations did not respond to this question. About 30 percent of the stations reported that less than 10 percent of the repair revenues resulted from failed emission inspections. No station reported more than half the repair income being associated with failed inspections. Typically, about 10 failed inspections per month result in a repair costing $125.

Table 4-13. Proportion of Repair Revenues Results From Failed Emission Inspections

Proportion of Repair Revenue	Frequency	Percent
0%	0	0%
Less than 10%	41	29%
About 25%	20	14%
About 50%	7	5%
About 75%	0	0%
Between 75% and 95%	0	0%
More than 95%	0	0%
Missing	75	52%

Table 4-14. Typical Number of Repair Jobs per Month Resulting from Failed Emissions Tests

Mean	Median	Mode	Minimum	Maximum
9	10	10	1	20

Table 4-15. Typical Repair Cost for an Emissions Test Failure

Mean	Median	Mode	Minimum	Maximum
$139	$125	--**	$50	$300

** More than one mode.

4.5 FINANCING EQUIPMENT PURCHASES

From this point on, the Test-Only and Test-and-Repair surveys contain the same questions.[5] Table 4-16 reports the findings on how the station owner financed the purchase of emissions testing equipment. For the Test-Only stations, about 20 percent of the stations have a "lease-to-purchase" agreement with the vendor. About 80 percent pf the stations used a bank loan to purchase the equipment and none paid cash. About 30 percent of the Test-and-Repair stations paid cash for the equipment while nearly 50 percent took bank loans to cover the cost. The remainder used "lease-to purchase" agreements with the vendor.

[5] The number for a particular question now differs between the Test-Only and Test-and-Repair surveys.

Table 4-16. Financing Mechanisms for Purchasing Emissions Testing Equipment

Finance Type	Number of Stations	Percent
TEST-ONLY		
Paid Cash	-	0%
Lease-to-Purchase Agreement Arranged with Vendor	8	20%
Loan from Bank	30	80%
TEST-AND-REPAIR		
Paid Cash	41	29%
Lease-to-Purchase Agreement Arranged with Vendor	34	24%
Loan from Bank	68	48%

The next two questions were targeted at owners who took out a loan or entered into a lease-to - purchase agreement. Those who paid cash were excluded from this analysis. Table 4-17 indicates that the loan period ranges from 3 to 15 years for Test-Only stations. The median loan period is 4.25 years and the average is 7 years. Test-Only Stations paid between 5 percent and 12 percent for the loan. The median interest rates are 8 percent and 10 percent for Test-Only and Test-and-Repair stations, respectively.

Table 4-17. Lease-To-Purchase or Bank Loan Term (Years)

Business Model	Average	Median	Mode	Minimum	Maximum
TEST-ONLY	7	4.25	--**	3	15
TEST-AND-REPAIR	4	4	3	0	8

** More than one mode.

Table 4-18. Interest Rate for Lease-To-Purchase or Bank Loan

Business Model	Average	Median	Mode	Minimum	Maximum
TEST-ONLY	9%	10%	--**	5%	12%
TEST-AND-REPAIR	7%	8%	7%	0%	18%

** More than one mode.

4.6 MAINTENANCE COSTS

Table 4-19 reports the cost of the maintenance packages for the emissions testing equipment. For Test-Only facilities, the costs are from $1,200 to $3,360 year. Test-Only stations also incurred between $660 and $1,500 in equipment maintenance costs beyond that covered by the package (Table 4-20). Typical extra costs were about $700 to $800. Median maintenance package costs were lower for Test-and-Repair stations ($1,200) and most stations reported no additional maintenance costs beyond that paid for the package.

Table 4-19. Annual Maintenance Package Costs

Business Model	Average	Median	Mode	Minimum	Maximum
TEST-ONLY	$ 2,120	$1,800	--**	$1,200	$3,360
TEST-AND-REPAIR	$1,936	$1,200	--**	$230	$5,400

** More than one mode.

Table 4-20. Extra Maintenance Cost in 2007

Business Model	Average	Median	Mode	Minimum	Maximum
TEST-ONLY	$660	$800	$-	$-	$1,500
TEST-AND-REPAIR	$328	$0	$0	$0	$2,400

4.7 EMISSIONS TEST FEE

The survey asked the station owner if, other than a retest within 15 days of failing a test, they ever gave tests for free (Table 4-21). About 40 percent of the Test-Only stations offered free emissions tests. Reasons cited include customer service, pre-checks, and to verify whether a customer has repaired the problem.

Table 4-21. Free Emissions Tests
(Other Than Re-testing a Vehicle within 15 Days of Failing an Emissions Test)

Business Model	Test Given	Frequency	Percent
TEST-ONLY	Yes	15	40%
TEST-AND-REPAIR	No	23	60%
	Yes	41	29%
	No	102	71%

The survey asked the owner if they ever charge a reduced fee. Table 4-2 contains the responses. No Test-Only facilities report charging a reduced fee while 10 percent of the Test-and-Repair stations did. If a station charged a fee less than the cap, the reduced fee ranged from $8.50 to $12.50 (Table 4-23).

Table 4-22. Fee Less Than $14.00

Business Model	Charged Less Than $14?	Frequency	Percent
TEST-ONLY	Yes	-	0%
TEST-AND-REPAIR	No	38	100%
	Yes	14	10%
	No	123	86%

Table 4-23. Typical Fee Charged Less Than $14.00

Mean	Median	Mode	Minimum	Maximum
$10.50	$10.50	--**	$8.50	$12.50

4.8 FAILED VEHICLES NOT RETURNING FOR RETEST

When a vehicle fails an emissions test, the station collects the test fee but does not incur the sticker charge because a sticker is not applied. The vehicle can be retested for free if it returns to the station within 15 days and passes the emissions test. The station then incurs the sticker charge for the vehicle. If a vehicle fails to return, however, the station retains the sticker charge as income. The survey asked whether a failed vehicle did not return to the station for a retest within the most recent two months. As Table 4-24 indicates, this happened for all reporting Test-Only stations and most Test-and-Repair stations. In addition, a higher number of

failed vehicles did not return for retesting in the El Paso region than the Austin region (compare Table 3-24 and Table 4-24). In El Paso, during the last two months, 6 failed vehicles was the median number that did not return for a retest.

Table 4-24. Failed Vehicles Not Returning For Retest within Last Two Months

Business Model	Not Return?	Frequency	Percent
TEST-ONLY	Yes	38	100%
TEST-AND-REPAIR	No	-	0%
	Yes	82	57%
	No	61	43%

Table 4-25. Number of Failed Vehicles Not Returning For Retest within Last Two Months

Business Model	Average	Median	Mode	Minimum	Maximum
TEST-ONLY	16	6	--**	1	50
TEST-AND-REPAIR	5	4.5	--**	1	10

** More than one mode.

4.9 ADEQUACY OF EMISSIONS TEST FEE

The final question asked if the fee covers the owner's costs of administering the emissions test. For the Test-Only facilities, a minority (40 percent) of stations responded that the fee covered the costs. Reasons given include comments that the fee covers OBD testing but not TSI testing costs. Only 14 percent of the Test-and-Repair stations reported that the fee does not cover testing costs. While most comments mentioned labor costs, one respondent suggested a higher fee for large trucks and RV motor homes because these inspections took two inspectors and thirty minutes.

Table 4-26. Does Fee Cover Emissions Testing Costs?

Business Model	Fee Covers Costs?	Frequency	Percent
TEST-ONLY	Yes	15	40%
TEST-AND-REPAIR	No	23	60%
	Yes	20	14%
	No	123	86%

5. HOUSTON-GALVESTON-BRAZORIA AND DALLAS/FORT WORTH SURVEY RESULTS

5.1 STARTUP COSTS AND HIRING

Questions 5 and 6 in the survey captured information on startup costs associated with offering emissions testing. For Question 5, respondents listed amounts spent on physical items: equipment, tools, building space, and land. In Question 6, owners reported the number of employees hired.

Table 5-1 summarizes whether a station purchased a certain type of asset. In general, equipment was purchased most often,[6] followed by equipment. Less than 10 percent of the stations reported needing to add building space and less than 1 percent reported needing to acquire additional land. Table 5-2 provides statistical data on the amount spent on each of these items. OBD-only stations have lower expenses in terms of equipment, tools and space. Based on these data, firms seem to be utilizing existing space and land to offer testing. For all strata, they tend to use existing bays. This reduces start up costs associated with testing, but could limit repair revenue if bays, previously used for repair, are used for testing.

Tables 5-3 and 5-4 report data collected on whether the station needed to add staff before offering emissions inspections. If a station hired staff, they were asked how many inspectors, mechanics, or supervisors were hired. The difference between stations that offer only OBD-testing and those that offer both OBD and ASM testing is apparent. Where stations reported hiring staff, OBD-only test station hired one or two inspectors while those offering OBD/ASM hired up to five inspectors as well as additional mechanics, supervisors, and other staff. If the station offered repair services in addition to testing, a wider variety of staff was hired and, in some cases, in larger numbers than Test-Only stations.

[6] Not all stations reported spending on testing equipment. This seems, at first glance, illogical but, perhaps, an owner purchased a station that already had the equipment.

Table 5-1. Items Added or Acquired When Emissions Testing Was Offered

Test Type	Population	Item Purchased	Frequency			Percent		
			Yes	No	Missing	Yes	No	Missing
TEST-ONLY								
OBD-only	202	Emissions Testing Equipment	202	-	-	100%	0%	0%
		Tools and Other Equipment	158	15	29	78%	7%	14%
		Building Space	15	158	29	7%	78%	14%
		Land	-	158	44	0%	78%	22%
ASM/OBD	631	Emissions Testing Equipment	470	50	111	74%	8%	18%
		Tools and Other Equipment	158	84	389	25%	13%	62%
		Building Space	54	95	483	9%	15%	76%
		Land	9	47	575	1%	7%	91%
TEST-AND-REPAIR								
OBD-only	689	Emissions Testing Equipment	590	70	28	86%	10%	4%
		Tools and Other Equipment	295	252	142	43%	37%	21%
		Building Space	28	477	184	4%	69%	27%
		Land	0	505	184	0%	73%	27%
ASM/OBD <=2000	629	Emissions Testing Equipment	551	28	50	88%	4%	8%
		Tools and Other Equipment	248	162	219	39%	26%	35%
		Building Space	149	240	240	24%	38%	38%
		Land	85	282	262	14%	45%	42%
ASM/OBD 2000<x <=5000	568	Emissions Testing Equipment	407	16	146	72%	3%	26%
		Tools and Other Equipment	238	133	197	42%	23%	35%
		Building Space	119	202	247	21%	36%	43%
		Land	50	254	263	9%	45%	46%
ASM/OBD >5000	114	Emissions Testing Equipment	85	4	25	75%	4%	22%
		Tools and Other Equipment	66	12	36	58%	11%	32%
		Building Space	29	41	44	25%	36%	39%
		Land	17	48	48	15%	42%	42%
ASM/OBD Began in 2007	43	Emissions Testing Equipment	33	5	5	77%	12%	12%
		Tools and Other Equipment	17	10	17	39%	23%	39%
		Building Space	0	22	22	0%	50%	50%
		Land	0	22	22	0%	50%	50%

Table 5-2. Additional Costs for Added or Acquired Items

Test Type	Item Purchased	Average	Median	Mode	Minimum	Maximum
TEST-ONLY						
OBD-only	Emissions Testing Equipment	$8,196	$8,600	$8,600	$4,000	$13,000
	Tools and Other Equipment	$323	$300	$300	$150	$500
	Building Space	$500	$500	--**	$-	$1,000
	Land		--*		$-	$-
ASM/OBD	Emissions Testing Equipment	$45,288	$40,000	$40,000	$10,000	$150,000
	Tools and Other Equipment	$3,484	$1,000	$1,000	$200	$29,000
	Building Space	$10,930	$2,500	--**	$-	$70,000
	Land	$-	$-	$-	$-	$-
TEST-AND-REPAIR						
OBD-only	Emissions Testing Equipment	$11,669	$9,000	$10,000	$3,000	$35,500
	Tools and Other Equipment	$5,232	$1,000	$1,000	$0	$87,500
	Building Space	$10,047	$0	$0	$0	$50,000
	Land	$0	$0	$0	$0	$0
ASM/OBD <=2000	Emissions Testing Equipment	$43,074	$41,000	$40,000	$7,500	$85,000
	Tools and Other Equipment	$8,440	$2,250	$1000	$0	$50,000
	Building Space	$104,937	$10,000	-**	$400	$500,000
	Land	$97,779	$9,750	-**	$500	$300,000
ASM/OBD 2000<x <=5000	Emissions Testing Equipment	$40,576	$40,000	$40,000	$10,000	$86,500
	Tools and Other Equipment	$4,811	$2,500	--**	$500	$11,000
	Building Space	$19,249	$6,500	--**	$1,500	$75,000
	Land	$10,264	$4,000	--**	$0	$25,000
ASM/OBD >5000	Emissions Testing Equipment	$42,721	$40,000	$40,000	$15,000	$62,000
	Tools and Other Equipment	$4,477	$5,000	$3,000	$100	$13,000
	Building Space	$32,995	$25,000	--**	$5,611	$65,000
	Land	$45,898	$10,000	--**	$3,000	$150,000
ASM/OBD Began in 2007	Emissions Testing Equipment	$37,791	$40,000	$40,000	$6,800	$60,000
	Tools and Other Equipment	$4,450	$3,000	--**	$1,000	$10,000
	Building Space			-*		
	Land			-*		

* Population estimates cannot be calculated due to small sample size.
** More than one mode.

Table 5-3. Additional Staff When Station Began Offering Emissions Testing

Test Type	Population	Staff Hired	Frequency			Percent		
			Yes	No	Missing	Yes	No	Missing
TEST-ONLY								
OBD-only	202	Inspectors	44	158	-	22%	78%	0%
		Other Mechanics	-	158	44	0%	78%	22%
		Supervisors	-	158	44	0%	78%	22%
		Others	-	158	44	0%	78%	22%
ASM/OBD	631	Inspectors	271	136	223	43%	22%	35%
		Other Mechanics	3	34	594	0%	5%	94%
		Supervisors	3	34	594	0%	5%	94%
		Others	-	-	631	0%	0%	100%
TEST-AND-REPAIR								
OBD-only	689	Inspectors	225	464	0	33%	67%	0%
		Other Mechanics	42	576	71	6%	84%	10%
		Supervisors	14	562	113	2%	82%	16%
		Others	14	562	113	2%	82%	16%
ASM/OBD <=2000	629	Inspectors	411	218	0	65%	35%	0%
		Other Mechanics	156	304	170	25%	48%	27%
		Supervisors	42	417	169	7%	66%	27%
		Others	14	395	219	2%	63%	35%
ASM/OBD 2000<x <=5000	568	Inspectors	355	67	146	63%	12%	26%
		Other Mechanics	71	254	243	13%	45%	43%
		Supervisors	52	254	261	9%	45%	46%
		Others	34	256	277	6%	45%	49%
ASM/OBD >5000	114	Inspectors	70	24	20	61%	21%	18%
		Other Mechanics	22	44	48	19%	39%	42%
		Supervisors	13	53	48	11%	46%	42%
		Others	7	58	48	6%	51%	42%
ASM/OBD Began in 2007	43	Inspectors	26	12	5	60%	28%	12%
		Other Mechanics	12	17	15	27%	39%	34%
		Supervisors	0	29	15	0%	66%	34%
		Others	0	29	15	0%	66%	34%

Table 5-4. Number of Staff Hired When the Facility Began Offering Emissions Testing

Test Type	Employee Type	Number	Frequency	Percent
TEST-ONLY				
OBD-only	Inspectors	1	29	14%
		2	15	7%
		Missing	158	78%
		Total	**202**	**100%**
	Other Mechanics	--*		
	Supervisors	--*		
	Others	--*		
ASM/OBD	Inspectors	1	167	26%
		2	148	24%
		3	37	6%
		4	18	3%
		5	37	6%
		Missing	223	35%
		Total	**631**	**100%**
	Other Mechanics	2	37	6%
		Missing	594	94%
		Total	**631**	**100%**
	Supervisors	1	37	6%
		Missing	594	94%
		Total	**631**	**100%**
	Others	--*		
TEST-AND-REPAIR				
OBD-only	Inspectors	1	126	18%
		2	70	10%
		3	14	2%
		5	14	2%
		Missing	464	67%
		Total	689	100%
	Other Mechanics	1	42	6%
		Missing	647	94%
		Total	689	100%
	Supervisors	0	14	2%
		1	57	8%
		Missing	661	96%
		Total	689	100%
	Others	1	14	2%
		Missing	675	98%
		Total	689	100%
ASM/OBD <2000	Inspectors	1	185	29%
		2	177	28%
		3	14	2%
		4	7	1%

Test Type	Employee Type	Number	Frequency	Percent
		10	7	1%
		Missing	240	38%
		Total	629	100%
		0	7	1%
		1	99	16%
		2	29	5%
		3	7	1%
		23	7	1%
		Missing	481	76%
	Other Mechanics	Total	629	100%
		0	21	3%
		1	50	8%
		2	7	1%
		Missing	551	88%
	Supervisors	Total	629	100%
		0	21	3%
		1	29	5%
		2	14	2%
		Missing	565	90%
	Others	Total	629	100%
		0	16	3%
		1	139	24%
		2	166	29%
		3	324	57%
		Missing	213	38%
	Inspectors	Total	568	100%
		0	16	3%
		1	54	10%
		2	16	3%
ASM/OBD 2000<x<5000		Missing	481	85%
	Other Mechanics	Total	568	100%
		0	52	9%
		1	16	3%
		Missing	499	88%
	Supervisors	Total	568	100%
		1	18	3%
		2	34	6%
		Missing	516	91%
	Others	Total	568	100%
ASM/OBD >5000		1	20	18%
		2	9	8%
		3	41	36%
		Missing	44	39%
	Inspectors	Total	114	100%
	Other Mechanics	1	9	8%

Test Type	Employee Type	Number	Frequency	Percent
ASM/OBD Began 2007		2	13	11%
		Missing	92	81%
		Total	114	100%
	Supervisors	1	4	4%
		2	9	8%
		Missing	101	89%
		Total	114	100%
	Inspectors	Others	-*	
		1	10	23%
		2	17	40%
		Missing	17	40%
		Total	43	100%
	Other Mechanics	1	12	28%
		Missing	31	72%
		Total	43	100%
	Supervisors	-*		
	Others	-*		

5.2 CURRENT EMPLOYMENT AND WAGE

Questions 7 to 9 collected data on how many people are currently employed at the facility and their average salary. The survey asked about average wages, by job category, in Question 7. Results in dollars per hour are reported in Table 5-5. The median and mean wages for inspectors fell between $8 and $9 dollars per hour for Test-Only stations. For Test-and-Repair stations, wages for inspectors ranged from $10 to $16 dollars per hour. Some data are provided for other job categories, but the number of observations in each is low, so no values are provided.

Table 5-5. Current Wage Paid ($/hr)

Region	Employee Type	Average	Median	Mode	Minimum	Maximum
TEST-ONLY						
OBD-only	Inspectors	$8.75	$9.00	--**	$5.00	$12.00
	Other Mechanics	--*			$ -	$ -
	Supervisors	--*			$13.00	$13.00
	Others	--*				
ASM/OBD	Inspectors	$8.17	$8.50	$10.00	$ -	$12.50
	Other Mechanics	$3.75	$3.75	--**	$ -	$7.50
	Supervisors	$8.91	$12.00	$10.00	$ -	$12.50
	Others	--*			$ -	$ -
TEST-AND-REPAIR						
OBD-only	Inspectors	$17.23	$14.00	$12.50	$7.00	$75.00
	Other Mechanics	$18.68	$20.00	$15.00	$0	$31.25
	Supervisors	$19.98	20.00	$20.00	$0	$34.62
	Others	$7.69	$7.00	$6.50	$0	$12.50
ASM/OBD <=2000	Inspectors	$12.18	$10.50	$10.00	$7.00	$22.35
	Other Mechanics	$17.53	$15.00	--**	$8.00	$30.00
	Supervisors	$21.91	$16.25	$25.00	$0	$40.63
	Others	$13.40	$10.00	$10.00	$0	$35.00
ASM/OBD 2000<x <=5000	Inspectors	$10.33	$10.00	$10.00	$8.00	$18.00
	Other Mechanics	$14.81	$15.00	$15.00	$10.00	$25.00
	Supervisors	$19.02	$16.00	--**	$13.50	$32.07
	Others	$8.41	$8.38	--**	$7.75	$9.00
ASM/OBD >5000	Inspectors	$11.25	$10.00	--**	$8.00	$16.83
	Other Mechanics	$16.00	$12.00	$12.00	$8.00	$28.85
	Supervisors	$21.49	$19.23	--**	$9.00	$36.06
	Others	$12.05	$8.00	$8.00	$14.42	$21.15
ASM/OBD Began in 2007	Inspectors	$19.47	$16.25	--**	$7.50	$37.50
	Other Mechanics	$18.11	$18.75	--**	$7.00	$32.00
	Supervisors	$10.05	$13.13	--**	$0	$18.75
	Others	-*				

* Population estimates cannot be calculated due to small sample size.
** More than one mode.

For Question 8 respondents listed the number of inspectors currently employed by the station. The results listed in Table 5-6 report the frequency of responses. Nearly three of four Test-Only/OBD-Only stations have a single emissions inspector. However, some of the Test-Only/OBD-ASM stations report having as many as nine inspectors.

Table 5-6. Number of Emissions Inspectors Currently Working at the Station

Test Type	Number	Frequency	Percent
TEST-ONLY			
OBD-only	1	144	71%
	2	44	22%
	4	15	7%
	Missing	0	0%
	Total	**202**	**100%**
ASM/OBD	1	130	21%
	2	167	26%
	3	167	26%
	4	37	6%
	5	93	15%
	7	18	3%
	9	19	3%
	Missing	-	0%
	Total	**631**	**100%**
TEST-AND-REPAIR			
OBD-only	1	183	27%
	2	225	33%
	3	112	16%
	4	96	14%
	5	42	6%
	9	14	2%
	16	14	2%
	Missing	0	0%
	Total	689	100%
ASM/OBD <2000	1	120	19%
	2	284	45%
	3	105	17%
	4	21	3%
	5	22	3%
	7	14	2%
	8	7	1%
	10	7	1%
	14	7	1%
	25	14	2%
	Missing	28	4%
	Total	629	100%
ASM/OBD 2000<x<5000	1	18	3%
	2	137	24%
	3	85	15%
	4	67	12%
	5	67	12%
	6	48	8%
	8	16	3%

Test Type	Number	Frequency	Percent
	14	16	3%
	Missing	114	20%
	Total	568	100%
	1	7	6%
	2	4	4%
	3	41	36%
	4	4	4%
	5	9	8%
ASM/OBD	6	9	8%
>5000	7	7	6%
	40	7	6%
	53	4	4%
	68	4	4%
	Missing	16	14%
	Total	114	100%
	1	5	12%
	2	24	56%
ASM/OBD	3	5	12%
Began 2007	6	5	12%
	Missing	5	12%
	Total	43	100%

For Question 9, the respondent listed the number of full- and part-time employees. Table 5-7 indicates that a typical Test-Only/OBD-only station has one or two full-time emissions inspectors. Most of the Test-Only Stations did not report information on the number of part-time inspectors (Table 5-8). The frequency of missing values makes the data somewhat difficult to interpret, but the results suggest that stations rely primarily on a small number of full time employees. Test-Only/OBD-ASM station have more full-time inspectors; 30 percent have no part-time inspectors, and slightly more than half have one part-time inspector. Part-time inspectors at Test-only/OBD-ASM stations also have a wider range in the number of hours per week worked (Table 5-9). Test-and-Repair stations generally have a larger number of full time inspectors and only one or two part-time inspectors.

Table 5-7. Number of Full-time Emissions Inspectors

Test Type	Number	Frequency	Percent
TEST-ONLY			
OBD-only	1	144	71%
	2	44	22%
	3	15	7%
	Missing	0	0%
	Total	**202**	**100%**
ASM/OBD	1	223	35%
	2	167	26%
	3	148	23%
	4	18	3%
	5	37	6%
	7	18	3%
	9	19	3%
	Missing	-	0%
	Total	631	100%
TEST-AND-REPAIR			
OBD-only	1	224	33%
	2	197	29%
	3	99	14%
	4	99	14%
	5	43	6%
	9	14	2%
	16	14	2%
	Missing	0	0%
	Total	689	100%
ASM/OBD <2000	1	205	33%
	2	291	46%
	3	63	10%
	4	14	2%
	5	7	1%
	7	14	2%
	8	7	1%
	10	7	1%
	14	7	1%
	Missing	14	2%
	Total	629	100%
ASM/OBD 2000<x<5000	1	61	11%
	2	121	21%
	3	101	18%
	4	61	11%
	5	61	11%
	6	48	8%
	8	16	3%

Test Type	Number	Frequency	Percent
	14	16	3%
	Missing	114	20%
	Total	568	100%
ASM/OBD >5000	1	12	11%
	2	12	11%
	3	29	25%
	4	16	14%
	5	9	8%
	6	4	4%
	38	7	6%
	53	4	4%
	68	4	4%
	Missing	16	14%
	Total	114	100%
ASM/OBD Began 2007	1	5	12%
	2	24	56%
	3	5	12%
	8	5	12%
	Missing	5	12%
	Total	43	100%

Table 5-8. Number of Part-time Emissions Inspectors

Test Type	Number	Frequency	Percent
TEST-ONLY			
OBD-only	1	15	7%
	Missing	187	93%
	Total	202	100%
ASM/OBD	0	186	29%
	1	334	53%
	2	74	12%
	3	37	6%
	Missing	0	0%
	Total	631	100%
TEST-AND-REPAIR			
OBD-only ASM/OBD <2000	0	127	18%
	1	14	2%
	2	14	2%
	Missing	534	78%
	Total	689	100%
ASM/OBD 2000<x<5000	0	63	10%
	1	99	16%
	2	49	8%
	Missing	417	66%
	Total	629	100%
ASM/OBD >5000	0	103	18%
	1	32	6%
	2	32	6%
	Missing	400	70%
	Total	568	100%
ASM/OBD Began 2007	0	9	8%
	1	16	3%
	2	19	3%
	3	7	1%
	Missing	63	11%
	Total	114	100%
	0	22	51%
	Missing	22	51%
	Total	43	100%

Table 5-9. Work Hours of Part-Time Emissions Inspectors

Test Type	Number	Frequency	Percent
TEST-ONLY			
OBD-only	20	15	7%
	Missing	187	93%
	Total	**202**	**100%**
ASM/OBD	8	116	18%
	10	115	18%
	15	57	9%
	20	115	18%
	25	115	18%
	30	57	9%
	35	57	9%
	Missing	0	0%
	Total	**631**	**100%**
TEST-AND-REPAIR			
OBD-only	20	14	2%
	40	14	2%
	Missing	661	96%
	Total	689	100%
ASM/OBD <2000	0	7	1%
	4	7	1%
	8	7	1%
	10	21	3%
	15	21	3%
	20	21	3%
	25	14	2%
	30	14	2%
	Missing	516	82%
	Total	629	100%
ASM/OBD 2000<x<5000	15	16	3%
	20	32	6%
	40	16	3%
	Missing	503	89%
	Total	568	100%
ASM/OBD >5000	12	7	6%
	15	4	4%
	40	7	6%
	Missing	95	83%
	Total	114	100%
ASM/OBD Began 2007		-*	

At this point, the Test-and-Repair and the Test-Only questionnaires differ. The Test-and-Repair questionnaire asked two additional questions about the proportion of time the inspectors spend

performing inspections. Table 5-10 reports the data for full-time inspectors while Table 5-11 reports the data for part-time inspectors. For OBD-only, Test-and-Repair stations, very few respondents answered the question about part-time inspectors and those that did, entered zero in all cases.

Table 5-10. Of Inspectors That Work Full-Time, How Many Spend…?

	Percent of Time Performing Inspections	Median	Mode	Minimum	Maximum
OBD-only	50 % or more	1	1	0	2
	About 25%	1	0	0	2
	About 15%	1	1	0	4
	About 10%	1	0	0	3
	About 5% or less	1	1	0	5
ASM/OBD <=2000	50 % or more	1	1	1	2
	About 25%	1	1	1	3
	About 15%	2	--**	1	7
	About 10%	2	--**	1	10
	About 5% or less	1	1	1	14
ASM/OBD 2000<x <=5000	50 % or more	1	1	1	3
	About 25%	1	2	0	2
	About 15%	1	1	1	2
	About 10%	5	--**	1	14
	About 5% or less	4	2	2	8
ASM/OBD >5000	50 % or more	2	2	0	6
	About 25%	2	2	0	10
	About 15%	1	1	0	20
	About 10%	1	--**	0	10
	About 5% or less	1	1	0	68
ASM/OBD Began in 2007	50 % or more	3	3	0	2
	About 25%	1	--**	0	8
	About 15%	1	--**	0	2
	About 10%	-*			
	About 5% or less	1	--**	1	2

* Population estimates cannot be calculated due to small sample size.

** More than one mode.

Table 5-11. Of Inspectors That Work Part-Time, How Many Spend…?

	Percent of Time Performing Inspections	Median	Mode	Minimum	Maximum
OBD-only	50 % or more	0	0	0	0
	About 25%	0	0	0	0
	About 15%	0	0	0	0
	About 10%	0	0	0	0
	About 5% or less	0	0	0	0
ASM/OBD <=2000	50 % or more	3	3	0	3
	About 25%	1	1	0	1
	About 15%		-*		
	About 10%	1	--**	0	2
	About 5% or less	1	--**	0	2
ASM/OBD 2000<x <=5000	50 % or more	1	1	1	
	About 25%		-*		
	About 15%	3	--**	1	5
	About 10%		-*		
	About 5% or less		-*		
ASM/OBD >5000	50 % or more	1	--**	0	3
	About 25%	1	--**	0	1
	About 15%		-*		
	About 10%	1	1	0	1
	About 5% or less	1	--**	1	2
ASM/OBD Began in 2007	50 % or more		-*		
	About 25%		-*		
	About 15%		-*		
	About 10%		-*		
	About 5% or less		-*		

* Population estimates cannot be calculated due to small sample size.
** More than one mode.

5.3 DEDICATED EMISSIONS TESTING SPACE

Test-and Repair facilities were asked what percent of the total workspace was used only for emissions testing. The bay must be readily available for an inspection. The space may be used for other activities as long as it does not interfere with the inspection process, e.g., washing a car or changing oil if no one is waiting for an inspection. However, there may be an opportunity cost to the space if it is used

for such activities or remains idle for a substantial portion of time. Table 5-12 presents the responses. Depending on the station, anywhere from zero to half of the workspace is dedicated to emissions testing.

Table 5-12. Percent of Workspace Used Only for Emissions Testing

	Mean	Median	Mode	Minimum	Maximum
OBD-only	9%	10%	10%	0%	25%
ASM/OBD <=2000	18%	15%	--**	0%	50%
ASM/OBD 2000<x <=5000	20%	20%	25%	1%	50%
ASM/OBD >5000	31%	30%	30%	1%	75%
ASM/OBD Began in 2007	33%	25%	25%	12%	100%

5.4 REPAIR OPERATIONS

The survey asked three questions relating to repair operations at Test-and-Repair facilities. These are:

- What proportion of the repair revenues at the station result directly from failed emissions inspections? (Table 5-13)
- In any given month, what is the typical number of repair jobs from failed emissions tests? (Table 5-14)
- What is the typical repair cost for an emission test failure? (Table 5-15)

Depending on the stratum, between 12 and 50 percent of the stations did not answer about the proportion of repair revenues that resulted from failed emission inspection tests. Where the respondents provided this information, the large majority of them reported less than 10 percent of their repair revenues resulted directly from failed emission inspection tests.

Table 5-13. Proportion of Repair Revenues Results From Failed Emission Inspections

	Proportion of Repair Revenue	Frequency	Percent
OBD-only	0%	0	0%
	Less than 10%	366	53%
	About 25%	56	8%
	About 50%	0	0%
	About 75%	0	0%
	Between 75% and 95%	0	0%
	More than 95%	0	0%
	Missing	267	39%
ASM/OBD <=2000	0%	7	1%
	Less than 10%	275	44%
	About 25%	36	6%
	About 50%	0	0%
	About 75%	0	0%
	Between 75% and 95%	0	0%
	More than 95%	0	0%
	Missing	312	50%
ASM/OBD 2000<x <=5000	0%	52	9%
	Less than 10%	285	50%
	About 25%	83	15%
	About 50%	0	0%
	About 75%	0	0%
	Between 75% and 95%	0	0%
	More than 95%	0	0%
	Missing	148	26%
ASM/OBD >5000	0%	4	4%
	Less than 10%	65	58%
	About 25%	20	18%
	About 50%	4	4%
	About 75%	0	0%
	Between 75% and 95%	0	0%
	Missing	20	18%
ASM/OBD Began in 2007	0%	0	0%
	Less than 10%	38	88%
	About 25%	0	0%
	About 50%	0	0%
	About 75%	0	0%
	Between 75% and 95%	0	0%
	More than 95%	0	0%
	Missing	5	12%

Table 5-14. Typical Number of Repair Jobs per Month Resulting from Failed Emissions Tests

	Mean	Median	Mode	Minimum	Maximum
OBD-only	5	3	2	1	20
ASM/OBD <=2000	7	4	4	0	30
ASM/OBD 2000<x<=5000	18	10	10	0	107
ASM/OBD >5000	10	10	10	1	25
ASM/OBD Began in 2007	10	10	10	2	20

Table 5-15. Typical Repair Cost for an Emissions Test Failure

	Mean	Median	Mode	Minimum	Maximum
OBD-only	$273	$250	$200	$70	$800
ASM/OBD <=2000	$215	$200	$200	$40	$600
ASM/OBD 2000<x<=5000	$247	$200	$200	$100	$800
ASM/OBD >5000	$192	$200	$200	$9	$500
ASM/OBD Began in 2007	$297	$200	--**	$41	$500

** More than one mode.

5.5 FINANCING EQUIPMENT PURCHASES

From this point on, the Test-Only and Test-and-Repair surveys contain the same questions.[7] Table 5-16 reports the findings on how the station owner financed the purchase of emissions testing equipment. For the Test-Only/OBD-only stations, about 80 percent of the stations paid cash. In contrast, about 80 percent of the Test-Only/OBD-ASM stations used a bank loan or had a lease-to-purchase agreement for the equipment.

[7] The number for a particular question now differs between the Test-Only and Test-and-Repair surveys.

Table 5-16. Financing Mechanisms for Purchasing Emissions Testing Equipment

Type	Finance Type	Number of Stations	Percent
TEST-ONLY			
OBD-only	Paid Cash	158	78%
	Lease-to-Purchase Agreement Arranged with Vendor	15	7%
	Loan from Bank	29	14%
ASM/OBD	Paid Cash	130	21%
	Lease-to-Purchase Agreement Arranged with Vendor	241	38%
	Loan from Bank	242	38%
TEST-AND-REPAIR			
OBD-only	Paid Cash	324	49%
	Lease-to-Purchase Agreement Arranged with Vendor	211	32%
	Loan from Bank	126	19%
ASM/OBD <=2000	Paid Cash	127	21%
	Lease-to-Purchase Agreement Arranged with Vendor	198	33%
	Loan from Bank	283	47%
ASM/OBD 2000<x<=5000	Paid Cash	97	23%
	Lease-to-Purchase Agreement Arranged with Vendor	117	28%
	Loan from Bank	206	49%
ASM/OBD >5000	Paid Cash	34	36%
	Lease-to-Purchase Agreement Arranged with Vendor	41	44%
	Loan from Bank	19	20%
ASM/OBD Began in 2007	Paid Cash	12	31%
	Lease-to-Purchase Agreement Arranged with Vendor	22	56%
	Loan from Bank	5	13%

The next two questions were targeted at owners who took out a loan or entered into a lease-to - purchase agreement. Table 5-17 indicates that the loan period is 3 years for Test-Only/OBD-only stations. For Test-Only/OBD-ASM stations, the loan period may be as long as 15 years, but is typically 5 years. Test-Only/OBD-only stations paid 2 percent for the loan or lease. The average and median interest rate for Test-Only/OBD-ASM stations is 9 percent and 10 percent, respectively (Table 5-18).

Table 5-17. Lease-To-Purchase or Bank Loan Term (Years)

Type	Average	Median	Mode	Minimum	Maximum
TEST-ONLY					
OBD-only	3	3	3	3	3
ASM/OBD	5	5	5	-	15
TEST-AND-REPAIR					
OBD-only	3.5	3	3	0	10
ASM/OBD <=2000	5.25	5	5	1	15
ASM/OBD 2000<x<=5000	7.25	5	5	0	30
ASM/OBD >5000	4.5	5	5	0	10
ASM/OBD Began in 2007	3	3.5	5	0	5

Table 5-18. Interest Rate for Lease-To-Purchase or Bank Loan

Type	Average	Median	Mode	Minimum	Maximum
TEST-ONLY					
OBD-only	2%	2%	0%	0%	6%
ASM/OBD	9%	10%	11%	0%	15%
TEST-AND-REPAIR					
OBD-only	10%	9%	--**	0%	32%
ASM/OBD <=2000	12%	9%	8%	0%	100%
ASM/OBD 2000<x<=5000	8%	9.5%	10%	0%	11%
ASM/OBD >5000	9%	8.5%	7%	6%	15%
ASM/OBD Began in 2007	11%	12.5%	--**	0%	19%

** More than one mode

5.6 MAINTENANCE COSTS

Table 5-19 reports the cost of the maintenance packages for the emissions testing equipment. For Test-Only facilities, the costs are $700 or $4,000 per year, depending on whether or not the station also offers ASM testing. Test-Only stations also incurred between $660 and $1,500 in equipment maintenance costs beyond that covered by the package (Table5-20). Typical extra costs were about $100 or $1,400, depending on whether the station offered ASM testing.

Table 5-19. Annual Maintenance Package Costs

Type	Average	Median	Mode	Minimum	Maximum
TEST-ONLY					
OBD-only	$646	$700	$700	$200	$1,000
ASM/OBD	$3,802	$4,000	$4,000	$460	$6,000
TEST-AND-REPAIR					
OBD-only	$1,400	$925	$800	$250	$7,000
ASM/OBD <=2000	$4,600	$4,000	$4,000	$0	$24,000
ASM/OBD 2000<x<=5000	$3,370	$3,450	$4,800	$929	$4,800
ASM/OBD >5000	$3,860	$3,956	$3,400	$1,300	$6,000
ASM/OBD Began in 2007	$5,060	$3,000	--**	$1,000	$12,000

** More than one mode.

Table 5-20. Extra Maintenance Cost in 2007

Type	Average	Median	Mode	Minimum	Maximum
TEST-ONLY					
OBD-only	$108	$ -	$ -	$ -	$1,300
ASM/OBD	$1,425	$1,380	$1,500	$ -	$5,000
TEST-AND-REPAIR					
OBD-only	$733	$200	$1,000	$0	$7,500
ASM/OBD <=2000	$2,056	$1,500	--**	$0	$9,999
ASM/OBD 2000<x<=5000	$2,003	$1,500	--**	$300	$8,000
ASM/OBD >5000	$2,680	$2,000	--**	$0	$9,000
ASM/OBD Began in 2007	$2,067	$1,500	--**	$600	$6,000

** More than one mode.

5.7 EMISSIONS TEST FEE

The survey asked the station owner if, other than a retest within 15 days of failing a test, they ever gave tests for free (Table5-21). Nearly 60 percent of the Test-Only/OBD-only stations offered free emissions tests while only 35 percent of the Test-Only/OBD-ASM stations offered free tests. Reasons cited include customer service, pre-checks, low-income customers, and large multi-vehicle customers.

Table 5-21. Free Emissions Tests
(Other Than Re-testing a Vehicle within 15 Days of Failing an Emissions Test)

Type	Test Given	Frequency	Percent
TEST-ONLY			
OBD-only	Yes	115	57%
	No	87	43%
ASM/OBD	Yes	223	35%
	No	408	65%
TEST-AND-REPAIR			
OBD-only	Yes	113	16%
	No	576	84%
ASM/OBD<=2000	Yes	133	21%
	No	489	79%
ASM/OBD 2000<x<=5000	Yes	117	26%
	No	337	74%
ASM/OBD>5000	Yes	42	47%
	No	48	53%
ASM/OBD Began in 2007	Yes	0	0%
	No	38	100%

The survey asked the owner if they ever charge a reduced fee. Table 5-22 contains the responses. More than half the Test-Only/OBD-only stations offered lower fees, while only 12 percent of the Test-Only/OBD-ASM stations offered a lower fee. For the Test-Only/OBD-only stations, the alternative fees were $17.00 or $22.50 (Table 5-23). For the Test-Only/OBD-ASM stations, fees ranged from $14.50 to $22.00.

Table 5-22. Fee Less Than $27.00

Type	Charged Less Than $27?	Frequency	Percent
TEST-ONLY			
OBD-only	Yes	115	57%
	No	87	43%
ASM/OBD	Yes	74	12%
	No	538	85%
TEST-AND-REPAIR			
OBD-only	Yes	28	4%
	No	661	96%
ASM/OBD<=2000	Yes	57	9%
	No	565	91%
ASM/OBD 2000<x<=5000	Yes	16	4%
	No	438	96%
ASM/OBD>5000	Yes	12	12%
	No	86	88%
ASM/OBD Began in 2007	Yes	0	0%
	No	38	100%

Table 5-23. Fee Charged When Less Than $27.00

Type	Fee	Frequency	Percent
TEST-ONLY			
OBD-only	$17.00	100	50%
	$22.50	15	7%
	Missing	87	43%
	Total	202	100%
ASM/OBD	$14.50	19	3%
	$17.49	19	3%
	$20.00	19	3%
	$22.00	18	3%
	Missing	557	88%
	Total	631	100%
TEST-AND-REPAIR			
OBD-only	$21.07	14	2%
	$27.00	14	2%
	$10.00	14	2%
	$22.00	14	2%
	$23.00	7	1%
ASM/OBD<=2000	$34.50	7	1%
ASM/OBD 2000<x<=5000	$17.00	16	4%
	$39.75	18	4%
	$20.00	4	11%
	$27.00	7	18%
ASM/OBD>5000	$39.50	7	18%
ASM/OBD Began in 2007	-*		

* Population estimates cannot be calculated due to small sample size.

5.8 FAILED VEHICLES NOT RETURNING FOR RETEST

When a vehicle fails an emissions test, the station collects the test fee but does not incur the sticker charge because a sticker is not applied. The vehicle can be retested for free if it returns to the station within 15 days and passes the emissions test. The station then incurs the sticker charge for the vehicle. If a vehicle fails to return, however, the station retains the sticker charge as income. The survey asked whether a failed vehicle did not return to the station for a retest within the most recent two months. As Table 5-24 indicates, non-returning vehicles happened to 86 percent of the Test-Only/OBD-only stations but only 62 percent of the Test-Only/OBD-ASM stations. Although it happens to most of the stations, the actual number of non-returning vehicles is very small, see Table 5-25.

Table 5-24. Failed Vehicles Not Returning For Retest within Last Two Months

Type	Had Vehicles Not Return	Frequency	Percent
TEST-ONLY			
OBD-only	Yes	173	86%
	No	29	14%
ASM/OBD	Yes	390	62%
	No	204	32%
TEST-AND-REPAIR			
OBD-only	Yes	309	46%
	No	365	54%
ASM/OBD<=2000	Yes	385	64%
	No	212	36%
ASM/OBD 2000<x<=5000	Yes	282	62%
	No	171	38%
ASM/OBD>5000	Yes	73	81%
	No	17	19%
ASM/OBD Began in 2007	Yes	12	32%
	No	26	68%

Table 5-25. Number of Failed Vehicles Not Returning For Retest within Last Two Months

Type	Average	Median	Mode	Minimum	Maximum
TEST-ONLY					
OBD-only	2	1	1	1	6
ASM/OBD	6	3	1	1	26
TEST-AND-REPAIR					
OBD-only	4	3.5	2	1	10
ASM/OBD <=2000	4	3	2	1	20
ASM/OBD 2000<x<=5000	5	3	3	1	25
ASM/OBD >5000	4	4.5	5	1	10
ASM/OBD Began in 2007	1.4	1.5	--**	1	2

** More than one mode.

5.9 ADEQUACY OF EMISSIONS TEST FEE

The final question asked if the fee covers the owner's costs of administering the emissions test. Nearly all the Test-Only stations reported that the fee covered the cost of emission testing. Less than 40 percent of the Test-Only/OBD-ASM stations agreed with this statement. Between 18 and 24 percent of the Test-and-Repair/OBD-AMS stations reported that the fees covered the costs.

Table 5-26. Does Fee Cover Emissions Testing Costs?

Type	Fee Cover Costs?	Frequency	Percent
TEST-ONLY			
OBD-only	Yes	187	93%
	No	15	7%
	Blank	-	0%
ASM/OBD	Yes	242	38%
	No	371	59%
	Blank	19	3%
TEST-AND-REPAIR			
OBD-only	Yes	297	43%
	No	363	53%
	Blank	29	4%
ASM/OBD <=2000	Yes	113	18%
	No	495	79%
	Blank	21	3%
ASM/OBD 2000<x<=5000	Yes	137	24%
	No	316	56%
	Blank	115	20%
ASM/OBD >5000	Yes	26	21%
	No	57	45%
	Blank	31	25%
ASM/OBD Began in 2007	Yes	12	28%
	No	26	60%
	Blank	5	12%

6. ANALYSIS OF COMMENTS

The final question on each survey asked if the fee covered the cost of inspection. If the respondent answered "no" they were invited to outline reasons. Of the 261 returned surveys, 171 responded with comments on why they were unable to cover the costs of conducting inspections. Most of the comments cited multiple reasons for failure to cover costs. Below is a discussion of the comments and themes that occurred most frequently. All comment counts presented in this section are unweighted.

6.1 COST FACTORS

Most respondents cited cost factors as the reason for failing to recoup costs. Many station owners that cited costs gave specific examples. The most frequently cited were:

- maintenance costs (42),
- the high cost of labor (37),
- equipment costs (17)
- sticker costs (13), and
- the cost of phone calls, primarily the need for a dedicated line (10).

Comments on maintenance pointed to several related problems. Respondents felt that the cost of the maintenance agreement is too high, and that it is not properly backed by the manufacturers. They report that this leads to expensive downtime for equipment and the need to spend significant amounts on maintenance beyond the agreement.

Respondents reported that all costs have been increasing. In the HGB/DFW region, station owners commented that their costs have been rising each of the last five years while the inspection fee has remained the same.

6.2 TOO MANY STATIONS OFFER TESTING

About 11 comments stated that they were either not conducting enough tests per month or had too many competitors in the same area. These comments point to the same problem. Those that cite the lack of business note the problem, while those that complain about the large number of competitors in their area point to the reason for the problem. This is about 6 percent of the respondents. In ERG (2005), 12 percent of the comments said too many stations offered testing.

6.3 FREE RE-TESTING

Several of the station owners disagreed with free re-testing of failed vehicles because they incurred all costs but the sticker.

6.4 TEST FEE IS ADEQUATE FOR OBD BUT NOT ASM TESTING

Nine station owners commented that the fee was adequate for OBD testing but not ASM testing. The primary reason is that ASM testing takes longer than OBD testing to perform.

7. COST MODELS

This section presents costs for nine model air emissions testing facilities based on information collected in the survey, provided by TCEQ, and collected from government data. These models are not intended to represent specific stations; their purpose it to examine the types of costs and emissions testing revenues for a variety of stations, testing equipment, and volume of inspections. The models do not make a distinction between Test-only and Test-and-Repair stations. The incremental costs are the same; it is a question of evaluating other revenue streams that might determine the business decision on whether or not to offer emissions testing.

Table 7-1 summarizes data for other cost variables that may be used in an analytical model of the AirCheck emissions fee. The wage data collected in the survey appears consistent with the information collected on a wider geographic area by the U.S. Census.

7.1 NET REVENUE PER INSPECTION

Because emissions testing is an incremental operation to offering safety inspections, we consider only the incremental revenues. The emissions test fee caps and revenues passed to state agencies and funds vary by region. The net revenue, then, varies by region and inspection type. These are shown in Table 7-2.

7.2 MODEL STATIONS

Table 7-3 shows two model stations for Austin. The number of inspections per month was taken from the range seen in the Austin survey data. If a station performs an average of 130 inspections per month and did not have to add building space to perform emissions inspections, then the fee just covers costs. If the station had to add space to perform emissions inspections, then the station does not have a sufficient volume of inspections to cover this additional cost. If the volume reaches an average of 200 inspections per month, then the additional cost for the building space would also be covered. TSI testing in Austin is new and so the data may reflect only a partial year's information.

Table 7-4 shows two model stations for the El Paso Region. The number of inspections per month (130) is consistent with the data reported in the survey. Due to the lower costs for labor and additional building space relative to Austin, however, the fee covers the variable and fixed costs of inspection with 130 inspections per month. Once a station's fixed costs are covered, additional inspections result in a larger return to the station owner. For the model station in El Paso that has an average number of inspections of 400 per month, the revenues exceed the costs by about $2,000 per month.

Table 7-5 presents two models for OBD-only test stations in the HGB and DFW regions. The first model, with 42 inspections per month, is based on the average number of inspections reported in the survey. The second model, with 100 inspections per month, represents a station that performs the maximum number of tests permitted. In the first model, the station covers both fixed and variable costs. In the second model, the fee covers fixed and variable costs as well as clearing about $1,000 per month for the station.

The models in Table 7-6 represent stations that offer OBD/ASM testing in the HGB and DFW regions. The three models represent stations that perform less than 2,000 inspections a year (100/month), between 2,000 and 5,000 inspections per year (300/month), and more than 5,000 inspections per year (420/month). The net revenue is a weighted average of 62 percent OBD testing and 38 percent of ASM testing. That is, the $20.78 net income per inspection is the weighted average of (0.62 * $18.50) + (0.38 * $24.50). A station just recovers its fixed and variable costs at the 100 inspections per month level. As with the model stations in the other regions, the importance of the volume of inspections to the profitability of emissions testing inspections to the station is evident.

Table 7-1. Cost Elements for Texas AirCheck Fee Analysis

Cost Element	Cost	Data Source
Equipment Purchase or Lease and Installation (HGB-DFW region)		
Acceleration Simulation Mode (ASM) with On-Board Diagnostics (OBD) analyzer system	ESP Model No. 10400-57: $36,950 Worldwide Model No. EIS-5000: $32,500 Snap On Diagnostics: no current models	http://www.tceq.state.tx.us/implementation/air/mobilesource/vim/testing.html
On-Board Diagnostics (OBD) analyzer system	ESP Model No. 10400-59: $7,995 ESP Model No. 10400-60: $6,995 Worldwide Model No. EIS-6000S: $6,900 Snap On Diagnostics Model No. EEEA134A OBIS (OBDII): $8,500	http://www.tceq.state.tx.us/implementation/air/mobilesource/vim/testing.html
Warranty and maintenance costs	ESP Model No. 10400-57: $3,150 Worldwide Model No. EIS-5000: $4,188 Snap On Diagnostics: $4,095 ESP Model No. 10400-59: $715 ESP Model No. 10400-60: $715 Worldwide Model No. EIS-6000S: $975 Snap On Diagnostics Model No. EEEA134A OBIS (OBDII): $895	http://www.tceq.state.tx.us/implementation/air/mobilesource/vim/testing.html
Equipment Purchase or Lease and Installation (Austin and El Paso regions)		
Certified Two Speed Idle (TSI)with On-Board Diagnostics (OBD) analyzer system	ESP Model No. 10400-78: $16,500 Worldwide Model No. EIS-5400S, EIS 6400: $14,500	http://www.tceq.state.tx.us/implementation/air/mobilesource/vim/testing.html
Warranty and maintenance costs	ESP Model No. 10400-78: $1,600 Worldwide Model No. EIS-5400S, EIS 6400: $1,700	http://www.tceq.state.tx.us/implementation/air/mobilesource/vim/testing.html
Labor		
Inspector wages	Automotive service technicians and mechanics ($/hr) Dallas / Houston / Austin / El Paso level 1: $9.98 / $9.42 / $10.44 / $9.14 level 2: $13.52 / $12.73 / $13.91 / $11.86 level 3: $17.06 / $16.04 / $17.38 / $14.58 level 4: $20.60 / $19.35 / $20.85 / $17.30	www.flcdatacenter.com U.S. DOL. Prevailing labor rates for foreign labor certification
Other Costs (service industry, national data)		
Fringe benefits	29.2 percent (all benefits, including Social Security, Medicare, and Federal unemployment insurance)	data.bls.gov U.S. DOL, Employer Cost for Employee Compensation
Payroll taxes	Included in above.	U.S. DOL, Employer Costs for Employee Compensation
Payroll	Percent of operating expenses: 36.0	Www.census.gov/csd/bes/31/part1.htm NAICS 81111 automotive mechanical and
Fringe	Percent of operating expenses: 56.0	
Contract labor	Percent of operating expenses: 1.0	

Cost Element	Cost	Data Source
Purchased repair and maintenance services	Percent of operating expenses: 0.6	
Purchased advertising and promotional services	Percent of operating expenses: 2.3	
Accounting and bookkeeping	Percent of operating expenses: 0.6	
Lease and rental payments	Percent of operating expenses: 6.7	
Insurance	Percent of operating expenses: 2.7	
Taxes and license fees	Percent of operating expenses: 1.9	
Expensed computer-related supplies	Percent of operating expenses: 0.4	
Purchased utilities	Percent of operating expenses: 2.1	
Purchased communication services	Percent of operating expenses: 0.9	
Other materials and supplies not for resale,	Percent of operating expenses: 16.0	
Depreciation	Percent of operating expenses: 2.1	
Materials (Texas-specific)		
Inspection materials per test lane Calibration gases Probe Hose Filter Printer drum Printer toner	 $45 to $50/bottle (1/month) $30 to $110 (1/year) $65 to $110 (1/year) $5 to $10 (2/month) $200 to $300 each $30 to $100 each	TCEQ
Connection charges for dial-up	$0.78 per car	MCI/TCEQ

Table 7-2. Net Revenue From Emissions Test

			HGB and DFW	
	Austin	**El Paso**	**OBD**	**OBD/ASM**
Fee to Customer	$16.00	$14.00	$27.00	$27.00
TCEQ/DPS I/M Administration Fee	$2.50	$2.50	$2.50	$2.50
LIRAP funding	$2.00		$6.00	
Net Revenue	**$11.50**	**$11.50**	**$18.50**	**$24.50**

Table 7-3. Model Stations for Austin

		Number of Inspections Per Month	
Revenues and Costs	**Per Test**	**130**	**200**
Net Revenue	***$11.50***	***$1,495.00***	***$2,300.00***
Variable Costs			
Communication with VID: Two calls at $0.39/call	$0.78		
Labor: 20 minutes at $12/hr (Table 3-6)	$4.00		
Fringe Benefits: 29.2 percent of labor	$1.17		
Computer ink and paper	$0.05		
Total Variable Costs per Month	$6.00	$779.74	$1,199.60
Fixed Costs			
Equipment and Tools: $18,000 (Table 3-3)		$373.65	$373.65
Loan: 5 years at 9 percent (Tables 3-18 and 3-19)			
Maintenance Agreement (Table 3-20)		$148.00	$148.00
Additional Maintenance Cost: (Table 3-21)		$35.00	$35.00
Building Space: $49,000 (Table 3-3)		$1,017.16	$1,017.16
Loan: 5 years at 9 percent (Tables 3-18 and 3-19)			
Dedicated Telephone line (TCEQ)		$50.00	$50.00
Electricity (TCEQ)		$40.00	$40.00
Total Fixed Costs		$1,663.81	$1,663.81
Total Cost		***$2,443.55***	***$2,863.41***

Table 7-4. Model Stations for El Paso

		Number of Inspections Per Month	
Revenues and Costs	**Per Test**	**130**	**400**
Net Revenue	***$11.50***	***$1,495.00***	***$4,600.00***
Variable Costs			
Communication with VID: Two calls at $0.39/call	$0.78		
Labor: 20 minutes at $8/hr (Table 4-6)	$2.67		
Fringe Benefits: 29.2 percent of labor	$0.78		
Computer ink and paper	$0.05		
Total Variable Costs per Month	$4.28	$556.35	$1,711.86
Fixed Costs			
Equipment and Tools: $17,000 (Table 4-3)		$410.54	$410.54
Loan: 4.25 years at 10 percent (Tables 4-18 and 4-19)			
Maintenance Agreement (Table 4-20)		$150.00	$150.00
Additional Maintenance Cost: (Table 4-21)		$66.67	$66.67
Building Space: $5,000 (Table 4-3)		$120.75	$120.75
Loan: 4.25 years at 10 percent (Tables 4-18 and 4-19)			
Dedicated Telephone line (TCEQ)		$50.00	$50.00
Electricity (TCEQ)		$40.00	$40.00
Total Fixed Costs		$837.95	$837.95
Total Cost		***$1,394.30***	***$2,549.80***

Table 7-5. Model OBD-Only Stations for HGB and DFW

		Number of Inspections Per Month	
Revenues and Costs	**Per Test**	**42**	**100**
Net Revenue	***$18.50***	***$777.00***	***$1,850.00***
Variable Costs			
Communication with VID: Two calls at $0.39/call	$0.78		
Labor: 20 minutes at $9/hr (Table 5-5)	$3.00		
Fringe Benefits: 29.2 percent of labor	$0.88		
Computer ink and paper	$0.05		
Total Variable Costs per Month	$4.71	$197.65	$470.60
Fixed Costs			
Equipment and Tools: $9,000 (Table 5-2)		$257.78	$257.78
Loan: 3 years at 2 percent (Tables 5-17 and 5-18)			
Maintenance Agreement (Table 5-19)		$58.33	$58.33
Additional Maintenance Cost: (Table 5-20)		$0.00	$0.00
Building Space: $500 (Table 5-2)		$14.32	$14.32
Loan: 3 years at 2 percent (Tables 5-17 and 5-18)			
Dedicated Telephone line (TCEQ)		$50.00	$50.00
Electricity (TCEQ)		$40.00	$40.00
Total Fixed Costs		$420.44	$420.44
Total Cost		***$618.09***	***$891.04***

Table 7-6. Model OBD/ASM Stations for HGB and DFW

		Number of Inspections Per Month		
Revenues and Costs	**Per Test**	**100**	**300**	**420**
Net Revenue	***$20.78***	***$2,078.00***	***$6,234.00***	***$8,727.60***
Variable Costs				
Communication with VID: Two calls at $0.39/call	$0.78			
Labor: 20 minutes at $10/hr (Table 5-5)	$3.33			
Fringe Benefits: 29.2 percent of labor	$0.97			
Computer ink and paper	$0.05			
Total Variable Costs per Month	$5.13	$513.24	$1,539.71	$2,155.59
Fixed Costs				
Equipment and Tools: $40,000 (Table 5-2) Loan: 5 years at 9 percent (Tables 5-17 and 5-18)		$830.33	$830.33	$830.33
Maintenance Agreement (Table 5-19)		$333.33	$333.33	$333.33
Additional Maintenance Cost: (Table 5-20)		$125.00	$125.00	$125.00
Building Space: $10,000 (Table 5-2) Loan: 5 years at 9 percent (Tables 5-17 and 5-18)		$207.58	$207.58	$207.58
Dedicated Telephone line (TCEQ)		$50.00	$50.00	$50.00
Electricity (TCEQ)		$40.00	$40.00	$40.00
Total Fixed Costs		$1,586.25	$1,586.25	$1,586.25
Total Cost		***$2,099.49***	***$3,125.96***	***$3,741.84***

8. OBSERVATIONS AND IMPLICATIONS

The impetus for the study is to evaluate whether the emissions testing fees for the different regions and test types are adequate. We examine this question several ways in Section 8.1:

- What the respondents say (Section 8.1.1)
- What the cost data indicate (Section 8.1.2)
- How the market is viewed by investors (Section 8.1.3).

In Sections 8.2 and 8.3, we discuss maintenance costs; an item mentioned in the comments as contributing to the inability of a station to recover all costs through the emissions test fee. Section 8.4 reviews the proportion and type of stations that make use of market flexibility to offer emissions tests for less than the fee cap. In Section 8.5, we examine the influence of vehicles that fail an emissions inspection but do not return to the station to be retested. In Section 8.6, we review the conceptual business models and suggest possible changes to the survey mechanism for future data collection efforts.

8.1 ADEQUACY OF FEE

8.1.1 What the Respondents Say

The last question in each survey asks the respondent whether the fee cap covered the costs of offering emissions testing at this station. Table 8-1 provides the percentages that said "Yes" for each stratum. All Test-Only stations in Austin reported that the fee did not cover costs. In addition, only 14 percent of the Test-and-Repair stations said the fee covered the costs. This is consistent with the first months of a new program. To illustrate this effect, refer to Table 7-3, which shows two model stations for Austin. If a station had to add building space to accommodate emissions testing and averages 130 inspections per month, that station would answer "No" to the question of whether the fee covers the costs. On the other hand, once the station became established and increased the volume of inspections to 200 per month (i.e., an additional two to three vehicles a day), the station would be more likely to answer "Yes" to that question.

Station owners in the El Paso region were more positive than their counterparts in Austin. In this case, 14 percent of Test-Only and 40 percent of Test-and-Repair stations reported that the fee covered the costs.

In the HGB-DFW region, nine out of ten OBD-only stations reported that the fee covered the costs. The percentage drops to 38 when a Test-Only station offered both OBD and ASM testing. This is consistent with the comment that the fee covers OBD testing but not ASM testing (see Section 6). If an OBD-Only station in this region offered both testing and repair services, 43 percent reported that the fee covered the costs. If a Test-and-Repair station offered both OBD and ASM testing, between 18 and 28 percent of the stations reported that the fee covered the costs. The number of inspections performed appears not to have a large effect on the percentage of stations that report the fee covers the costs.

Testing has been in place for several years in the HGB-DFW regions. Thus, the markets have had time to equilibrate. Note the overall higher percentages of stations that say the test fee covers costs for the HGB-DFW region compared with the Austin and El Paso regions.

Table 8-1. Percentage of Respondents Claiming Test Fees Cover Their Costs

Conceptual Model	Test Type	Number of Inspections Per Year	Fee Covers Costs	Free Inspections Given	Fee Less Than Cap Charged
Austin Test-Only			0%	14%	14%
Austin Test-and Repair			14%	14%	0%
El Paso Test-Only			40%	40%	0%
El Paso Test-and Repair			14%	29%	10%
HGB and DFW	OBD-only		93%	37%	57%
Test-Only	ASM/OBD		38%	35%	12%
	OBD-only		43%	16%	4%
HGB and DFW Test-and-Repair	ASM/OBD	<= 2000	18%	21%	9%
		2000<x<=5000	21%	47%	12%
		>5000	21%	47%	12%
		began in 2007	28%	0%	0%

8.1.2 What Do the Cost Data Indicate?

We developed nine rough spreadsheet models to evaluate the costs of offering emissions testing and populated each model with median values for each stratum from the survey. These are shown in Section 7. We included a loading of 29 percent of labor costs to cover payroll taxes (Social Security and Medicare), Federal unemployment insurance, and benefits based on U.S. Department of Labor, Bureau of Labor Statistics data (see Table 7-1), as well as maintenance costs beyond the warranty costs. With typical values, the emissions test fee appears adequate to cover costs in the HGB-DFW and El Paso regions. Once the program becomes more established in the Austin area and the stations build up the number of inspections per month, it is more likely that the fee will cover the costs.

8.1.3 What Investors Think

TCEQ keeps records of the number of active inspection stations. The counts for the HGB-DFW region[8] as of the date of the VID downloads were:

- April 29, 2003: 2,246 stations
- April 30, 2004: 2,692 stations
- April 30, 2005: 2,849 stations
- May 1, 2007: 2,969 stations

That is, there is a net growth in the number of stations offering emissions testing with a 20 percent increase from 2003 to 2004, a 6 percent increase from 2004 to 2005, and a 4 percent growth from 2005 to 2007. The slowing rate of increase in the number of stations offering emissions testing is indicative of a maturing market.

8.2 MAINTENANCE COSTS

We found that equipment warranties form a substantial component of annual costs for ASM/OBD stations. Even stations with warranties reported additional expenditures of several hundred dollars for

[8] The emission inspection program began in 2007 in Austin and El Paso. TCEQ will be able to track the growth or

equipment maintenance. Maintenance costs are frequently cited by station owners as a reason the fee does not cover costs (see Section 6.1). The complaint is consistent across the 2005 and 2007 surveys. TCEQ is aware that costs for maintenance might adversely affect the station's ability to cover test costs. However, any unsatisfactory response on the part of the manufacturer needs to be reported to the Department of Public Safety.

8.3 MARKET FLEXIBILITY—IS IT BEING USED?

TCEQ sets a cap on the fee that may be charged ($14.00, $16.00, or $27.00), depending on the region), not a fixed fee. A station owner has the option of offering emissions testing for less than the cap. The intent of the flexible pricing provision was to give the station owner the option of lowering the fee in order to shift demand from peak periods (beginning/end of month or beginning/end of work day).

Table 8-1 lists the percentage of stations that reported offering emissions testing at fees lower than the cap. Only three strata reported not making use of this option. Stations in these strata are either new (for HGB-DFW, beginning in 2007) or in regions with new programs (Austin and El Paso). The Test-Only facilities in the HGB-DFW make the most use of this provision, perhaps to increase the number of inspections performed. In sum, the industry is making use of the flexibility provided by TCEQ setting a market cap rather than a specified fee.

8.4 FAILED VEHICLES NOT RETURNING FOR RE-TEST

The 2007 survey asked the station owners if, in the previous two months, they had vehicles fail an emissions test and not return within 15 days for a re-test. In this case, the station collected the fee but did not have to pay the state for a sticker.[9] From the survey responses, this appears happen at many stations but for a relatively small number of vehicles (see Tables 3-23, 3-24, 4-24, 4-25, 5-24, and 5-25). The average number of vehicles that do not return to be retested varies by region, but is typically about seven vehicles per station. A sticker costs $5.50. If seven vehicles do not return, the station gains $38.50 for

---

decline in the number of testing stations in these regions in the future.

[9] For the purpose of this analysis, sticker costs are paid out of the safety inspection fee. To get a sticker, a vehicle must pass both the safety and emissions inspections. The large majority of vehicles that do not get a sticker passed

the two month period. That is, non-returning failed vehicles typically contribute less than $20.00 per month to a station. The highest reported number of non-returning vehicles is 50 (see Table 4-25), but this results in about $137.50 in additional revenues per month. Thus, they do not appear to constitute a major revenue stream for the station.

Comments from the station owners indicate that they consider the free re-tests as uncompensated costs because they still incur the labor, materials, and fixed costs. However, the requirement to provide a free retest within 15 days was known to the station owner prior to the decision to offer emission testing. Thus, the effort involved in retests should have been taken into account in the decision whether to offer testing at the station.

ERG examined the TCEQ VID to identify stations where the number of failed inspections exceeded the number of re-tests. The database records about 6.8 million inspections in the Austin, El Paso, HGB, and DFW regions for the 12-month period. In about 370,000 cases (or 5.4 percent), the vehicle failed the emissions inspection. About a third of the stations reported a larger number of failed inspections than retests. However, some of the Test-and-Repair facilities reported giving free inspections after major repair work. So it is possible that for some fraction of these cases, a vehicle failed at a Test-only Station, had the repair work performed at a Test-and-Repair station, and was retested at the second station without incurring an additional test fee.

Interestingly, the database revealed that the number of re-inspections exceeds the number of failed inspections by about 30,000 inspections. This may reflect how a station records a free inspection not associated with retesting a failed vehicle (see Table 8-1).

8.5 CONCEPTUAL BUSINESS MODELS

The data as received from TCEQ contained variables that identified whether a station offered only testing or testing and repair services. About 34 percent of the surveys received were reclassified according to the responses given in the survey. The reclassifications occur in all directions and among all strata. For the purpose this analysis, the reclassifications are assumed to cancel each other. However, for future survey efforts, it may be beneficial to modify the Test-and-Repair survey form to allow a

---

the safety inspection but failed the emissions test.

respondent to state that no repair services are offered and to discontinue the use of the Test-Only survey form. This way, if a station shifts from a Test-Only to Test-and-Repair, the additional information is collected from the questions that are not in the Test-Only version. If a station shifts from Test-and-Repair to Test-Only, the revised survey would still be appropriate.

9. REFERENCES

Belkin. 2005. Douglas Belkin. High prices embolden gas bandits. *Boston Globe.* July 21.

Dillman. 2000. Don A. Dillman. *Mail and Internet Surveys: The Tailored Design Method*. John Wiley & Sons, Inc. New York: New York. 2nd edition.

ERG. 2005. Eastern Research Group, Inc. *Fee Analysis for AirCheck Texas Vehicle Emission Inspection Program: Houston-Galveston and Dallas/Fort Worth Nonattainment Areas.* Report prepared for the Texas Commission on Environmental Quality. August 31.

Henton Communications Enterprises (Henton). 2005. Comparison of Telephone Rates. http://henton.com/tele/CustomRate.html

Soden and McElroy. 2003. Dennis L. Soden and Mathew McElroy. *Air Check Fee Analysis Study for El Paso County, Texas.* Report prepared for the Texas Commission on Environmental Quality. August.

TAMU. 2004. The Texas A&M University System. *Planning and Guidance for the AirCheck Texas Air Fee Analysis Program*. Report prepared for the Texas Commission on Environmental Quality. August 30.

APPENDIX A
SAMPLE DESIGN

A.1 INITIAL SAMPLE FRAME

On May 29, 2007, ERG received a file containing data on stations conducting emissions testing in Texas from TCEQ. ERG coded each station into one of the four regions based on county codes in the "ST_County_Code" variable and removed a TCEQ testing laboratory from the list of stations. The file contained data for 3,617 stations.

A.2 REMOVAL OF GOVERNMENT AND FLEET STATIONS

Table A-1 is the count of stations as received from TCEQ. The database contains a variable "St_type" where "G" identifies a station that tests government vehicles and "F" identifies a station that services a "fleet." Examples of the latter include Verizon and UPS. We removed these stations from the sample frame because they do not operate in a market environment. That is, the emissions testing is done as part of their cost of business (i.e., to maintain their fleet of vehicles) and the operators do not offer these services to the public. Removal of Government and Fleet stations and reduced the sample size to 3,444 stations.

Table A-1. Sample Universe

Region	ST_TYPE	Number of Stations
Austin	F	8
Austin	G	22
Austin	P	304
Dallas/Fort Worth	F	18
Dallas/Fort Worth	G	42
Dallas/Fort Worth	P	1,577
El Paso	F	1
El Paso	G	8
El Paso	P	181
Houston-Galveston	F	20
Houston-Galveston	G	53
Houston-Galveston	P	1,383
Number of Records		3,617

A.3 STRATIFICATION PLAN

The preliminary sampling strategy includes three strata:

- Region—(1) Austin, (2) El Paso, (3) Houston-Galveston-Brazoria, and (4) Dallas/Fort Worth
- Business Model—Test-Only or Test-and-Repair
- Equipment—OBD-only or OBD/ASM

Based on information gathered in ERG (2005), ERG subdivided the OBD/ASM strata for the Houston-Galveston-Brazoria and Dallas/Fort Worth regions by the number of inspections performed and whether they began inspections in 2007:

- Stations with 2,000 or fewer inspections per year,
- Stations with 2,001 to 5,000 inspections per year,
- Stations with more than 5,000 inspections per year, and
- Stations that appeared to begin offering inspections in 2007.

The number of stations in Austin and El Paso were not large enough to warrant stratification beyond region and business model.

A.4 SAMPLING PLAN

Table A-2 indicates the breakdown by strata and proposed sampling plan. A census is used for several cells, that is, every station in the cell is sent a survey. These are:

- Austin, Test Only
- El Paso, Test Only
- Houston-Galveston-Brazoria, Test and Repair, began in 2007
- Dallas/Fort Worth, Test and Repair, began in 2007
- Houston-Galveston-Brazoria, Test and Repair, ASM/OBD, more than 5000 inspections per year
- Dallas/Fort Worth, Test and Repair, ASM/OBD, more than 5000 inspections per year

A census is used for the first four groups because of the small number of observations in each cell. A census is also used for the last two groups because the few stations in these cells represent a substantial portion of the inspections.

For stations offering OBD testing (and no repair operations) in the Houston-Galveston-Brazoria and Dallas/Fort Worth regions, we reduce the sampling fraction to 50 percent. For Test-and-Repair operations in the Austin and El Paso regions, we use sampling fractions of about 25 percent and 45 percent, respectively. The goal is to sample approximately 60 observations in order to have sufficient responses for statistical analysis. Because there are twice as many stations in this stratum in Austin than in El Paso, the sampling fraction for Austin is about half that for El Paso. For the remaining cells, we use a sampling fraction of about 20 percent. This results in a proposed sample of 994 stations.

A.5 REFERENCE

ERG. 2005. Eastern Research Group, Inc. *Fee Analysis for AirCheck Texas Vehicle Emission Inspection Program: Houston-Galveston and Dallas/Fort Worth Nonattainment Areas.* Report prepared for the Texas Commission on Environmental Quality. August 31.

Table A-2. Proposed Sampling Plan

Station Type		Number of Inspections	Houston-Galveston-Brazoria	Dallas-Fort Worth	Austin	El Paso	Houston-Galveston-Brazoria	Dallas-Fort Worth	Austin	El Paso	Houston-Galveston-Brazoria	Dallas-Fort Worth	Austin	El Paso
Test Only	OBD		120	112	33	47	60	56	33	47	50.0%	50.0%	100.0%	100.0%
	ASM/OBD		333	377			67	75			20.1%	19.9%		
Test and Repair	OBD		301	362	271	134	61	72	68	60	20.3%	19.9%	25.1%	44.8%
	ASM/ OBD	<2000	306	323			60	64			19.6%	19.8%		
		2000<x<5000	257	311			52	62			20.2%	19.9%		
		>5000	49	65			49	65			100.0%	100.0%		
		began in 2007	16	27			16	27			100.0%	100.0%		
Subtotal			1382	1577	304	181	365	421	101	107				
Grand Total						**3,444**				**994**				

APPENDIX B
CALCULATION OF SAMPLE WEIGHTS

The sample weights from the initial sample size calculations were adjusted to account for (1) mis-classification of entities in strata and (2) non-response. The adjustment process took two steps, first accounting for mis-classification and then accounting for non-response.

B.1 ADJUSTMENT FOR MIS-CLASSIFICATION

The first step in adjusting the sampling weights for mis-classification was to account for the effect of mis-classification on population counts. The formula for estimating the adjusted population count for stratum *j* is:

$$N_j^A = N_j^O - n_j^M w_j^O + \sum_{i \neq j} n_{i \to j}^M w_i^O \qquad (1)$$

where

N_j^A is the adjusted population count for stratum *j*,

N_j^O is the initial (original) population count for stratum *j*,

n_j^M is the number of sample respondents originally classified as part of stratum *j*, but are actually mis-classified,

w_j^O is the original sampling weight for stratum *j*,

$n_{i \to j}^M$ is the number of sample respondents that are switched from stratum *i* to stratum *j*, and

w_i^O is the original sampling weight for stratum *i*.

Next, the original sample size is adjusted using the following formula:

$$n_j^A = n_j^O - n_j^M + \sum_{i \neq j} n_{i \to j}^M \qquad (2)$$

where

n_j^A is the adjusted sample size for stratum j,

n_j^O is the original sample size for stratum j, and

all other terms are as defined above. This results in a new sampling weight (w') for each stratum, defined as the ratio of the adjusted population count to the adjusted sample size:

$$w'_j = \frac{N_j^A}{n_j^A} \tag{3}$$

Tables B-1 through B-4 detail these calculations for the Austin, El Paso, Houston-Galveston-Brazoria, and Dallas/Fort Worth regions, respectively.

$$R_j^A = \frac{n_j^{RA}}{n_j^A} \tag{4}$$

B.2 Adjustment for Non-Response

The new weight (adjusted for misclassification) was then adjusted for non-response. This was done by first calculating an adjusted response rate (R_j^A) equal to the number of received responses (classified to the correct stratum) divided by the adjusted sample size:

where n_j^{RA} is the number of received responses for stratum j (adjusted for misclassification), calculated as:

$$n_j^{RA} = n_j^c - n_j^M + \sum_{i \neq j} n_{i \to j}^M \tag{5}$$

in which n_j^c is the number responses in stratum j that were originally correctly classified as stratum j. The final adjusted weight for the j^{th} stratum is then calculated as:

$$w_j^A = \frac{w'_j}{R_j^A} \quad (6)$$

Tables B-3 and B-4 detail these calculations for the Houston-Galveston region and the Dallas-Fort Worth, respectively.

Table B-1. Calculation of Population Counts, Sample Sizes, and Weights Adjusted For Stratum Mis-Classification, Austin Region

Stratum	Original Values			Number in Stratum Mis-Classified	Number Switched Into Stratum	Weighted Sum of Number Switched Into Stratum [a]	Values Adjusted For Mis-Classification		
	Population Count	Sample Size	Weight				Population Count [b]	Sample Size [c]	Weight [d]
Test-Only	33	33	1.00	4	5	20	49	29	1.69
Test-and-Repair	271	68	3.99	5	4	4	255	67	3.81

[a] Calculated by summing weights for each respondent switched into the stratum.
[b] Calculated using equation (1).
[c] Calculated using equation (2).
[d] Calculated using equation (3).

Table B-2. Calculation of Population Counts, Sample Sizes, and Weights Adjusted For Stratum Mis-Classification, El Paso Region

Stratum	Original Values			Number in Stratum Mis-Classified	Number Switched Into Stratum	Weighted Sum of Number Switched Into Stratum [a]	Values Adjusted For Mis-Classification		
	Population Count	Sample Size	Weight				Population Count [b]	Sample Size [c]	Weight [d]
Test-Only	47	47	1.00	11	1	2	38	37	1.03
Test-and-Repair	134	60	2.23	1	11	11	143	70	2.04

[a] Calculated by summing weights for each respondent switched into the stratum.
[b] Calculated using equation (1).
[c] Calculated using equation (2).
[d] Calculated using equation (3).

Table B-3. Calculation of Population Counts, Sample Sizes, and Weights Adjusted For Stratum Mis-Classification, Houston-Galveston Region

Stratum	Original Values			Number in Stratum Mis-Classified	Number Switched Into Stratum	Weighted Sum of Number Switched Into Stratum [a]	Values Adjusted For Mis-Classification		
	Population Count	Sample Size	Weight				Population Count [b]	Sample Size [c]	Weight [d]
Test-Only									
OBD	120	60	2.00	10	0	4	100	50	2.00
ASM and OBD	333	67	4.97	13	11	27	295	65	4.54
Test-and-Repair									
OBD	301	61	4.93	0	9	18	319	70	4.56
ASM and OBD, < 2,000	306	60	5.10	1	5	22	323	64	5.05
ASM and OBD, 2,000 to 5,000	257	52	4.94	3	6	30	272	55	4.95
ASM and OBD, > 5,000	49	49	1.00	7	2	10	52	44	1.18
ASM and OBD, began in 2007	16	16	1.00	0	1	5	21	17	1.24

[a] Calculated by summing weights for each respondent switched into the stratum.
[b] Calculated using equation (1).
[c] Calculated using equation (2).
[d] Calculated using equation (3).

Table B-4. Calculation of Population Counts, Sample Sizes, and Weights Adjusted For Stratum Mis-Classification, Dallas-Fort Worth Region

Stratum	Original Values			Number in Stratum Mis-Classified	Number Switched Into Stratum	Weighted Sum of Number Switched Into Stratum [a]	Values Adjusted For Mis-Classification		
	Population Count	Sample Size	Weight				Population Count [b]	Sample Size [c]	Weight [d]
Test-Only									
OBD	112	56	2.00	10	2	10	102	48	2.13
ASM and OBD	377	75	5.03	14	9	29	336	70	4.80
Test-and-Repair									
OBD	362	72	5.03	2	9	18	370	79	4.68
ASM and OBD, < 2,000	323	64	5.05	1	14	70	388	77	5.04
ASM and OBD, 2,000 to 5,000	311	62	5.02	4	0	0	291	58	5.02
ASM and OBD, > 5,000	65	65	1.00	4	0	0	61	61	1.00
ASM and OBD, began in 2007	27	27	1.00	0	1	2	29	28	1.04

[a] Calculated by summing weights for each respondent switched into the stratum.
[b] Calculated using equation (1).
[c] Calculated using equation (2).
[d] Calculated using equation (3).

Table B-5. Calculation of Final Adjusted Sampling Weights for Austin Region

Stratum	Adjusted Sample Size [a]	Weight Adjusted for Mis-Classification [b]	Sample Received and Correctly Classified [c]	Adjusted Response Rate [d]	Final Adjusted Sampling Weight [e]
Test-Only	29	1.69	7	24.1%	7.00
Test-and-Repair	67	3.81	21	31.3%	12.14

[a] See Table B-1.
[b] See Table B-1.
[c] Calculated using equation (5).
[d] Calculated using equation (4).
[e] Calculated using equation (6).

Table B-6. Calculation of Final Adjusted Sampling Weights for El Paso Region

Stratum	Adjusted Sample Size [a]	Weight Adjusted for Mis-Classification [b]	Sample Received and Correctly Classified [c]	Adjusted Response Rate [d]	Final Adjusted Sampling Weight [e]
Test-Only	37	1.03	5	13.5%	7.60
Test-and-Repair	70	2.04	21	30.0%	6.81

[a] See Table B-2.
[b] See Table B-2.
[c] Calculated using equation (5).
[d] Calculated using equation (4).
[e] Calculated using equation (6).

Table B-7. Calculation of Final Adjusted Sampling Weights for Houston-Galveston Region

Stratum	Adjusted Sample Size [a]	Weight Adjusted for Mis-Classification [b]	Sample Received and Correctly Classified [c]	Adjusted Response Rate [d]	Final Adjusted Sampling Weight [e]
Test-Only					
OBD	50	2.00	1	2.0%	100.00
ASM and OBD	65	4.54	16	24.6%	18.44
Test-and-Repair					
OBD	70	4.56	23	32.9%	13.87
ASM and OBD, < 2,000	64	5.05	19	29.7%	17.00
ASM and OBD, 2,000 to 5,000	55	4.95	15	27.3%	18.13
ASM and OBD, > 5,000	44	1.18	7	15.9%	7.43
ASM and OBD, began in 2007	17	1.24	3	17.6%	7.00

[a] See Table B-3.
[b] See Table B-3.
[c] Calculated using equation (5).
[d] Calculated using equation (4).
[e] Calculated using equation (6).

Table B-8 Calculation of Final Adjusted Sampling Weights for Dallas-Fort Worth Region

Stratum	Adjusted Sample Size [a]	Weight Adjusted for Mis-Classification [b]	Sample Received and Correctly Classified [c]	Adjusted Response Rate [d]	Final Adjusted Sampling Weight [e]
Test-Only					
OBD	48	2.13	7	14.6%	14.57
ASM and OBD	70	4.80	18	25.7%	18.67
Test-and-Repair					
OBD	79	4.68	26	32.9%	14.23
ASM and OBD, < 2,000	77	5.04	34	44.2%	11.41
ASM and OBD, 2,000 to 5,000	58	5.02	18	31.0%	16.17
ASM and OBD, > 5,000	61	1.00	14	23.0%	4.36
ASM and OBD, began in 2007	28	1.04	6	21.4%	4.83

[a] See Table B-4.
[b] See Table B-4.
[c] Calculated using equation (5).
[d] Calculated using equation (4).
[e] Calculated using equation (6).

APPENDIX C
SURVEY INSTRUMENTS

AUSTIN

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Fee Analysis for AirCheck Vehicle Emission Program Survey

If you own or operate more than one station that offers motor vehicle emissions inspections, answer the questions below *only* for the station to which the survey was sent.

1. Does this station offer motor vehicle emissions inspections?

- ☐ Yes: *Go to Question 2.*
- ☐ No: *You have completed the survey. Please mail the questionnaire to us in the enclosed pre-paid envelope. Thank you.*

2. In addition to emissions and safety testing, check the box that *best* describes other services offered at your station.

- ☐ No other services
- ☐ Non-repair operations
- ☐ Repair operations only
- ☐ Repair operations and non-repair operations

3. Identify the type of air emissions testing offered at your station. (Check all that apply.)

- ☐ OBD (On-Board Diagnostics)
- ☐ TSI (Two Speed Idle)

4. In what year did this station first offer OBD or TSI emissions testing? ___ ___ ___ ___

5. Did you have to add or acquire any of these items when you began to offer emissions testing at this station? If yes, enter your best estimate for the additional costs.

a. Emissions testing equipment (Including installation costs)	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No
b. Tools and other equipment	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No
c. Building space	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No
d. Land	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No

6. Did you add any additional staff when you began to offer emissions testing?

a. Inspectors	☐ Yes . . . . How many? _____ ☐ No
b. Other mechanics	☐ Yes . . . . How many? _____ ☐ No
c. Supervisors	☐ Yes . . . . How many? _____ ☐ No

d. Others

☐ Yes . . . . How many? _____
☐ No

7. What is the current average wage paid at this station for (Circle one.):

a. Inspectors $___ ___, ___ ___ ___.___ ___/hr/week/month/year

b. Other mechanics $___ ___, ___ ___ ___.___ ___/hr/week/month/year

c. Supervisors $___ ___, ___ ___ ___.___ ___/hr/week/month/year

d. Others $___ ___, ___ ___ ___.___ ___/hr/week/month/year

8. How many emissions inspectors currently work at this station?

_____ inspectors

9. Of the emissions inspectors identified in Question 8, how many are full-time and how many are part-time employees?

_____full-time

_____ part-time (about ___ hours/week)

We want to understand your costs for providing emissions testing. Please remember that all responses are confidential and will not be identified individually.

10. Identify the option that best describes how you financed the purchase of emissions testing equipment.

☐ Paid cash
☐ Lease-to-purchase agreement arranged with vendor
☐ Loan from bank

11. What is the lease-to-purchase or loan term? If you paid cash, enter "0."

_____ years

12. What is the interest rate for the lease-to-purchase agreement or loan? If you paid cash, enter "0."

_____percent

13. What is the maintenance package cost for the emissions testing equipment? (Circle one.)

$___, ___ ___ ___ per month/quarter/year

14. During the last year, what costs did you incur for normal maintenance of the emissions testing equipment that were not covered by the service contract or maintenance package?

$___, ___ ___ ___

15. Besides retesting a vehicle within 15 days of failing an emission test, do you ever give free emission tests, that is, charge no fee?

- ☐ Yes, please describe _____
- ☐ No

16. Do you ever charge less than $16.00 for an emission test?

- ☐ Yes. What is the lowest fee that you charge? $___ ___. ___ ___
- ☐ No

17. In the past two months, have you had a vehicle fail an emission test but not come back to be retested?

- ☐ Yes. About how many vehicles? _____
- ☐ No

18. In your opinion, does the $16.00 fee cover your costs of offering emissions testing at this station?

- ☐ Yes
- ☐ No If not, please tell us some of the reasons in the space below.

You have completed the survey. Please mail the questionnaire to us in the enclosed pre-paid envelope. Thank you.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Fee Analysis for AirCheck Vehicle Emission Program Survey

If you own or operate more than one station that offers motor vehicle emissions inspections, answer the questions below *only* for the station to which the survey was sent.

1. Does this station offer motor vehicle emissions inspections?

- ☐ Yes: *Go to Question 2.*
- ☐ No: *You have completed the survey. Please mail the questionnaire to us in the enclosed pre-paid envelope. Thank you.*

2. In addition to emissions and safety testing, check the box that *best* describes other services offered at your station.

- ☐ No other services
- ☐ Non-repair operations
- ☐ Repair operations only
- ☐ Repair operations and non-repair operations

3. Identify the type of air emissions testing offered at your station. (Check all that apply.)

- ☐ OBD (On-Board Diagnostics)
- ☐ TSI (Two Speed Idle)

4. In what year did this station first offer OBD or TSI emissions testing? ___ ___ ___ ___

5. Did you have to add or acquire any of these items when you began to offer emissions testing at this station? If yes, enter your best estimate for the additional costs.

b. Emissions testing equipment (Including installation costs)	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No
b. Tools and other equipment	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No
c. Building space	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No
d. Land	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No

6. Did you add any additional staff when you began to offer emissions testing?

a. Inspectors	☐ Yes . . . . How many? _____ ☐ No

b. Other mechanics ☐ Yes . . . . How many? _____
☐ No

c. Supervisors ☐ Yes . . . . How many? _____
☐ No

d. Others ☐ Yes . . . . How many? _____
☐ No

7. What is the current average wage paid at this station for (Circle one.):

a. Inspectors $___ ___, ___ ___ ___.___ ___/hr/week/month/year

b. Other mechanics $___ ___, ___ ___ ___.___ ___/hr/week/month/year

c. Supervisors $___ ___, ___ ___ ___.___ ___/hr/week/month/year

d. Other $___ ___, ___ ___ ___.___ ___/hr/week/month/year

8. How many emissions inspectors currently work at this station?

_____ inspectors

9. Of the emissions inspectors identified in Question 8, how many are full-time and how many are part-time employees?

_____full-time

_____ part-time (about ___ hours/week)

10. Of the number of inspectors that work *full time*, how many spend...?

50% or more of their time performing emissions inspections:..... _____ inspectors
about 25% of their time performing emissions inspections: ..... _____ inspectors
about 15% of their time performing emissions inspections: ..... _____ inspectors
about 10% of their time performing emissions inspections: ..... _____ inspectors
about 5% or less of their time performing emissions inspections:. _____ inspectors

11. Of the number of inspectors that work *part time*, how many spend...?

50% or more of their time performing emissions inspections:..... _____ inspectors
about 25% of their time performing emissions inspections: ..... _____ inspectors
about 15% of their time performing emissions inspections: ..... _____ inspectors
about 10% of their time performing emissions inspections: ..... _____ inspectors
about 5% or less of their time performing emissions inspections:. _____ inspectors

12. What percent of total workspace is used only for emissions testing?

Enter “0" if you do not have any workspace dedicated solely to emissions testing.

_____ percent

13. What proportion of the repair revenues for this station result directly from failed emission inspections? (Check one)

- ☐ 0%, perform inspections only
- ☐ less than 10%
- ☐ about 25%
- ☐ about 50%
- ☐ about 75%
- ☐ between 75% and 95%
- ☐ more than 95%

14. In any given month, what is the typical number of repair jobs from failed emissions tests?

_____ repair jobs

15. What is a typical repair cost for an emission test failure?

$___, ___ ___ ___ per repair for a failed emission test

16. Identify the option that best describes how you financed the purchase of emissions testing equipment.

- ☐ Paid cash
- ☐ Lease-to-purchase agreement arranged with vendor
- ☐ Loan from bank

17. What is the lease-to-purchase or loan term? If you paid cash, enter “0.”

_____ years

18. What is the interest rate for the lease-to-purchase agreement or loan? If you paid cash, enter “0.”

_____percent

19. What is the maintenance package cost for the emissions testing equipment?

(Circle one)

$___, ___ ___ ___ per month/quarter/year

20. During the last year, what costs did you incur for normal maintenance of the emissions testing equipment that were not covered by the service contract or maintenance package?

$___, ___ ___ ___

21. Besides retesting a vehicle within 15 days of failing an emission test, do you ever give free emission tests, that is, charge no fee?

☐ Yes, please describe _____
☐ No

22. Besides retesting a vehicle within 15 days of failing an emission test, do you ever charge less than $16.00 for an emission test?

☐ Yes. What is the lowest fee that you charge? $___ ___. ___ ___
☐ No

23. In the past two months, have you had a vehicle fail an emission test but not come back to be retested?

☐ Yes. About how many vehicles? _____
☐ No

24. In your opinion, does the $16.00 fee cover your costs of offering emissions testing at this station?

☐ Yes
☐ No If not, please tell us some of the reasons in the space below.

You have completed the survey. Please mail the questionnaire to us in the enclosed pre-paid envelope. Thank you.

EL PASO

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Fee Analysis for AirCheck Vehicle Emission Program Survey

If you own or operate more than one station that offers motor vehicle emissions inspections, answer the questions below *only* for the station to which the survey was sent.

1. Does this station offer motor vehicle emissions inspections?

- ☐ Yes: *Go to Question 2.*
- ☐ No: *You have completed the survey. Please mail the questionnaire to us in the enclosed pre-paid envelope. Thank you.*

2. In addition to emissions and safety testing, check the box that *best* describes other services offered at your station.

- ☐ No other services
- ☐ Non-repair operations
- ☐ Repair operations only
- ☐ Repair operations and non-repair operations

3. Identify the type of air emissions testing offered at your station. (Check all that apply.)

- ☐ OBD (On-Board Diagnostics)
- ☐ TSI (Two Speed Idle)

4. In what year did this station first offer OBD or TSI emissions testing? ___ ___ ___ ___

5. Did you have to add or acquire any of these items when you began to offer emissions testing at this station? If yes, enter your best estimate for the additional costs.

c. Emissions testing equipment (Including installation costs)	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No
b. Tools and other equipment	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No
c. Building space	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No
d. Land	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No

6. Did you add any additional staff when you began to offer emissions testing?

a. Inspectors	☐ Yes . . . . How many? _____ ☐ No
b. Other mechanics	☐ Yes . . . . How many? _____ ☐ No
c. Supervisors	☐ Yes . . . . How many? _____ ☐ No

d. Others

☐ Yes . . . . How many? _____
☐ No

7. What is the current average wage paid at this station for (Circle one.):

a. Inspectors $___ ___, ___ ___ ___.___ ___/hr/week/month/year

b. Other mechanics $___ ___, ___ ___ ___.___ ___/hr/week/month/year

c. Supervisors $___ ___, ___ ___ ___.___ ___/hr/week/month/year

d. Others $___ ___, ___ ___ ___.___ ___/hr/week/month/year

8. How many emissions inspectors currently work at this station?

_____ inspectors

9. Of the emissions inspectors identified in Question 8, how many are full-time and how many are part-time employees?

_____full-time

_____ part-time (about ___ hours/week)

We want to understand your costs for providing emissions testing. Please remember that all responses are confidential and will not be identified individually.

10. Identify the option that best describes how you financed the purchase of emissions testing equipment.

☐ Paid cash
☐ Lease-to-purchase agreement arranged with vendor
☐ Loan from bank

11. What is the lease-to-purchase or loan term? If you paid cash, enter "0."

_____ years

12. What is the interest rate for the lease-to-purchase agreement or loan? If you paid cash, enter "0."

_____percent

13. What is the maintenance package cost for the emissions testing equipment? (Circle one.)

$___, ___ ___ ___ per month/quarter/year

14. During the last year, what costs did you incur for normal maintenance of the emissions testing equipment that were not covered by the service contract or maintenance package?

$___, ___ ___ ___

15. Besides retesting a vehicle within 15 days of failing an emission test, do you ever give free emission tests, that is, charge no fee?

- ☐ Yes, please describe _____
- ☐ No

16. Do you ever charge less than $14.00 for an emission test?

- ☐ Yes. What is the lowest fee that you charge? $___ ___. ___ ___
- ☐ No

17. In the past two months, have you had a vehicle fail an emission test but not come back to be retested?

- ☐ Yes. About how many vehicles? _____
- ☐ No

18. In your opinion, does the $14.00 fee cover your costs of offering emissions testing at this station?

- ☐ Yes
- ☐ No If not, please tell us some of the reasons in the space below.

You have completed the survey. Please mail the questionnaire to us in the enclosed pre-paid envelope. Thank you.

HOUSTON-GALVESTON-BRAZORIA

DALLAS/FORT WORTH

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Fee Analysis for AirCheck Vehicle Emission Program Survey

If you own or operate more than one station that offers motor vehicle emissions inspections, answer the questions below *only* for the station to which the survey was sent.

1. Does this station offer motor vehicle emissions inspections?

- ☐ Yes: *Go to Question 2.*
- ☐ No: *You have completed the survey. Please mail the questionnaire to us in the enclosed pre-paid envelope. Thank you.*

2. In addition to emissions and safety testing, check the box that *best* describes other services offered at your station.

- ☐ No other services
- ☐ Non-repair operations
- ☐ Repair operations only
- ☐ Repair operations and non-repair operations

3. Identify the type of air emissions testing offered at your station.

- ☐ Full service—ASM (Acceleration Simulation Mode) and OBD (On-Board Diagnostics)
- ☐ OBD only

4. In what year did this station first offer OBD or ASM emissions testing? ___ ___ ___ ___

5. Did you have to add or acquire any of these items when you began to offer emissions testing at this station? If yes, enter your best estimate for the additional costs.

d. Emissions testing equipment (Including installation costs)	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No
b. Tools and other equipment	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No
c. Building space	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No
d. Land	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No

6. Did you add any additional staff when you began to offer emissions testing?

a. Inspectors	☐ Yes . . . . How many? _____ ☐ No

b. Other mechanics ☐ Yes . . . . How many? _____
☐ No

c. Supervisors ☐ Yes . . . . How many? _____
☐ No

d. Others ☐ Yes . . . . How many? _____
☐ No

7. What is the current average wage paid at this station for (Circle one.):

a. Inspectors $___ ___, ___ ___ ___.___ ___/hr/week/month/year

b. Other mechanics $___ ___, ___ ___ ___.___ ___/hr/week/month/year

c. Supervisors $___ ___, ___ ___ ___.___ ___/hr/week/month/year

d. Other $___ ___, ___ ___ ___.___ ___/hr/week/month/year

8. How many emissions inspectors currently work at this station?

_____ inspectors

9. Of the emissions inspectors identified in Question 8, how many are full-time and how many are part-time employees?

_____full-time

_____ part-time (about ___ hours/week)

10. Of the number of inspectors that work *full time*, how many spend...?

50% or more of their time performing emissions inspections:..... _____ inspectors
about 25% of their time performing emissions inspections: ..... _____ inspectors
about 15% of their time performing emissions inspections: ..... _____ inspectors
about 10% of their time performing emissions inspections: ..... _____ inspectors
about 5% or less of their time performing emissions inspections:. _____ inspectors

11. Of the number of inspectors that work *part time*, how many spend...?

50% or more of their time performing emissions inspections:..... _____ inspectors
about 25% of their time performing emissions inspections: ..... _____ inspectors
about 15% of their time performing emissions inspections: ..... _____ inspectors
about 10% of their time performing emissions inspections: ..... _____ inspectors
about 5% or less of their time performing emissions inspections:. _____ inspectors

12. What percent of total workspace is used only for emissions testing?

Enter “0" if you do not have any workspace dedicated solely to emissions testing.

_____ percent

13. What proportion of the repair revenues for this station result directly from failed emission inspections? (Check one)

- ☐ 0%, perform inspections only
- ☐ less than 10%
- ☐ about 25%
- ☐ about 50%
- ☐ about 75%
- ☐ between 75% and 95%
- ☐ more than 95%

14. In any given month, what is the typical number of repair jobs from failed emissions tests?

_____ repair jobs

15. What is a typical repair cost for an emission test failure?

$___, ___ ___ ___ per repair for a failed emission test

16. Identify the option that best describes how you financed the purchase of emissions testing equipment.

- ☐ Paid cash
- ☐ Lease-to-purchase agreement arranged with vendor
- ☐ Loan from bank

17. What is the lease-to-purchase or loan term? If you paid cash, enter “0.”

_____ years

18. What is the interest rate for the lease-to-purchase agreement or loan? If you paid cash, enter “0.”

_____percent

19. What is the maintenance package cost for the emissions testing equipment? (Circle one)

$___, ___ ___ ___ per month/quarter/year

20. During the last year, what costs did you incur for normal maintenance of the emissions testing equipment that were not covered by the service contract or maintenance package?

$___, ___ ___ ___

21. Besides retesting a vehicle within 15 days of failing an emission test, do you ever give free emission tests, that is, charge no fee?

☐ Yes, please describe _____
☐ No

22. Besides retesting a vehicle within 15 days of failing an emission test, do you ever charge less than $27.00 for an emission test?

☐ Yes. What is the lowest fee that you charge? $___ ___. ___ ___
☐ No

23. In the past two months, have you had a vehicle fail an emission test but not come back to be retested?

☐ Yes. About how many vehicles? _____
☐ No

24. In your opinion, does the $27.00 fee cover your costs of offering emissions testing at this station?

☐ Yes
☐ No If not, please tell us some of the reasons in the space below.

You have completed the survey. Please mail the questionnaire to us in the enclosed pre-paid envelope. Thank you.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Fee Analysis for AirCheck Vehicle Emission Program Survey

If you own or operate more than one station that offers motor vehicle emissions inspections, answer the questions below *only* for the station to which the survey was sent.

1. Does this station offer motor vehicle emissions inspections?

- ☐ Yes: *Go to Question 2.*
- ☐ No: *You have completed the survey. Please mail the questionnaire to us in the enclosed pre-paid envelope. Thank you.*

2. In addition to emissions and safety testing, check the box that *best* describes other services offered at your station.

- ☐ No other services
- ☐ Non-repair operations
- ☐ Repair operations only
- ☐ Repair operations and non-repair operations

3. Identify the type of air emissions testing offered at your station.

- ☐ Full service—ASM (Acceleration Simulation Mode) and OBD (On-Board Diagnostics)
- ☐ OBD only

4. In what year did this station first offer OBD or ASM emissions testing? ___ ___ ___ ___

5. Did you have to add or acquire any of these items when you began to offer emissions testing at this station? If yes, enter your best estimate for the additional costs.

e. Emissions testing equipment (Including installation costs)	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No
b. Tools and other equipment	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No
c. Building space	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No
d. Land	☐ Yes . . How much? $___ __ __,__ __ __ ☐ No

6. Did you add any additional staff when you began to offer emissions testing?

a. Inspectors	☐ Yes . . . . How many? _____ ☐ No
b. Other mechanics	☐ Yes . . . . How many? _____ ☐ No
c. Supervisors	☐ Yes . . . . How many? _____ ☐ No

d. Others

☐ Yes . . . . How many? _____
☐ No

7. What is the current average wage paid at this station for (Circle one.):

a. Inspectors $___ ___, ___ ___ ___.___ ___/hr/week/month/year

b. Other mechanics $___ ___, ___ ___ ___.___ ___/hr/week/month/year

c. Supervisors $___ ___, ___ ___ ___.___ ___/hr/week/month/year

d. Others $___ ___, ___ ___ ___.___ ___/hr/week/month/year

8. How many emissions inspectors currently work at this station?

_____ inspectors

9. Of the emissions inspectors identified in Question 8, how many are full-time and how many are part-time employees?

_____full-time

_____ part-time (about ___ hours/week)

We want to understand your costs for providing emissions testing. Please remember that all responses are confidential and will not be identified individually.

10. Identify the option that best describes how you financed the purchase of emissions testing equipment.

☐ Paid cash
☐ Lease-to-purchase agreement arranged with vendor
☐ Loan from bank

11. What is the lease-to-purchase or loan term? If you paid cash, enter "0."

_____ years

12. What is the interest rate for the lease-to-purchase agreement or loan? If you paid cash, enter "0."

_____percent

13. What is the maintenance package cost for the emissions testing equipment? (Circle one.)

$___, ___ ___ ___ per month/quarter/year

14. During the last year, what costs did you incur for normal maintenance of the emissions testing equipment that were not covered by the service contract or maintenance package?

$___, ___ ___ ___

15. Besides retesting a vehicle within 15 days of failing an emission test, do you ever give free emission tests, that is, charge no fee?

- ☐ Yes, please describe _____
- ☐ No

16. Do you ever charge less than $27.00 for an emission test?

- ☐ Yes. What is the lowest fee that you charge? $___ ___. ___ ___
- ☐ No

17. In the past two months, have you had a vehicle fail an emission test but not come back to be retested?

- ☐ Yes. About how many vehicles? _____
- ☐ No

18. In your opinion, does the $27.00 fee cover your costs of offering emissions testing at this station?

- ☐ Yes
- ☐ No If not, please tell us some of the reasons in the space below.

You have completed the survey. Please mail the questionnaire to us in the enclosed pre-paid envelope. Thank you.