

**VEHICLE EMISSION INSPECTION PROGRAM TEST FEE ANALYSIS FOR  
AIRCHEKTEXAS PROGRAM**

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## EXECUTIVE SUMMARY

### A. BACKGROUND

The purpose of this project was to evaluate the adequacy of the AirCheckTexas motor vehicle emissions inspection fee in the Houston-Galveston-Brazoria (HGB), Dallas-Fort Worth (DFW), El Paso, and Austin inspection and maintenance (I/M) program areas. Currently, the emissions inspection fee is capped at \$27 per inspection in the HGB and DFW program areas, \$16 in the Austin program area, and \$14 in El Paso County. This report provides a comprehensive analysis of the cost structure and revenue streams confronting the range of emissions inspection station business models in the four program areas. Analysis steps were as follows:

- surveying emissions inspection stations;
- gathering cost and revenue data from inspection stations and other sources;
- developing appropriate analytical models of the inspection industry; and
- evaluating the inspection fee adequacy based on the model results.

This study is performed every two years by the Texas Commission on Environmental Quality (TCEQ). The 77<sup>th</sup> Texas Legislature required the TCEQ to “no less frequently than biennially, review the fee established...” for the motor vehicle emissions inspection program (Health and Safety Code 382.202(1)(f)). The study previous to this one was performed by Eastern Research Group, Inc. under contract to the TCEQ (ERG, 2007). For consistency, the surveys sent to the emissions inspection stations used many of the same questions in the 2007 survey and the basic business models were similar to those previously used as well.

The Texas I/M Program is administered by two Agencies – the Texas Department of Public Safety (DPS) and the TCEQ. The I/M program relies on a system of independently owned and operated inspection stations that must offer both safety and emissions testing in order to participate. This study focuses on four regions: Austin, El Paso, HGB, and DFW. Stations are permitted to charge \$12.75 for the safety inspection and up to a set fee for the emissions testing. Table ES-1 lists the safety and emissions testing fees for each region.

**Table ES-1. Safety and Emissions Testing Fees**

<b>Region</b>	<b>Safety Inspection Test Fee</b>	<b>Emissions Inspection Test Fee (Maximum)</b>	<b>Total Inspection Fee (Maximum)</b>
Austin	\$12.75	\$16.00	\$28.75
El Paso	\$12.75	\$14.00	\$26.75
HGB	\$12.75	\$27.00	\$39.75
DFW	\$12.75	\$27.00	\$39.75

### B. SURVEY ADMINISTRATION

In the spring of 2009, survey questionnaires were sent to all active vehicle emissions inspection stations in the four Texas program areas. In the previous I/M test fee study

performed for the TCEQ, ERG developed two survey instruments that were based on whether the facility is either a test-only facility or a test-and-repair (T&R) facility. ERG also developed three regional variations to correspond to the test fee of \$14.00 (El Paso), \$16.00 (Austin), and \$27.00 (DFW and HGB) and the equipment used (onboard diagnostics [OBD], acceleration simulation mode [ASM], 2-speed idle test [TSI], or a combination thereof). To ensure year-to-year comparability, E.H. Pechan & Associates, Inc. (Pechan) used the same survey questions that were included in the 2007 (and 2005) studies.

The survey was conducted by mail. Active vehicle emission inspection stations and their physical addresses were identified in a database provided by the TCEQ on March 19, 2009. Each mailed survey packet included a personalized letter, a 3-page survey with a unique identifier, and a business reply envelope. All of the surveys were mailed in the period between March 23 and March 27, 2009.

Overall, the survey questionnaire was mailed to 3,656 I/M test stations and 828 survey responses were received from the four program areas. The analysis in this report is based on 814 survey responses because 14 surveys that had the unique identifier blacked out were not included in the analysis, resulting in a 22 percent response rate. Table ES-2 summarizes the number of survey responses by area and test type.

**Table ES-2. Number of I/M Test Fee Survey Responses by Area/Test Type**

<b>Program Area</b>	<b>Test Only</b>	<b>Test and Repair</b>	<b>Total</b>
Austin	9	76	85
El Paso	13	23	36
DFW/HGB	201	492	693
<b>Total</b>	<b>223</b>	<b>591</b>	<b>814</b>

There were 54 mailed surveys that were returned to Pechan for incorrect address information. Survey responses were accepted until May 4, 2009 giving the stations at least 30 days to submit their responses. After the deadline for survey responses had passed, 20 surveys were received by Pechan. Three of these surveys were returned for address issues. The remaining 17 surveys were not included in the analysis.

Pechan offered both e-mail and telephone support to survey respondents during the survey period. Questions could be submitted to either a Pechan e-mail address or by calling a dedicated phone extension in Pechan's Durham, North Carolina office. Any questions that could not be responded to directly by Pechan were referred to the TCEQ staff.

The TCEQ used the periodic bulletins that it issues to the inspection stations to alert them in advance that the survey was being mailed to them, as well as to provide reminders during the survey period that they needed to submit their completed surveys to Pechan in a timely fashion.

Table ES-3 summarizes the number of I/M stations in the four program areas by test type at the time of the 2009 survey. The station counts in this table can be compared with Table ES-

2 to see how the response rate varied by program area and test type. These response rates are summarized in Table ES-4.

**Table ES-3. Number of Texas I/M Test Fee Stations by Area/Test Type (March 2009)**

Program Area	Test Only	Test and Repair	Total
Austin	51	273	324
El Paso	59	134	193
DFW/HGB	1,063	2,076	3,139
<b>Total</b>	<b>1,173</b>	<b>2,483</b>	<b>3,656</b>

**Table ES-4. Survey Response Rate by Area/Test Type**

Program Area	Test Only	Test and Repair	Total
Austin	18%	28%	26%
El Paso	22%	17%	19%
DFW/HGB	19%	24%	22%
Total	19%	24%	22%

## C. FINDINGS

Table ES-5 summarizes the percentage of I/M stations by program area and test type that indicated in their survey responses that the emissions inspection fee covered the costs of emissions testing. In Austin, 22 percent of the test-only stations and 20 percent of the T&R stations said that the test fee covered their costs of performing this test. The El Paso station responses to this question showed a much greater disparity in how test-only and T&R stations responded. Only 8 percent of test-only stations in El Paso reported that fees cover costs, while 43 percent of T&R stations do. The HGB and DFW areas have the highest percentages of positive responses to the test fee adequacy question (and also the highest test fees). Almost 70 percent of test-only stations with only OBD tests performed indicated that the test fee was adequate, while 44 percent of OBD-only T&R stations in HGB-DFW indicated the fee to be adequate. Positive responses to the test fee adequacy question were received from 27 and 28 percent of test-only and T&R full service stations in the HGB-DFW area.

**Table ES-5. Percentage of Respondents Claiming Test Fees Cover Their Costs**

Program Area	Test Type	Fee Covers Costs
Austin		
Test-Only	All	22%
Test and Repair	All	20%
El Paso		
Test-Only	All	8%
Test and Repair	All	43%
HGB and DFW		
Test-Only	OBD-only	69%
	ASM/OBD	27%
Test and Repair	OBD-only	44%
	ASM/OBD	28%

One of the indicators of the economics of operating a vehicle emissions inspection program in Texas is the number of stations joining or leaving the program in each calendar year. A declining number of stations offering service indicates the likelihood that stations are finding that fees are not sufficient to cover their variable costs, while an increasing number of stations would suggest that fees are able to cover both fixed and variable costs (or else stations are making decisions to offer service based on poor estimates of their costs for doing so or find that there are other benefits to offering service that make it worthwhile to their bottom line). While the TCEQ does not keep historical statistics on the number of inspection stations, the information from prior year analyses (ERG, 2007) and the counts made in March 2009 for this study were used to develop the following comparisons. Counts for the HGB-DFW region from the TCEQ Vehicle Identification Database are shown in Table ES-6.

**Table ES-6. Historical Number of Inspection Stations in HGB-DFW Region**

Date	Number of Stations
April 29, 2003	2,246
April 30, 2004	2,692
April 30, 2005	2,849
May 1, 2007	2,969
March 19, 2009	3,139

The growth in the number of stations offering emissions inspections in the HGB-DFW area suggests that the fee is adequate in that program area.

Table ES-7 compares the number of emission inspection stations in the Austin and El Paso program areas for 2007 and 2009. This table shows that the number of test and repair stations has remained relatively constant during the past two years, but that there has been growth in the number of test-only stations in both areas. In both the Austin and El Paso areas, the number of inspection stations has increased by 6.5 percent since 2007. This is evidence that the fees are adequate in these two areas as well.

**Table ES-7. Historical Number of Inspection Stations in Austin and El Paso Program Areas**

Test Type	Austin 2007	Austin 2009	El Paso 2007	El Paso 2009
Test Only	33	51	47	59
Test and Repair	271	273	134	134
Total	304	324	181	193

The business model/cost model results presented in Chapter VI show that the most important variables affecting the economics of the current inspection fees in each program area are the hourly wage rate for inspectors and the elapsed time to perform each inspection. The analyses presented in Chapter VI are based on a 20-minute inspection. This time estimate seems reasonable and perhaps overestimates the time needed to perform an OBD test. Pechan's cost analysis shows that in Austin, the break-even number of inspections is 91 per month and that 70 percent of Austin area stations meet or exceed this level. The El Paso area analysis found the break-even number of inspections to be 83 per month with 77 percent of

existing stations exceeding this threshold. For the HGB-DFW areas, separate analyses were performed for OBD-only and OBD/ASM stations. The OBD-only stations in these areas break-even at 25 inspections per month or above and 81 percent meet or exceed this amount. Stations in these areas equipped with both OBD and ASM equipment have to perform 54 or more inspections per month in order to break even and 92 percent of existing stations meet or exceed this threshold.

The conclusion of this study reveals that the current set of vehicle emission inspection fees in Texas are adequate and do not need to be increased or decreased (note that Pechan's analysis excluded repair revenues). If that revenue was included in the analysis, more stations would have exceeded the break-even point than are reflected in this analysis. There are also qualitative benefits to the automotive service industry of offering emissions inspections like customer convenience and goodwill that are not considered in this cost modeling analysis.

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## CHAPTER I. INTRODUCTION

### A. BACKGROUND

The purpose of this project was to evaluate the adequacy of the AirCheckTexas motor vehicle emissions inspection fee in the Houston-Galveston-Brazoria (HGB), Dallas-Fort Worth (DFW), El Paso, and Austin inspection and maintenance (I/M) program areas. Currently, the emissions inspection fee is capped at \$27 per inspection in the HGB and DFW program areas, \$16 in the Austin program area, and \$14 in El Paso County. This report provides a comprehensive analysis of the cost structure and revenue streams confronting the range of emissions inspection station business models in the four program areas. Analysis steps were as follows: surveying emissions inspection stations, gathering cost and revenue data from inspection stations and other sources, developing appropriate analytical models of the inspection industry, and using the model results to evaluate the inspection fee adequacy.

This study is performed every two years by the Texas Commission on Environmental Quality (TCEQ). The 77<sup>th</sup> Texas Legislature required the TCEQ to “no less frequently than biennially, review the fee established...” for the motor vehicle emissions inspection program (Health and Safety Code 382.202(1)(f)). The study previous to this one was performed by Eastern Research Group, Inc. under contract to the TCEQ (ERG, 2007). For consistency, the surveys sent to the emissions inspection stations used many of the same questions as the 2007 survey, and the basic business models used in the analysis were also similar to those used previously.

The Texas I/M Program is administered by two Agencies – the Texas Department of Public Safety (DPS) and the 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, HGB, and DFW. Stations are permitted to charge for the safety inspection and up to a set fee for the emissions testing. Table I-1 lists the safety and emissions testing fees for each region.

**Table I-1. Safety and Emissions Testing Fees**

<b>Region</b>	<b>Safety Inspection Test Fee</b>	<b>Emissions Inspection Test Fee (Maximum)</b>	<b>Total Inspection Fee (Maximum)</b>
Austin	\$12.75	\$16.00	\$28.75
El Paso	\$12.75	\$14.00	\$26.75
HGB	\$12.75	\$27.00	\$39.75
DFW	\$12.75	\$27.00	\$39.75

The Texas Legislature charged the 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.

## **B. REPORT ORGANIZATION**

Section II of this report provides a summary of the analysis methods used in this project. This section introduces the business models used to evaluate the revenue and cost streams for stations that are I/M program participants. It also explains the sample survey design and implementation.

Survey findings are presented in separate sections by region. These sections are organized as follows:

Section III	Austin
Section IV	El Paso
Section V	HGB and DFW

The analyses presented in Sections III, IV, and V of this report use some statistical terms, namely median, mean, and mode. For the convenience of the reader, these terms are defined below. A median is the number separating the higher half of a sample from the lower half. The median of a list of numbers can be found by arranging all the observations from the lowest to the highest value and picking the middle one. The median can be used when a distribution is skewed, when end values are not known, or when less importance is placed on outliers. The mean is the sum of the observations divided by the number of observations. The mode is the value that occurs most frequently in a data set.

Section VI presents the cost analyses performed using the business models and the survey results for each program area. Overall study conclusions and findings are summarized in Section VII.

The survey instruments are provided in Appendix A.



## CHAPTER II. ANALYSIS METHODS SUMMARY

In the spring of 2009, survey questionnaires were sent to all active vehicle emissions inspection stations in the four Texas program areas. In the previous I/M test fee study performed for the TCEQ, ERG developed two survey instruments, each with three regional variations. The two survey instruments were based on whether the facility is either a test-only facility, or a test-and-repair (T&R) facility. The regional variations correspond to the test fee of \$14.00 (El Paso), \$16.00 (Austin), and \$27.00 (DFW and HGB) and the equipment used (onboard diagnostics [OBD], acceleration simulation mode [ASM], 2-speed idle test [TSI], or a combination thereof). To ensure year-to-year comparability, E.H. Pechan & Associates, Inc. (Pechan) used the same survey questions that were included in the 2007 (and 2005) (ERG, 2005) studies.

Pechan reviewed the 2007 survey instruments, sent proposed changes to the TCEQ for review, and made some slight revisions to the questions. One revision was to remove a previous question that asked about the type of air emissions testing offered at the station. This question was removed because this information is already known by the TCEQ. Then, the following question was revised to ask: In what year did this station offer OBD and TSI emission testing? The other survey change was to provide more space at the end of the survey for respondents to provide the reasons why they did not believe that the current test fee covers their costs of offering emissions testing.

The survey was conducted by mail. Existing vehicle emission inspection stations and their physical addresses were identified in a database provided by the TCEQ on March 19, 2009. Each mailed survey packet included a personalized letter, a 3-page survey with a unique identifier, and a business reply envelope. All of the surveys were mailed in the period between March 23 and March 27, 2009.

Overall, the survey questionnaire was mailed to 3,656 I/M test stations in the four program areas. Survey responses were received from 828 stations. The 14 surveys that were received with the unique identifier blacked out were not entered in the survey database, so the analysis in this report is based on 814 survey responses. This is a 22 percent response rate. Table II-1 summarizes the number of survey responses by area and test type.

**Table II-1. Number of I/M Test Fee Survey Responses by Area/Test Type**

Program Area	Test Only	Test and Repair	Total
Austin	9	76	85
El Paso	13	23	36
DFW/HGB	201	492	693
<b>Total</b>	<b>223</b>	<b>591</b>	<b>814</b>

There were 54 mailed surveys that were returned to Pechan for incorrect address information.

Survey responses were accepted until May 4, 2009. This gave the stations at least 30 days to submit their responses.

After the deadline for survey responses had passed, 20 surveys were received by Pechan. Three of these surveys were returned for address issues. The remaining 17 were completed surveys that were not entered in the database.

Pechan offered both email and telephone support to survey respondents during the survey period. Questions could be submitted to either a Pechan email address, or by calling a dedicated phone extension in Pechan's Durham, North Carolina office. Any questions that could not be answered by Pechan were referred to the TCEQ staff.

The TCEQ used the periodic bulletins that it issues to the inspection stations to alert them in advance that the survey was being mailed to them, as well as to provide reminders during the survey period that they needed to submit their completed surveys to Pechan in a timely fashion.

Table II-2 summarizes the number of I/M stations in the four program areas by test type at the time of the 2009 survey. The station counts in this table can be compared with Table II-1 to see how the response rate varied by program area and test type. These response rates are summarized in Table II-3.

**Table II-2. Number of Texas I/M Test Fee Stations by Area/Test Type (March 2009)**

<b>Program Area</b>	<b>Test Only</b>	<b>Test and Repair</b>	<b>Total</b>
Austin	51	273	324
El Paso	59	134	193
DFW/HGB	1,063	2,076	3,139
<b>Total</b>	<b>1,173</b>	<b>2,483</b>	<b>3,656</b>

**Table II-3. Survey Response Rate by Area/Test Type**

<b>Program Area</b>	<b>Test Only</b>	<b>Test and Repair</b>	<b>Total</b>
Austin	18%	28%	26%
El Paso	22%	17%	19%
DFW/HGB	19%	24%	22%
<b>Total</b>	<b>19%</b>	<b>24%</b>	<b>22%</b>

## CHAPTER III. AUSTIN SURVEY RESULTS

This section of the report describes the survey responses received from the Austin area I/M stations. All of the tables in this section of the report provide information from the stations that responded to the 2009 survey. No attempt was made to factor in the survey response rate or any stratification factors in these results.

Survey question 4 asks station owners about the costs of emissions testing equipment, building space and land costs. Table III-1 and Figure III-1 summarize the responses to Austin survey question 4. There are many more T&R respondents in Austin than there are test-only respondents. All of the test-only stations reported equipment costs when they began emissions testing, while 93 percent of the T&R sites reported equipment costs. In this survey, the fraction of stations reporting building space and land costs was low - 11 and zero percent, respectively, for test-only, and 14 and 7 percent, respectively, for T&R.

**Table III-1. Items Added or Acquired When Emissions Testing Was Offered – Austin**

	Number of Respondents	
	Yes	No
<b>TEST-ONLY</b>		
Emissions Testing Equipment	9	0
Tools and Other Equipment	8	1
Building Space	1	8
Land	0	9
<b>TEST-AND-REPAIR</b>		
Emissions Testing Equipment	71	5
Tools and Other Equipment	37	39
Building Space	11	65
Land	5	71

**Figure III-1. Items Added or Acquired When Emissions Testing Was Offered, Percentage of Total – Austin**

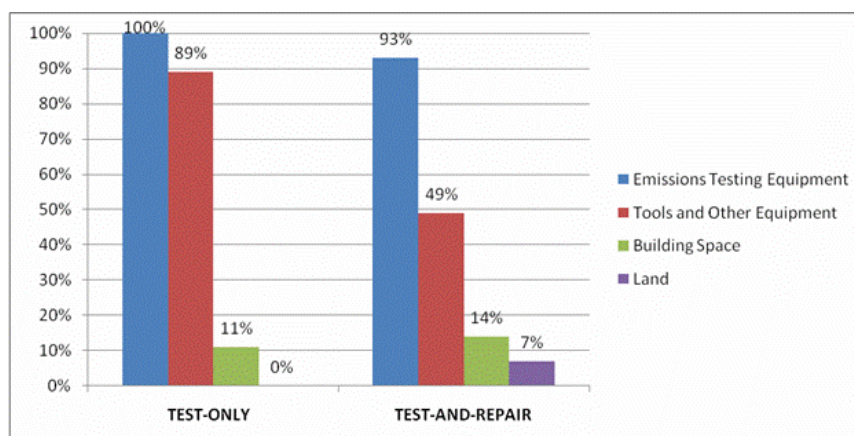


Table III-2 summarizes the Austin survey responses on emissions-related costs. This table shows that the median costs for emissions testing equipment (including tools and other equipment) are very similar for test-only and T&R stations, both being in the range of \$18,000 to \$18,700. Because there was only one test-only respondent in Austin about building space costs, and that cost estimate was \$300, building space costs do not appear to be important for Austin test-only sites. (This conclusion is based on a small sample size.) Building space and land costs are more significant for T&R stations in this area, though, with a wide range of reported values. Perhaps some respondents provided these building space and land costs as monthly or annual payments.

**Table III-2. Additional Costs for Added or Acquired Items – Austin**

	Average	Median	Mode	Minimum	Maximum
<b>TEST-ONLY</b>					
Emissions Testing Equipment	\$18,000	\$17,750	\$20,000	\$16,000	\$20,000
Tools and Other Equipment	\$1,314	\$1,000	\$1,000	\$200	\$5,000
Building Space	\$300	\$300	*	\$300	\$300
Land	*	*	*	*	*
<b>TEST-AND-REPAIR</b>					
Emissions Testing Equipment	\$18,185	\$17,000	\$17,000	\$1,700	\$40,000
Tools and Other Equipment	\$3,067	\$1,000	\$1,000	\$100	\$24,000
Building Space	\$31,975	\$11,000	\$50,000	\$250	\$106,000
Land	\$68,875	\$62,500	*	\$500	\$150,000

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

Tables III-3, III-4a, and III-4b summarize the respondents' answers about the need to add staff when they started participating in the emissions inspection program. Test-only sites were more likely to add staff than T&R stations. This makes sense because test-only stations probably had limited existing staff with any previous inspection experience. Only slightly more than half of T&R facilities added inspectors when they started offering emission testing. This must mean that existing service facilities just converted an existing bay to emissions/safety inspections.

**Table III-3. Additional Staff When Station Began Offering Emissions Testing – Austin**

	Number of Respondents			Percent		
	Yes	No	Missing	Yes	No	Missing
<b>TEST-ONLY</b>						
Inspectors	8	1	0	89%	11%	0%
Other Mechanics	2	7	0	22%	78%	0%
Supervisors	1	8	0	11%	89%	0%
Others	0	9	0	0%	100%	0%
<b>TEST-AND-REPAIR</b>						
Inspectors	44	32	0	58%	42%	0%
Other Mechanics	9	67	0	12%	88%	0%
Supervisors	1	75	0	1%	99%	0%
Others	2	74	0	3%	97%	0%

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

<b>Employee Type</b>	<b>Number</b>	<b>Number of Respondents</b>	<b>Percent</b>
<b>TEST-ONLY</b>			
Inspectors	1	4	44%
	2	2	22%
	3	1	11%
	<i>Missing</i>	2	22%
	<b>Total</b>	<b>9</b>	<b>100%</b>
Other Mechanics	1	1	11%
	2	1	11%
	<i>Missing</i>	7	78%
	<b>Total</b>	<b>9</b>	<b>100%</b>
Supervisors	1	1	11%
	<i>Missing</i>	8	89%
	<b>Total</b>	<b>9</b>	<b>100%</b>
Others		*	

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

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

<b>Employee Type</b>	<b>Number</b>	<b>Number of Respondents</b>	<b>Percent</b>
<b>TEST-AND-REPAIR</b>			
Inspectors	1	21	28%
	2	19	25%
	3	2	3%
	6	1	1%
	<i>Missing</i>	33	43%
	<b>Total</b>	<b>76</b>	<b>100%</b>
Other Mechanics	1	5	7%
	2	3	4%
	3	1	1%
	<i>Missing</i>	67	88%
	<b>Total</b>	<b>76</b>	<b>100%</b>
Supervisors	1	1	1%
	<i>Missing</i>	75	99%
	<b>Total</b>	<b>76</b>	<b>100%</b>
Others		*	

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

Question 6 in the Austin survey asks stations to provide current average wages paid to four different possible job descriptions at their facilities. Responses are reported in Tables III-5a and III-5b. For the purposes of the analyses presented later in this report, the inspector salaries are most important, and in Austin test-only stations, the median wage rate is \$12 per hour. Inspector's wage rates are very similar at T&R stations. The median wage rate is \$11 per hour, with this median being lower than test-only stations because some T&R stations only pay their inspectors about \$7 per hour.

**Table III-5a. Current Wage Paid (\$/hr) – Austin**

Employee Type	Average	Median	Mode	Minimum	Maximum
<b>TEST-ONLY</b>					
Inspectors	\$13.00	\$12.00	\$10.00	\$9.00	\$20.00
Other Mechanics	\$30.38	\$19.50	*	\$12.50	\$70.00
Supervisors	\$20.00	\$20.00	*	\$20.00	\$20.00
Others	\$10.00	\$10.00	*	\$10.00	\$10.00

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

**Table III-5b. Current Wage Paid (\$/hr) – Austin**

Employee Type	Average	Median	Mode	Minimum	Maximum
<b>TEST-AND-REPAIR</b>					
Inspectors	\$12.94	\$11.00	\$10.00	\$7.05	\$35.00
Other Mechanics	\$23.14	\$22.75	\$20.00	\$7.05	\$35.00
Supervisors	\$19.51	\$17.50	\$12.00	\$7.05	\$39.90
Others	\$10.64	\$10.00	\$10.00	\$6.50	\$15.00

The average test-only site has two working inspectors, while 50 percent of T&R facilities have either 1 or 2 inspectors, and 18 percent have 3 inspectors - as shown in Table III-6. Comparing the responses listed in Tables III-6, III-7, and III-8 shows that most emissions inspectors are full-time staff. Tables III-7 and III-8 report the responses to question 8. The Austin test-only sites have only 1 or 2 full-time inspectors. Of the T&R sites, 60 percent have 1 or 2 full-time inspectors. The remaining 40 percent of the T&R stations report anywhere from 3 to 9 full-time inspectors.

**Table III-6. Number of Emissions Inspectors Currently Working at the Station – Austin**

Number	Number of Respondents	Percent
<b>TEST-ONLY</b>		
1	2	22%
2	5	56%
3	1	11%
4	1	11%
Missing	0	0%
<b>Total</b>	<b>9</b>	<b>100%</b>
<b>TEST-AND-REPAIR</b>		
1	19	25%
2	20	26%
3	14	18%
4	8	11%
5	4	5%
6	4	5%
7	3	4%
8	2	3%
9	2	3%
Missing	0	0%
<b>Total</b>	<b>76</b>	<b>100%</b>

**Table III-7. Number of Full-time Emissions Inspectors – Austin**

<b>Number</b>	<b>Number of Respondents</b>	<b>Percent</b>
<b>TEST-ONLY</b>		
1	3	33%
2	6	67%
<i>Missing</i>	0	0%
<b>Total</b>	<b>9</b>	<b>100%</b>
<b>TEST-AND REPAIR</b>		
1	23	30%
2	23	30%
3	8	11%
4	8	11%
5	5	7%
6	3	4%
7	3	4%
8	1	1%
9	2	3%
<i>Missing</i>	0	0%
<b>Total</b>	<b>76</b>	<b>100%</b>

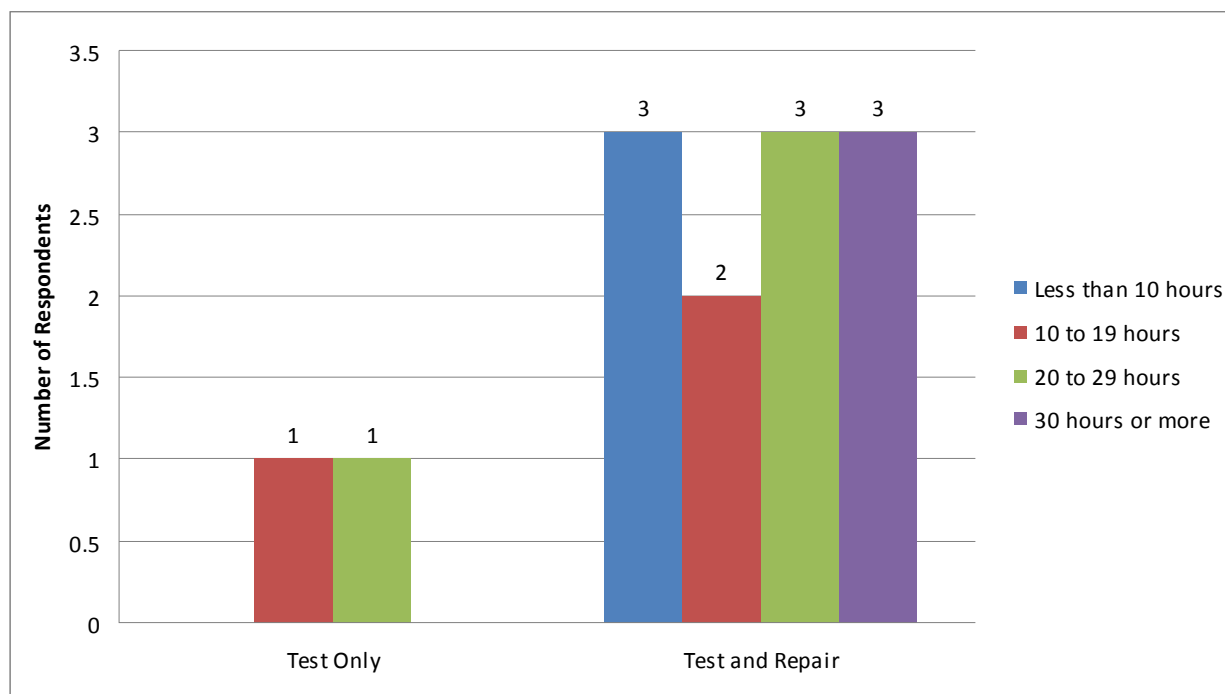
Table III-8 confirms that while some test-only and T&R stations report having part-time inspectors, about 80 percent of the Austin stations do not report any part-time staff in response to question 8. Responses to the hours per week for part-time staff indicate no particular patterns in the number of hours worked.

**Table III-8. Number of Part-time Emissions Inspectors – Austin**

<b>Number</b>	<b>Number of Respondents</b>	<b>Percent</b>
<b>TEST-ONLY</b>		
1	1	11%
3	1	11%
<i>Missing</i>	7	78%
<b>Total</b>	<b>9</b>	<b>100%</b>
<b>TEST-AND REPAIR</b>		
1	9	12%
2	4	5%
<i>Missing</i>	63	83%
<b>Total</b>	<b>76</b>	<b>100%</b>

Question 8 in the Austin survey also asks how many hours per week that part-time staff work. The responses are summarized in Figure III-2. This figure shows that T&R stations are more likely to hire part-time staff with more than 20 hours per week. It also shows that part-time staff are equally likely to be working <10, 10 to 19, 20 to 29, or 30 plus hours per week at T&R stations.

**Figure III-2. Work Hours of Part-time Emissions Inspectors – Austin**



Austin survey questions 9 through 14 refer only to T&R stations. These questions are concerned with the relationship between station inspections and other products and services offered on site. Questions 9 and 10 of the T&R survey ask stations to identify the proportion of time each full-time and part-time inspector dedicates to performing inspections as opposed to repair work or other tasks. Due to limited responses, the results are relatively uniform, but indicate that the typical inspector spends less time on inspections than other work. Table III-9 shows a median of 4 full-time inspectors spending about 5 percent of their time on inspections compared to 1 inspector for each of the higher categories. Table III-10 summarizes the same information for part-time inspectors, but the low response number restricts any similar conclusions.

**Table III-9. Of Inspectors That Work Full-Time, How Many Spend...? – Austin**

Percent of Time Performing Inspections	Median	Mode	Minimum	Maximum
50% or more	1	1	1	7
About 25%	1	1	1	4
About 15%	1	1	1	2
About 10%	1	1	1	7
About 5%	4	1	1	9



**Table III-10. Of Inspectors That Work Part-Time, How Many Spend...? – Austin**

<b>Percent of Time Performing Inspections</b>	<b>Median</b>	<b>Mode</b>	<b>Minimum</b>	<b>Maximum</b>
50% or more	1	1	1	2
About 25%	1	1	1	2
About 15%	*	*	*	*
About 10%	1	*	1	1
About 5%	*	*	*	*

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

Question 11 in the Austin survey asks about the percentage of the total workspace at the facility that is used only for emissions testing at T&R stations. These results are provided in Table III-11. The average fraction of the reported workspace used was 19 percent. The median-reported value was 15 percent.

**Table III-11. Percent of Workspace Used Only for Emissions Testing – Austin**

<b>Mean</b>	<b>Median</b>	<b>Mode</b>	<b>Minimum</b>	<b>Maximum</b>
19%	15%	10%	-%	100%

Austin survey question 12 asks about the percentage of repair revenues from failed emission inspections. Table III-12 summarizes these results, which show that the vast majority (79 percent) of stations earn less than 10 percent of their repair revenues from failed emission tests. Table III-13 shows that Austin T&R stations are typically performing emissions-related repairs on about 5 to 10 vehicles per month. A typical repair cost for these emission test failures is about \$250, as indicated in Table III-14.

**Table III-12. Proportion of Repair Revenues Results from Failed Emission Inspections – Austin**

<b>Proportion of Repair Revenue</b>	<b>Number of Respondents</b>	<b>Percent</b>
0% perform inspections only	9	12%
Less than 10%	60	79%
About 25%	3	4%
About 50%	0	0%
About 75%	1	1%
Between 75% and 95%	0	0%
More than 95%	0	0%
Missing	3	4%

**Table III-13. Typical Number of Repair Jobs per Month Resulting from Failed Emissions Tests – Austin**

<b>Mean</b>	<b>Median</b>	<b>Mode</b>	<b>Minimum</b>	<b>Maximum</b>
8	5	10	-	100

**Table III-14. Typical Repair Cost for an Emissions Test Failure – Austin**

Mean	Median	Mode	Minimum	Maximum
\$235	\$250	\$300	\$-	\$600

The next set of questions asks about how I/M test stations (both test-only and T&R) paid for or financed their emissions testing equipment and any additional building or land expenses. Questions 15 (T&R stations) and 9 (test-only stations) ask owners about financing test equipment purchases. More than half of the test-only stations paid cash (56 percent). A lease-to-purchase agreement with the vendor was the second most prevalent option (33 percent), followed by a bank loan (11 percent). The financing options were pursued in the same order by T&R stations, but with paying cash and the lease-to-purchase agreement having nearly the same frequency at these sites, as shown in Table III-15. Table III-16 shows that lease-to-purchase and loan payback periods were typically 3 to 5 years.

**Table III-15. Financing Mechanisms for Purchasing Emissions Testing Equipment – Austin**

Finance Type	Number of Stations	Percent
<b>TEST-ONLY</b>		
Paid Cash	5	56%
Lease-to-Purchase Agreement Arranged with Vendor	3	33%
Loan from Bank	1	11%
<b>TEST-AND-REPAIR</b>		
Paid Cash	32	42%
Lease-to-Purchase Agreement Arranged with Vendor	31	41%
Loan from Bank	9	12%
Missing	4	5%

**Table III-16. Lease-To-Purchase or Bank Loan Term (Years) – Austin**

Business Model	Average	Median	Mode	Minimum	Maximum
<b>TEST-ONLY</b>	4	3	3	3	5
<b>TEST-AND REPAIR</b>	4	5	5	2	5

Table III-17 reports the interest rates that were charged to test stations when equipment was financed. The test-only average interest rate was 7 percent while the median rate charged was 5 percent. Slightly higher interest rates were charged to T&R stations. The T&R station average rate was 9 percent and the median rate was 8 percent. Reasons why the test-only rates were lower than those charged to T&R stations may include the lower overall purchase price for equipment at test-only sites, and that test-only costs may have been incurred during a period when interest rates were lower, in general.

**Table III-17. Interest Rate for Lease-To-Purchase or Bank Loan – Austin**

<b>Business Model</b>	<b>Average</b>	<b>Median</b>	<b>Mode</b>	<b>Minimum</b>	<b>Maximum</b>
<b>TEST-ONLY</b>	7%	5%	*	1%	15%
<b>TEST-AND REPAIR</b>	9%	8%	8%	1%	18%

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

Questions 18 and 12 in the Austin survey ask about the maintenance package costs for the emissions testing equipment. Table III-18 shows that this annual median cost was \$1,648 for test-only stations and \$2,260 for T&R stations. The average reported annual maintenance cost was \$1,542 for test-only stations and \$3,030 for T&R sites. The large difference between the average and median cost for T&R sites is influenced by the \$20,000 value reported on one survey. A \$20,000 annual maintenance contract cost is well above the norm for this industry. Austin survey questions 19 and 13 ask about costs paid during the past year for maintaining their emissions testing equipment beyond those included in the service contract. These costs were reported to be slightly less than \$1,000 on average for test-only stations and just less than \$1,400 for T&R sites, as shown in Table III-19.

**Table III-18. Annual Maintenance Package Costs – Austin**

<b>Business Model</b>	<b>Average</b>	<b>Median</b>	<b>Mode</b>	<b>Minimum</b>	<b>Maximum</b>
<b>TEST-ONLY</b>	\$1,542	\$1,648	*	\$500	\$3,000
<b>TEST-AND REPAIR</b>	\$3,030	\$2,260	\$1,800	\$1,000	\$20,000

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

**Table III-19. Extra Maintenance Cost in 2007 – Austin**

<b>Business Model</b>	<b>Average</b>	<b>Median</b>	<b>Mode</b>	<b>Minimum</b>	<b>Maximum</b>
<b>TEST-ONLY</b>	\$963	\$688	\$500	\$500	\$2,000
<b>TEST-AND REPAIR</b>	\$1,387	\$1,000	\$1,000	\$50	\$7,000

Table III-20 summarizes the responses to questions 20 and 14 of the Austin surveys, which ask about the prevalence of free retests. Almost 90 percent of the test-only sites and 74 percent of the T&R sites report that they do not perform free retests. Only a small fraction of Austin stations ever offer emission inspections at fees less than the \$16 per inspection rate, as shown in Table III-21. When a lower fee is charged, it is typically around \$12 - per Table III-22.

**Table III-20. Free Emissions Tests – Austin**

<b>Business Model</b>	<b>Test Given</b>	<b>Number of Respondents</b>	<b>Percent</b>
<b>TEST-ONLY</b>	Yes	1	11%
	No	8	89%
<b>TEST-AND REPAIR</b>	Yes	20	26%
	No	56	74%

**Table III-21. Fee Less Than \$16.00 – Austin**

<b>Business Model</b>	<b>Charged Less Than \$16?</b>	<b>Number of Respondents</b>	<b>Percent</b>
<b>TEST-ONLY</b>	Yes	0	0%
	No	9	100%
<b>TEST-AND REPAIR</b>	Yes	6	8%
	No	70	92%

**Table III-22. Typical Fee Charged Less Than \$16.00 – Austin**

<b>Mean</b>	<b>Median</b>	<b>Mode</b>	<b>Minimum</b>	<b>Maximum</b>
\$12.50	\$12.00	*	\$11.00	\$14.50

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

Questions 22 and 16 in the Austin surveys ask whether any vehicles failing an inspection in the past two months have not returned for a retest. Table III-23 shows that the percentages reported by the test-only and the T&R stations were the same - 56 percent reported a vehicle not returning for a retest within the past two months. The median number of vehicles not returning for a retest after a failure was 4, as noted in Table III-24. The average number of such vehicles reported by the T&R stations appears to be skewed by the 200 vehicle estimate provided by one T&R survey respondent.

**Table III-23. Failed Vehicles Not Returning For Retest within Last Two Months – Austin**

<b>Business Model</b>	<b>Not Return?</b>	<b>Number of Respondents</b>	<b>Percent</b>
<b>TEST-ONLY</b>	Yes	5	56%
	No	4	44%
<b>TEST-AND REPAIR</b>	Yes	42	56%
	No	33	44%

**Table III-24. Number of Failed Vehicles Not Returning For Retest within Last Two Months – Austin**

<b>Business Model</b>	<b>Average</b>	<b>Median</b>	<b>Mode</b>	<b>Minimum</b>	<b>Maximum</b>
<b>TEST-ONLY</b>	5	4	*	1	12
<b>TEST-AND REPAIR</b>	12	4	3	1	200

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

The last survey question asks the Austin stations whether they believe that the inspection fee covers their costs of performing the emission tests. Table III-25 shows that 78 percent of the test-only stations and 80 percent of the T&R stations believe that the fee does not cover their costs.

**Table III-25. Does Fee Cover Emissions Testing Costs? – Austin**

<b>Business Model</b>	<b>Fee Covers Costs?</b>	<b>Number of Respondents</b>	<b>Percent</b>
<b>TEST-ONLY</b>	Yes	2	22%
	No	7	78%
<b>TEST-AND REPAIR</b>	Yes	15	20%
	No	61	80%

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## CHAPTER IV. EL PASO SURVEY RESULTS

This section of the report describes the survey responses received from the El Paso area I/M stations. All of the tables in this section of the report provide information from the stations that responded to the 2009 survey. No attempt was made to factor in the survey response rate or any stratification factors in these results.

Survey question 4 asks station owners about the costs of emissions testing equipment, building space and land costs. Table IV-1 and Figure IV-1 summarize the responses to El Paso survey question 4. All of the El Paso area stations reported having emissions testing equipment costs when they began emissions testing. This was true of both test-only and T&R facilities. This is to be expected as El Paso County changed to OBD testing for 1996 and newer vehicles on January 1, 2007. The percentage of El Paso test-only and T&R stations reporting additional costs for tools and equipment was consistent - both with about 80 percent reporting such costs. In addition, the fraction of stations reporting building space costs when they began to offer emissions testing is also fairly consistent for test-only and T&R stations in El Paso, with 31 percent of test-only and 26 percent of T&R stations indicating that they had incurred such costs. No El Paso test-only stations reported land costs, while 17 percent of the T&R stations reported having additional land costs at emissions testing initiation.

**Table IV-1. Items Added or Acquired When Emissions Testing Was Offered – El Paso**

	Number of Respondents	
	Yes	No
<b>TEST-ONLY</b>		
Emissions Testing Equipment	13	0
Tools and Other Equipment	10	3
Building Space	4	9
Land	0	13
<b>TEST-AND-REPAIR</b>		
Emissions Testing Equipment	23	0
Tools and Other Equipment	19	4
Building Space	6	17
Land	4	19

**Figure IV-1. Items Added or Acquired When Emissions Testing Was Offered, Percentage of Total – El Paso**

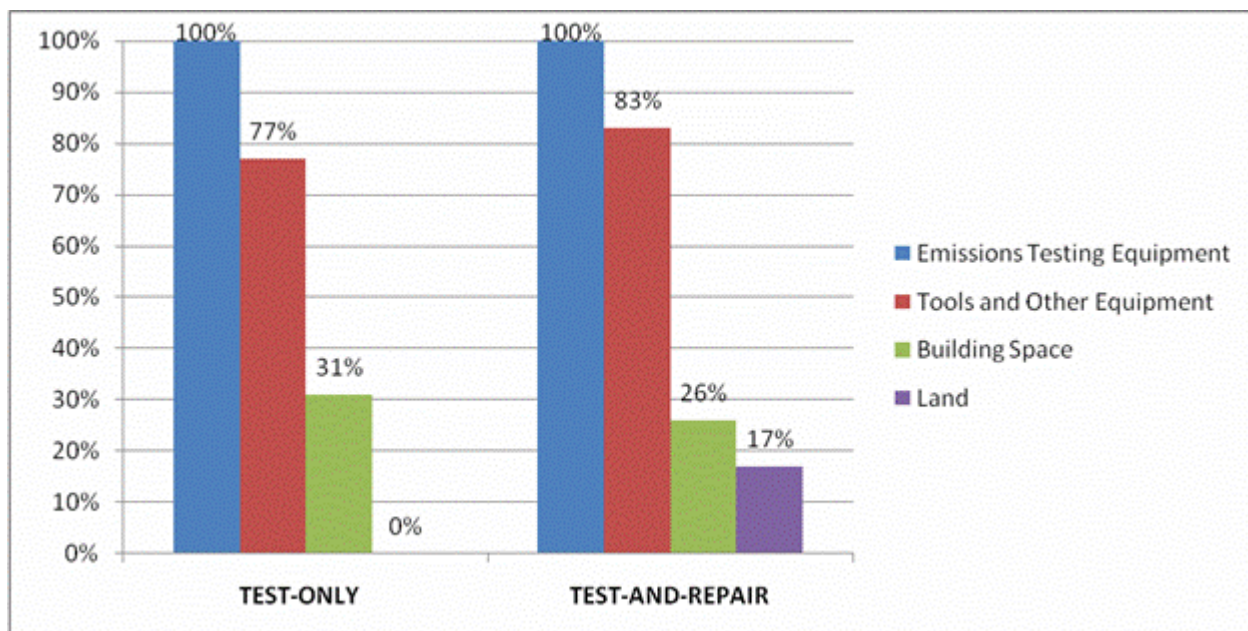


Table IV-2 summarizes the El Paso survey responses about their emissions-related costs. This table shows that the median costs for emissions testing equipment (including tools and other equipment) are similar for test-only and T&R stations, both being in the range of \$17,200 to \$17,800. The responses diverge significantly for building space costs, however. The median building space cost for test-only stations was \$10,200, while it was \$40,000 for T&R stations. Note that there were only 4 test-only respondents who reported building space costs and 6 T&R station respondents, and there were a wide range of reported values, so it is difficult to draw conclusions from the reported data. Test-only site responses to this question varied from \$750 to \$50,000. The reported building space costs for T&R stations ranged from \$2,500 to \$100,000. Perhaps some respondents provided these building space costs as monthly or annual payments. Only 4 T&R facilities reported having incurred land costs. Median and average reported land costs are \$15,000 and \$18,667, respectively. However, these statistics may not be good indicators of actual land costs because reported values ranged from \$1,000 to \$40,000, and the \$1,000 estimate does not seem realistic.

To elaborate on the issue of the variability in the building space cost estimates provided above, Pechan cautions the TCEQ about drawing many conclusions from the limited data submitted. For example, the 4 test-only stations provided building space cost estimates of \$750, \$5,400, \$15,000 and \$50,000. The 5 reported cost estimates for T&R stations were \$2,500, \$10,000, \$40,000, \$80,000 and \$100,000. Pechan recommends that if this survey question is asked again in the next survey, the question be revised to clarify that the value being requested is the *initial purchase cost*. This should ensure that responses are provided in consistent terms.



**Table IV-2. Additional Costs for Added or Acquired Items – El Paso**

	Average	Median	Mode	Minimum	Maximum
<b>TEST-ONLY</b>					
Emissions Testing Equipment	\$ 14,838	\$ 15,995	\$ 17,000	\$ 5,000	\$ 20,400
Tools and Other Equipment	\$ 4,175	\$ 1,200	\$ 1,200	\$ 100	\$ 20,000
Building Space	\$ 17,788	\$ 10,200	*	\$ 750	\$ 50,000
Land	*	*	*	*	*
<b>TEST-AND-REPAIR</b>					
Emissions Testing Equipment	\$ 19,439	\$ 16,000	\$ 15,000	\$ 8,000	\$ 46,000
Tools and Other Equipment	\$ 5,100	\$ 1,750	\$ 500	\$ 300	\$ 30,000
Building Space	\$ 46,500	\$ 40,000	*	\$ 2,500	\$ 100,000
Land	\$ 18,667	\$ 15,000	*	\$ 1,000	\$ 40,000

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

Tables IV-3, IV-4a and IV-4b summarize the responses to questions about their need to add staff when they started participating in the emissions inspection program. The El Paso results show that test-only and T&R stations were equally likely to add inspectors when they began emissions testing. Of the respondents, about 70 percent of both station types added *inspectors* at program initiation. At the test-only sites, 38 percent of the stations also added *other mechanics* when they began emissions testing, but very few test-only sites added *supervisors* or other staff. The T&R stations were less likely than test-only stations to add *other mechanics* (26 percent), but more likely to add *supervisors* (17 percent).

**Table IV-3. Additional Staff When Station Began Offering Emissions Testing – El Paso**

	Number of Respondents			Percent		
	Yes	No	Missing	Yes	No	Missing
<b>TEST-ONLY</b>						
Inspectors	9	4	0	69%	31%	0%
Other Mechanics	5	8	0	38%	62%	0%
Supervisors	1	12	0	8%	92%	0%
Others	1	12	0	8%	92%	0%
<b>TEST-AND-REPAIR</b>						
Inspectors	16	7	0	70%	30%	0%
Other Mechanics	6	17	0	26%	74%	0%
Supervisors	4	19	0	17%	83%	0%
Others	1	22	0	4%	96%	0%

**Table IV-4a. Number of Staff Hired When the Facility Began Offering Emissions Testing – El Paso**

Employee Type	Number	Number of Respondents	Percent
<b>TEST-ONLY</b>			
Inspectors	1	7	54%
	3	2	15%
	<i>Missing</i>	4	31%
	<b>Total</b>	<b>13</b>	<b>100%</b>
Other Mechanics	1	3	23%
	2	2	15%
	<i>Missing</i>	8	62%
	<b>Total</b>	<b>13</b>	<b>100%</b>
Supervisors	1	1	8%
	<i>Missing</i>	12	92%
	<b>Total</b>	<b>13</b>	<b>100%</b>
Others	1	1	8%
	<i>Missing</i>	12	92%
	<b>Total</b>	<b>13</b>	<b>100%</b>

**Table IV-4b. Number of Staff Hired When the Facility Began Offering Emissions Testing – El Paso**

Employee Type	Number	Number of Respondents	Percent
<b>TEST-AND-REPAIR</b>			
Inspectors	1	6	26%
	2	4	17%
	3	4	17%
	4	1	4%
	6	1	4%
	<i>Missing</i>	7	30%
	<b>Total</b>	<b>23</b>	<b>100%</b>
Other Mechanics	1	2	9%
	2	1	4%
	4	3	13%
	<i>Missing</i>	17	74%
	<b>Total</b>	<b>23</b>	<b>100%</b>
Supervisors	1	4	17%
	<i>Missing</i>	19	83%
	<b>Total</b>	<b>23</b>	<b>100%</b>
Others	1	1	4%
	<i>Missing</i>	22	96%
	<b>Total</b>	<b>23</b>	<b>100%</b>

Question 6 in the El Paso survey asks stations to provide current average wages paid to four different possible job descriptions at their facilities. Responses are reported in Tables IV-5a and IV-5b. For the purposes of the analyses presented later in this report, the inspector salaries are most important, and in El Paso test-only and T&R stations, the median wage rate is \$10.00 per hour. The T&R facilities in El Paso that pay an inspector wage rate of \$20 per hour make the

T&R data slightly different from the test-only facilities. Minimum inspector rates are consistent at \$7.50 per hour. Wage rates for supervisors are higher than for the other categories (inspectors, other mechanics, and others).

**Table IV-5a. Current Wage Paid (\$/hr) – El Paso**

Employee Type	Average	Median	Mode	Minimum	Maximum
<b>TEST-ONLY</b>					
Inspectors	\$ 9.77	\$ 10.00	\$ 7.50	\$ 7.50	\$ 13.00
Other Mechanics	\$ 13.66	\$ 12.50	\$ 12.50	\$ 8.75	\$ 16.00
Supervisors	\$ 17.50	\$ 17.50	*	\$ 10.00	\$ 25.00
Others	\$ 11.38	\$ 11.38	*	\$ 8.75	\$ 14.00

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

**Table IV-5b. Current Wage Paid (\$/hr) – El Paso**

Employee Type	Average	Median	Mode	Minimum	Maximum
<b>TEST-AND-REPAIR</b>					
Inspectors	\$ 11.87	\$ 10.00	\$ 9.00	\$ 7.50	\$ 20.00
Other Mechanics	\$ 12.24	\$ 10.00	\$ 10.00	\$ 8.08	\$ 22.00
Supervisors	\$ 16.08	\$ 15.00	\$ 15.00	\$ 11.25	\$ 28.85
Others	\$ 11.67	\$ 11.67	\$ 10.00	\$ 8.33	\$ 15.00

The survey responses to question 7 indicate that the average T&R station typically employs more inspectors than the average test-only station in El Paso. The survey responses are summarized in Table IV-6. Comparing the responses listed in Tables IV-7 and IV-8 shows that most of the inspectors at El Paso I/M stations are full-time staff.

**Table IV-6. Number of Emissions Inspectors Currently Working at the Station – El Paso**

Number	Number of Respondents	Percent
<b>TEST-ONLY</b>		
1	5	38%
2	6	46%
3	2	15%
Missing	0	0%
<b>Total</b>	<b>13</b>	<b>100%</b>
<b>TEST-AND REPAIR</b>		
1	5	22%
2	8	35%
3	6	26%
4	2	9%
6	1	4%
18	1	4%
Missing	0	0%
<b>Total</b>	<b>23</b>	<b>100%</b>

**Table IV-7. Number of Full-time Emissions Inspectors – El Paso**

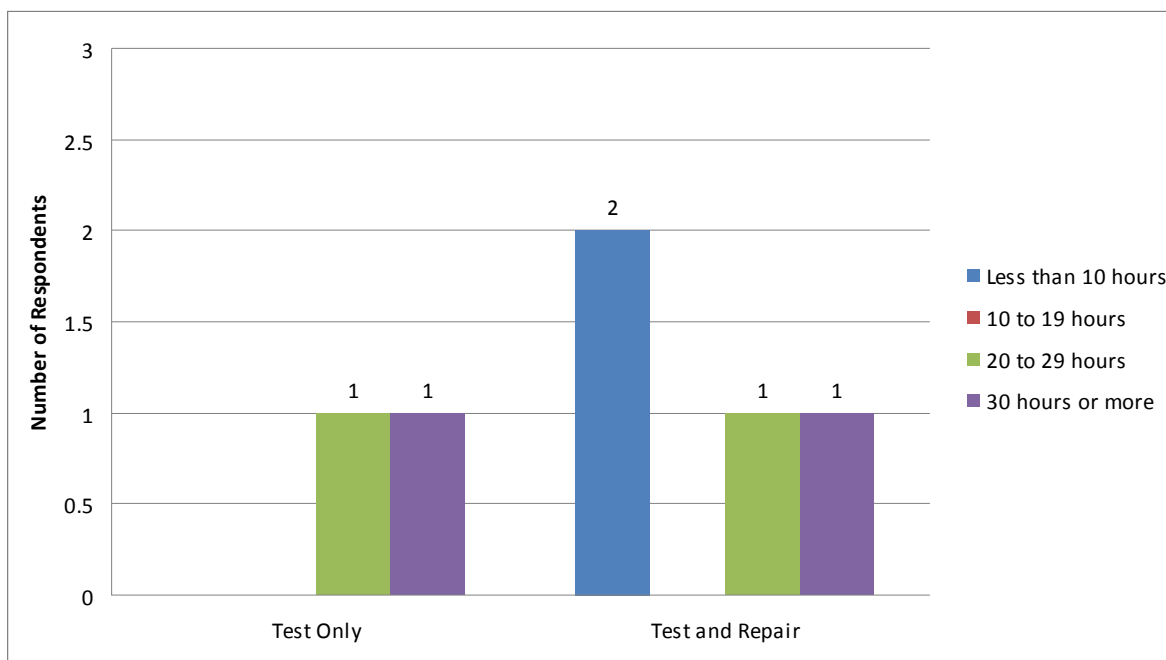
<b>Number</b>	<b>Number of Respondents</b>	<b>Percent</b>
<b>TEST-ONLY</b>		
1	6	46%
2	6	46%
3	1	8%
<i>Missing</i>	0	0%
<b>Total</b>	<b>13</b>	<b>100%</b>
<b>TEST-AND REPAIR</b>		
1	5	22%
2	11	48%
3	4	17%
4	1	4%
5	1	4%
18	1	4%
<i>Missing</i>	0	0%
<b>Total</b>	<b>23</b>	<b>100%</b>

Table IV-8 shows that while some test-only and T&R stations report having part-time inspectors, more than 80 percent of the El Paso stations do not report any part-time staff in response to question 8. Responses to the hours per week for part-time staff indicate no particular patterns in the number of hours worked.

**Table IV-8. Number of Part-time Emissions Inspectors – El Paso**

<b>Number</b>	<b>Number of Respondents</b>	<b>Percent</b>
<b>TEST-ONLY</b>		
1	2	15%
3	0	0%
<i>Missing</i>	11	85%
<b>Total</b>	<b>13</b>	<b>100%</b>
<b>TEST-AND REPAIR</b>		
1	3	13%
2	1	4%
<i>Missing</i>	19	83%
<b>Total</b>	<b>23</b>	<b>100%</b>

Question 8 in the El Paso survey also asks how many hours per week that part-time staff work. The responses are summarized in Figure IV-2. This figure shows that there were a limited number of responses to this question (6 in total), and no particular pattern in the number of hours worked by part-time staff.

**Figure IV-2. Work Hours of Part-time Emissions Inspectors – El Paso**

Questions 9 through 14 below refer only to T&R stations. These questions are concerned with the relationship between station inspections and other products and services offered on site. Questions 9 and 10 of the T&R survey ask stations to identify the proportion of time each full-time and part-time inspector dedicates to performing inspections as opposed to repair work or other tasks. Due to limited responses, the results are relatively uniform, but indicate that the typical inspector spends 15 percent or more of their time on inspections. Table IV-9 shows a median of 2 full-time inspectors for each category above “About 10 percent” compared to 1 inspector for each of the lower categories. Table IV-10 summarizes the same information for part-time inspectors. In this case most inspectors spend upwards of 25 percent of their time performing inspections. No stations reported part-time workers in the lower categories.

**Table IV-9. Of Inspectors That Work Full-Time, How Many Spend...? – El Paso**

Percent of Time Performing Inspections	Median	Mode	Minimum	Maximum
50% or more	2	1	1	3
About 25%	2	2	1	4
About 15%	2	1	1	18
About 10%	1	1	1	3
About 5%	1	*	1	1

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

**Table IV-10. Of Inspectors That Work Part-Time, How Many Spend...? – El Paso**

<b>Percent of Time Performing Inspections</b>	<b>Median</b>	<b>Mode</b>	<b>Minimum</b>	<b>Maximum</b>
50% or more	1	1	1	2
About 25%	2	*	1	2
About 15%	*	*	*	*
About 10%	*	*	*	*
About 5%	*	*	*	*

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

Question 11 in the El Paso T&R survey asks about the percentage of the total workspace at the facility that is used only for emissions testing. These results are provided in Table IV-11. The average fraction of the reported workspace used was 33 percent. The median reported value was 25 percent. These results indicate that one bay of a 3 or 4 bay facility is typically dedicated to emissions (and possibly also safety) inspections.

**Table IV-11. Percent of Workspace Used Only for Emissions Testing – El Paso**

<b>Mean</b>	<b>Median</b>	<b>Mode</b>	<b>Minimum</b>	<b>Maximum</b>
33%	25%	25%	4%	100%

El Paso T&R survey question 12 asks about the percentage of repair revenues from failed emission inspections. Table IV-12 summarizes these results, which show that a majority of the stations earn less than 10 percent of their repair revenues from failed emission inspections. Table IV-13 shows that a typical El Paso station is performing emissions-related repairs on about 6 to 11 vehicles per month. A typical repair cost for these emission test failures is \$100 to \$200, as indicated in Table IV-14. Note that the average reported repair cost in El Paso (\$168) is considerably lower than reported for the Austin area (\$235). These two areas have similar emission testing programs with similar start dates and inspection fees. The difference in the average repair cost is certainly larger than the difference in the two area's emission inspection fees (\$14 in El Paso and \$16 in Austin).

**Table IV-12. Proportion of Repair Revenues Results from Failed Emission Inspections – El Paso**

<b>Proportion of Repair Revenue</b>	<b>Number of Respondents</b>	<b>Percent</b>
0% perform inspections only	1	4%
Less than 10%	14	61%
About 25%	5	22%
About 50%	1	4%
About 75%	1	4%
Between 75% and 95%	0	0%
More than 95%	0	0%
Missing	1	4%

**Table IV-13. Typical Number of Repair Jobs per Month Resulting from Failed Emissions Tests – El Paso**

Mean	Median	Mode	Minimum	Maximum
11	6	10	-	40

**Table IV-14. Typical Repair Cost for an Emissions Test Failure – El Paso**

Mean	Median	Mode	Minimum	Maximum
\$ 168	\$ 104	\$ 100	\$ 20	\$ 750

The next set of questions asks about how I/M test stations (both test-only and T&R) paid for or financed their emissions testing equipment and any additional building or land expenses. Questions 15 (T&R stations) and 9 (test-only stations) ask owners about financing test equipment purchases. Table IV-15 indicates that for test-only stations, 76 percent had some type of financing - either via a lease-to-purchase agreement or a bank loan. Cash payments were made 23 percent of the time. T&R emission testing equipment purchases were financed by 74 percent of the stations. Another 17 percent reported paying cash for their equipment. For some reason, there was 9 percent non-response to this question by the T&R stations. Table IV-16 shows that lease-to-purchase and loan payback periods were typically about 5 years.

**Table IV-15. Financing Mechanisms for Purchasing Emissions Testing Equipment – El Paso**

Finance Type	Number of Stations	Percent
<b>TEST-ONLY</b>		
Paid Cash	3	23%
Lease-to-Purchase Agreement Arranged with Vendor	5	38%
Loan from Bank	5	38%
Missing	0	0%
<b>TEST-AND-REPAIR</b>		
Paid Cash	4	17%
Lease-to-Purchase Agreement Arranged with Vendor	9	39%
Loan from Bank	8	35%
Missing	2	9%

**Table IV-16. Lease-To-Purchase or Bank Loan Term (Years) – El Paso**

Business Model	Average	Median	Mode	Minimum	Maximum
<b>TEST-ONLY</b>	4	5	5	3	5
<b>TEST-AND REPAIR</b>	5	5	5	3	18

Table IV-17 reports the interest rates that were charged to test stations when equipment was financed. The test-only average interest rate was 11 percent while the median rate charged was 9 percent. Similar but slightly lower interest rates were charged to T&R stations. (Some of the minimum and maximum interest rates reported do not make sense - namely, 1 percent, 17 percent, and 24 percent.)

**Table IV-17. Interest Rate for Lease-To-Purchase or Bank Loan – El Paso**

<b>Business Model</b>	<b>Average</b>	<b>Median</b>	<b>Mode</b>	<b>Minimum</b>	<b>Maximum</b>
<b>TEST-ONLY</b>	11%	9%	9%	7%	17%
<b>TEST-AND REPAIR</b>	11%	8%	7%	1%	24%

Questions 18 and 12 of the El Paso surveys ask about the maintenance package costs for the emissions testing equipment. Table IV-18 shows that this annual median cost is \$2,100 for test-only stations and \$2,200 for T&R stations. The average reported annual maintenance cost was \$2,231 for test-only stations and \$2,518 for T&R stations. Minimum and maximum annual maintenance package costs were as low as \$600 and as high as \$6,000. El Paso survey questions 19 and 13 ask about costs paid during the past year for maintaining their emissions testing equipment beyond those included in the service contract. These costs were reported to be slightly less than \$1,000 on average, with some T&R facilities reporting these annual expenses to be as high as \$3,000, as seen in Table IV-19.

**Table IV-18. Annual Maintenance Package Costs – El Paso**

<b>Business Model</b>	<b>Average</b>	<b>Median</b>	<b>Mode</b>	<b>Minimum</b>	<b>Maximum</b>
<b>TEST-ONLY</b>	\$ 2,231	\$ 2,100	\$ 2,100	\$ 600	\$ 4,536
<b>TEST-AND REPAIR</b>	\$ 2,518	\$ 2,200	\$ 2,500	\$ 1,300	\$ 6,000

**Table IV-19. Extra Maintenance Cost in 2007 – El Paso**

<b>Business Model</b>	<b>Average</b>	<b>Median</b>	<b>Mode</b>	<b>Minimum</b>	<b>Maximum</b>
<b>TEST-ONLY</b>	\$ 952	\$ 900	\$ 1,000	\$ 150	\$ 2,200
<b>TEST-AND REPAIR</b>	\$ 787	\$ 600	\$ 400	\$ 50	\$ 3,000

Table IV-20 summarizes the responses to questions 20 and 14 of the El Paso surveys, which ask about the prevalence of free retests. Nearly 40 percent of the test-only stations and one quarter of the T&R stations reported offering free retests. No stations in the El Paso program area ever offer emission inspections at fees less than the \$14 per inspection rate. Table IV-21 summarizes these responses.

**Table IV-20. Free Emissions Tests – El Paso**

<b>Business Model</b>	<b>Test Given</b>	<b>Number of Respondents</b>	<b>Percent</b>
<b>TEST-ONLY</b>	Yes	5	38%
	No	7	54%
	Missing	1	8%
<b>TEST-AND-REPAIR</b>	Yes	6	26%
	No	16	70%
	Missing	1	4%



**Table IV-21. Fee Less Than \$14.00 – El Paso**

<b>Business Model</b>	<b>Charged Less Than \$14?</b>	<b>Number of Respondents</b>	<b>Percent</b>
<b>TEST-ONLY</b>	Yes	0	0%
	No	13	100%
<b>TEST-AND REPAIR</b>	Yes	0	0%
	No	23	100%

Questions 22 and 16 in the El Paso surveys ask whether any vehicles failing an inspection in the past two months have not returned for a retest. The percentages reported by the test-only and the T&R stations, as summarized in Table IV-22, were nearly the same - 70 percent reported a vehicle not returning for a retest within the past two months. The median number of vehicles not returning for a retest after a failure was 2 to 3, as shown in Table IV-23. The average for the T&R stations (of 7) is skewed by one station reporting 45 non-returning vehicles.

**Table IV-22. Failed Vehicles Not Returning For Retest within Last Two Months – El Paso**

<b>Business Model</b>	<b>Not Return?</b>	<b>Number of Respondents</b>	<b>Percent</b>
<b>TEST-ONLY</b>	Yes	9	69%
	No	4	31%
<b>TEST-AND REPAIR</b>	Yes	16	70%
	No	7	30%

**Table IV-23. Number of Failed Vehicles Not Returning For Retest within Last Two Months – El Paso**

<b>Business Model</b>	<b>Average</b>	<b>Median</b>	<b>Mode</b>	<b>Minimum</b>	<b>Maximum</b>
<b>TEST-ONLY</b>	3	2	2	2	6
<b>TEST-AND REPAIR</b>	7	3	2	1	45

The last survey question asks the El Paso stations whether they believe that the inspection fee covers their costs of performing the emission tests. Table IV-24 shows that 92 percent of test-only and 57 percent of T&R facilities believe that the fee does not cover their costs.

**Table IV-24. Does Fee Cover Emissions Testing Costs? – El Paso**

<b>Business Model</b>	<b>Fee Cover Costs?</b>	<b>Number of Respondents</b>	<b>Percent</b>
<b>TEST-ONLY</b>	Yes	1	8%
	No	12	92%
<b>TEST-AND REPAIR</b>	Yes	10	43%
	No	13	57%

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## CHAPTER V. HGB/DFW SURVEY RESULTS

This section of the report describes the survey responses received from the Houston-Galveston-Brazoria (HGB) and Dallas-Fort Worth (DFW) area I/M stations. All of the tables in this section of the report provide information from the stations that responded to the 2009 survey. No attempt was made to factor in the survey response rate or any stratification factors in these results.

Survey question 5 asks station owners about the costs of emissions testing equipment, building space and land costs. Table V-1 and Figures V-1 and V-2 summarize the responses to HGB/DFW survey question 5. These and the succeeding tables in this section breakout survey results by test-only versus T&R, as did the Austin and El Paso chapters. However, because the HGB and DFW areas also have I/M stations that either have only OBD equipment, or both OBD and ASM equipment, these tables/figures report the survey results by each of these four possible combinations. As observed in the other I/M areas, about 90 percent of the HGB and DFW I/M stations purchased I/M testing equipment when they first offered I/M testing. The percentage of stations that purchased emissions testing equipment does not differ much by test type. About 50 percent of the I/M stations in these two areas reported having expenses for tools and other equipment, as shown in Figures V-1 and V-2. Building space costs were incurred by 14 to 26 percent of I/M stations and these percentages vary by test type. Test-only stations that offer both OBD and ASM tests are most likely to have incurred building space costs.

None of the test-only OBD-only stations reported having land costs associated with offering emission inspections. Other test types incurred land costs, with the percentages ranging from 4 to 12 percent.

Table V-2 summarizes the HGB/DFW responses on their emissions-related costs. This table shows that the median costs for emissions testing equipment (including tools and other equipment) vary primarily based on whether the station offers ASM testing or not. OBD-only stations have median emissions testing equipment costs in the range of \$8,000 to \$10,000. The average costs are somewhat higher than the medians, but appear to be affected by the maximum costs reported in their test type category. One T&R OBD-only station reported \$85,010 in equipment costs. This seems unlikely unless they have 2 dynamometers.

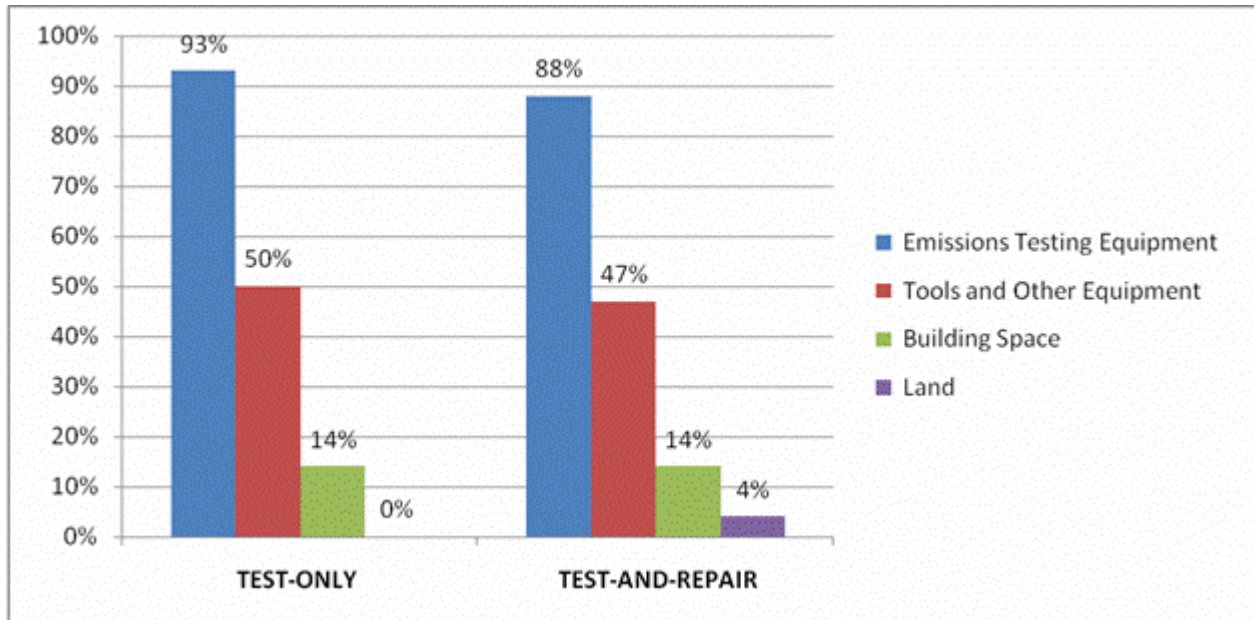
Table V-2 shows that the emissions testing equipment costs for the stations that offer both ASM and OBD tests are \$42,000 to \$43,000 (median values). Maximum emission testing equipment reported costs for OBD and ASM stations were \$1 million, which at market rates would mean that the station had 20 dynamometers.

There is such a wide range of reported building space and land costs in Table V-2 that it calls into question whether the responses to those questions are of value in performing the analysis reported on in Chapter VI.

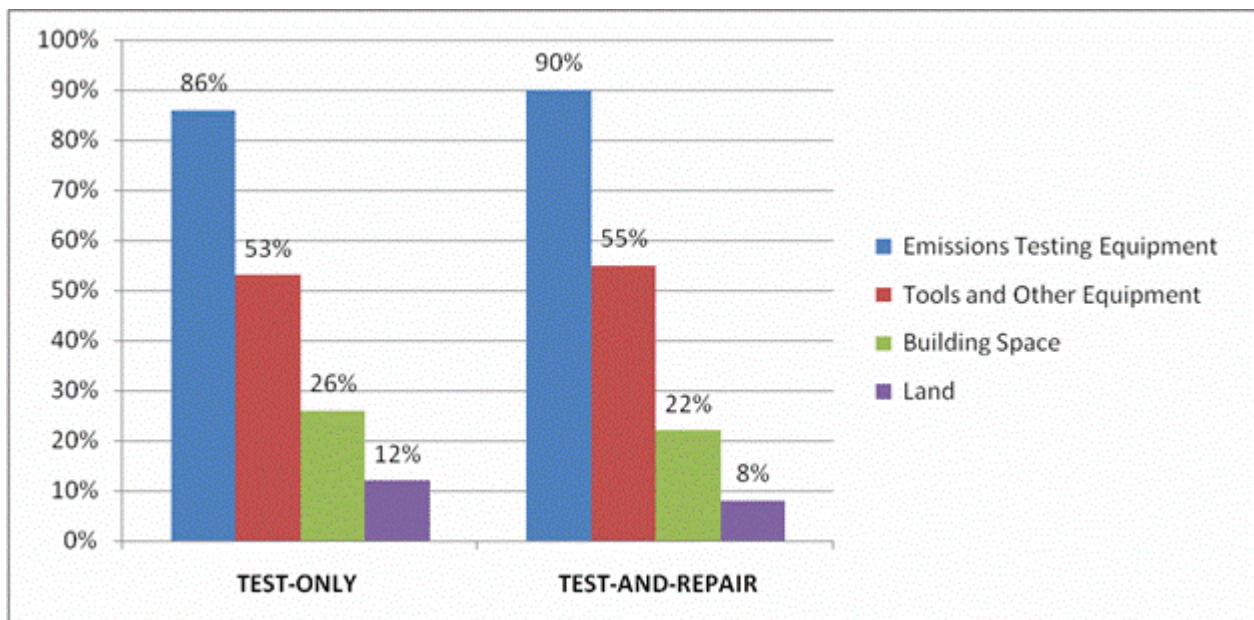
**Table V-1. Items Added or Acquired When Emissions Testing Was Offered – HGB/DFW**

Test Type	Population	Item Purchased	Number of Responses	
			Yes	No
<b>TEST-ONLY</b>				
OBD-only	42	Emissions Testing Equipment	39	3
		Tools and Other Equipment	21	21
		Building Space	6	36
		Land	0	42
ASM/OBD	158	Emissions Testing Equipment	136	22
		Tools and Other Equipment	84	74
		Building Space	41	117
		Land	19	139
<b>TEST-AND-REPAIR</b>				
OBD-only	140	Emissions Testing Equipment	123	17
		Tools and Other Equipment	66	74
		Building Space	19	121
		Land	6	134
ASM/OBD	347	Emissions Testing Equipment	313	34
		Tools and Other Equipment	190	157
		Building Space	75	272
		Land	27	320

**Figure V-1. Items Added or Acquired When Emissions Testing Was Offered, Percentage of Total – HGB/DFW-OBD Only**



**Figure V-2. Items Added or Acquired When Emissions Testing Was Offered, Percentage of Total – HGB/DFW-OBD/ASM**



**Table V-2. Additional Costs for Added or Acquired Items – HGB/DFW**

<b>Test Type</b>	<b>Item Purchased</b>	<b>Average</b>	<b>Median</b>	<b>Mode</b>	<b>Minimum</b>	<b>Maximum</b>
<b>TEST-ONLY</b>						
OBD-only	Emissions Testing Equipment	\$ 9,432	\$ 8,000	\$ 8,000	\$ 1,800	\$ 30,000
	Tools and Other Equipment	\$ 3,055	\$ 1,000	\$ 2,000	\$ 200	\$ 20,000
	Building Space	\$ 57,233	\$ 3,000		\$ 500	\$ 330,000
	Land	\$ -	\$ -	\$ -	\$ -	\$ -
ASM/OBD	Emissions Testing Equipment	\$ 42,282	\$ 42,000	\$ 40,000	\$ 1,500	\$ 112,000
	Tools and Other Equipment	\$ 6,059	\$ 3,000	\$ 1,000	\$ 100	\$ 80,000
	Building Space	\$ 96,764	\$ 11,000	\$ 500	\$ 300	\$ 1,250,000
	Land	\$ 95,471	\$ 50,000	\$ 30,000	\$ 1,100	\$ 500,000
<b>TEST-AND-REPAIR</b>						
OBD-only	Emissions Testing Equipment	\$ 13,468	\$ 9,800	\$ 10,000	\$ 1,000	\$ 85,010
	Tools and Other Equipment	\$ 5,457	\$ 1,000	\$ 1,000	\$ 13	\$ 65,000
	Building Space	\$ 34,572	\$ 3,000	\$ 3,000	\$ 350	\$ 300,000
	Land	\$ 889,017	\$ 235,350		\$ 2,400	\$ 4,000,000
ASM/OBD	Emissions Testing Equipment	\$ 48,334	\$ 43,000	\$ 40,000	\$ 2,000	\$ 1,000,000
	Tools and Other Equipment	\$ 10,014	\$ 4,100	\$ 5,000	\$ 200	\$ 400,000
	Building Space	\$ 88,518	\$ 10,000	\$ 2,000	\$ 200	\$ 2,500,000
	Land	\$ 218,964	\$ 50,000	\$ 50,000	\$ 200	\$ 2,500,000

Tables V-3 and V-4 summarize the responses to questions about their need to add staff when they started participating in the emissions inspection program. Stations that offer both OBD and ASM tests were more likely to add staff than OBD-only stations. Nearly 80 percent of the test-only OBD plus ASM stations added inspectors when they began offering emissions testing in HGB or DFW, while 2/3 of the T&R OBD and ASM stations hired new inspectors. The percentages for OBD-only stations were somewhat lower - with 57 percent of test only and 44 percent of T&R stations adding inspectors.

Stations in these two areas offering both OBD and ASM tests reported a higher percentage of other mechanics being hired at program initiation (22 to 23 percent) than stations just offering OBD tests (14 percent). About 7 to 12 percent of stations in HGB and DFW hired supervisors when they began emissions testing.

**Table V-3. Additional Staff When Station Began Offering Emissions Testing – HGB/DFW**

Test Type	Population	Staff Hired	Number of Responses		Percent	
			Yes	No	Yes	No
<b>TEST-ONLY</b>						
OBD-only	42	Inspectors	24	18	57%	43%
		Other Mechanics	6	36	14%	86%
		Supervisors	3	39	7%	93%
		Others	2	40	5%	95%
ASM/OBD	158	Inspectors	124	34	78%	22%
		Other Mechanics	34	124	22%	78%
		Supervisors	12	146	8%	92%
		Others	9	149	6%	94%
<b>TEST-AND-REPAIR</b>						
OBD-only	140	Inspectors	61	79	44%	56%
		Other Mechanics	19	121	14%	86%
		Supervisors	11	129	8%	92%
		Others	7	133	5%	95%
ASM/OBD	347	Inspectors	229	118	66%	34%
		Other Mechanics	79	268	23%	77%
		Supervisors	41	306	12%	88%
		Others	18	329	5%	95%

**Table V-4. Number of Staff Hired When the Facility Began Offering Emissions Testing – HGB/DFW**

<b>Test Type</b>	<b>Employee Type</b>	<b>Number</b>	<b>Number of Responses</b>	<b>Percent</b>
<b>TEST-ONLY</b>				
OBD-only	Inspectors	<i>Missing</i>	18	43%
		1	16	38%
		2	7	17%
		4	1	2%
		<b>Total</b>	<b>42</b>	<b>100%</b>
	Other Mechanics	<i>Missing</i>	36	86%
		1	4	10%
		2	1	2%
		3	1	2%
	<b>Total</b>	<b>42</b>	<b>100%</b>	
	Supervisors	<i>Missing</i>	39	93%
		1	3	7%
	<b>Total</b>	<b>42</b>	<b>100%</b>	
	Others	<i>Missing</i>	40	95%
		1	1	2%
		2	1	2%
<b>Total</b>		<b>42</b>	<b>100%</b>	
ASM/OBD	Inspectors	<i>Missing</i>	37	23%
		1	57	36%
		2	49	31%
		3	12	8%
		4	1	1%
		5	1	1%
		6	1	1%
	<b>Total</b>	<b>158</b>	<b>100%</b>	
	Other Mechanics	<i>Missing</i>	124	78%
		1	27	17%
		2	5	3%
		3	1	1%
		4	1	1%
	<b>Total</b>	<b>158</b>	<b>100%</b>	
	Supervisors	<i>Missing</i>	146	92%
		1	11	7%
		2	1	1%
	<b>Total</b>	<b>158</b>	<b>100%</b>	
	Others	<i>Missing</i>	149	94%
		1	4	10%
2		4	10%	
3		1	1%	
<b>Total</b>		<b>158</b>	<b>114%</b>	



Test Type	Employee Type	Number	Number of Responses	Percent
<b>TEST-AND-REPAIR</b>				
OBD-only	Inspectors	<i>Missing</i>	80	57%
		1	36	26%
		2	15	11%
		3	4	3%
		4	2	1%
		6	2	1%
		8	1	1%
		<b>Total</b>	<b>140</b>	<b>100%</b>
	Other Mechanics	<i>Missing</i>	122	87%
		1	8	6%
		2	6	4%
		3	1	1%
		4	1	1%
		5	1	1%
		6	1	1%
	<b>Total</b>	<b>140</b>	<b>100%</b>	
	Supervisors	<i>Missing</i>	130	93%
		1	7	5%
		2	3	2%
	<b>Total</b>	<b>140</b>	<b>100%</b>	
	Others	<i>Missing</i>	134	96%
		1	6	4%
		<b>Total</b>	<b>140</b>	<b>100%</b>
<hr/>				
ASM/OBD	Inspectors	<i>Missing</i>	123	35%
		1	102	29%
		2	81	23%
		3	26	7%
		4	9	3%
		5	4	1%
		6	1	100%
		15	1	0%
		<b>Total</b>	<b>347</b>	<b>200%</b>
		Other Mechanics	<i>Missing</i>	270
	1		54	16%
	2		18	5%
	3		3	1%
	4		1	0%
	6		1	0%
	<b>Total</b>	<b>347</b>	<b>100%</b>	
	Supervisors	<i>Missing</i>	307	88%
		1	37	11%
		2	3	1%
	<b>Total</b>	<b>347</b>	<b>100%</b>	
	Others	<i>Missing</i>	331	95%
		1	14	4%
		2	2	1%
		<b>Total</b>	<b>347</b>	<b>100%</b>

Question 7 in the HGB/DFW survey asks stations to provide current average wages paid to four different possible job descriptions at their facilities. Responses are reported in Table V-5. For the purposes of the analyses presented later in this report, the inspector salaries are most important, and in HGB and DFW test-only stations, the median wage rate is \$10.00 to \$11.39 per hour for this position. Inspector wage rates at T&R stations are somewhat higher, with median values of \$11.25 to \$13.46 reported. Mechanics appear to have higher wage rates than supervisors at test-only stations, while the reverse is true at T&R stations. Some of the maximum wage rates reported by I/M stations appear to be unrealistic, such as the \$80.77 hourly wage rate for inspectors at test only ASM/OBD stations.

**Table V-5. Current Wage Paid (\$/hr) – HGB/DFW**

Test Type	Employee Type	Average	Median	Mode	Minimum	Maximum
<b>TEST-ONLY</b>						
OBD-only	Inspectors	\$ 12.38	\$ 11.39	\$ 12.50	\$ 8.00	\$ 25.00
	Other Mechanics	\$ 20.85	\$ 18.00	\$ 15.00	\$ 8.00	\$ 62.50
	Supervisors	\$ 16.76	\$ 14.50	\$ 9.00	\$ 9.00	\$ 28.85
	Others	\$ 11.15	\$ 9.00	\$ 8.00	\$ 7.00	\$ 25.00
ASM/OBD	Inspectors	\$ 11.27	\$ 10.00	\$ 10.00	\$ 6.00	\$ 80.77
	Other Mechanics	\$ 16.26	\$ 15.00	\$ 15.00	\$ 8.50	\$ 50.00
	Supervisors	\$ 16.04	\$ 15.00	\$ 15.00	\$ 2.88	\$ 30.00
	Others	\$ 11.77	\$ 10.00	\$ 10.00	\$ 1.73	\$ 30.00
<b>TEST-AND-REPAIR</b>						
OBD-only	Inspectors	\$ 15.17	\$ 13.46	\$ 10.00	\$ 7.50	\$ 40.17
	Other Mechanics	\$ 22.71	\$ 20.00	\$ 25.00	\$ 6.92	\$ 65.00
	Supervisors	\$ 23.97	\$ 24.04	\$ 25.00	\$ 8.65	\$ 55.00
	Others	\$ 11.27	\$ 11.00	\$ 10.00	\$ 8.00	\$ 19.23
ASM/OBD	Inspectors	\$ 12.31	\$ 11.25	\$ 10.00	\$ 5.00	\$ 39.75
	Other Mechanics	\$ 19.90	\$ 18.75	\$ 25.00	\$ 7.50	\$ 45.00
	Supervisors	\$ 20.89	\$ 18.27	\$ 15.00	\$ 3.65	\$ 75.00
	Others	\$ 14.57	\$ 12.50	\$ 12.50	\$ 6.25	\$ 45.67

Question 8 in the HGB/DFW area survey asks how many emissions inspectors currently work at each emissions testing station. These results are summarized in Table V-6. Most emission inspection stations have either 1, 2, or 3 inspectors, with the distribution among these numbers dependent on the test type. The mode for each of the four test types is 1 inspector at test-only and T&R OBD-only, and 2 inspectors at test-only and T&R OBD and ASM-equipped stations. However, many stations report having more than 1 or 2 inspectors. Table V-6 shows these distributions.

Question 9 in the HGB/DFW survey asks about the number of full and part-time inspectors. Tables V-7 and V-8 report the responses to this survey question. Comparing the responses listed in these two tables shows that most emissions inspectors are full-time staff. Full service stations (OBD plus ASM equipped) appear to be more likely to employ part-time emission inspectors than OBD-only stations.

**Table V-6. Number of Emissions Inspectors Currently Working at the Station – HGB/DFW**

<b>Test Type</b>	<b>Number</b>	<b>Number of Responses</b>	<b>Percent</b>
<b>TEST-ONLY</b>			
OBD-only	<i>Missing</i>	0	0%
	1	19	45%
	2	11	26%
	3	5	12%
	4	4	10%
	5	2	5%
	7	1	2%
	<b>Total</b>	<b>42</b>	<b>100%</b>
ASM/OBD	<i>Missing</i>	3	2%
	1	37	23%
	2	56	35%
	3	35	22%
	4	12	8%
	5	9	6%
	6	4	3%
	7	1	1%
	9	1	1%
	<b>Total</b>	<b>158</b>	<b>100%</b>
<b>TEST-AND-REPAIR</b>			
OBD-only	<i>Missing</i>	2	1%
	1	52	37%
	2	39	28%
	3	23	16%
	4	8	6%
	5	8	6%
	6	4	3%
	8	3	2%
	33	1	1%
	<b>Total</b>	<b>140</b>	<b>100%</b>
ASM/OBD	<i>Missing</i>	0	0%
	1	54	16%
	2	118	34%
	3	78	22%
	4	46	13%
	5	20	6%
	6	13	4%
	7	3	1%
	8	2	1%
	9	3	1%
	10	3	1%
	12	2	1%
	14	1	0%
	15	1	0%
	16	1	0%
	18	1	0%
	45	1	0%
	<b>Total</b>	<b>347</b>	<b>100%</b>

Table V-7. Number of Full-time Emissions Inspectors – HGB/DFW

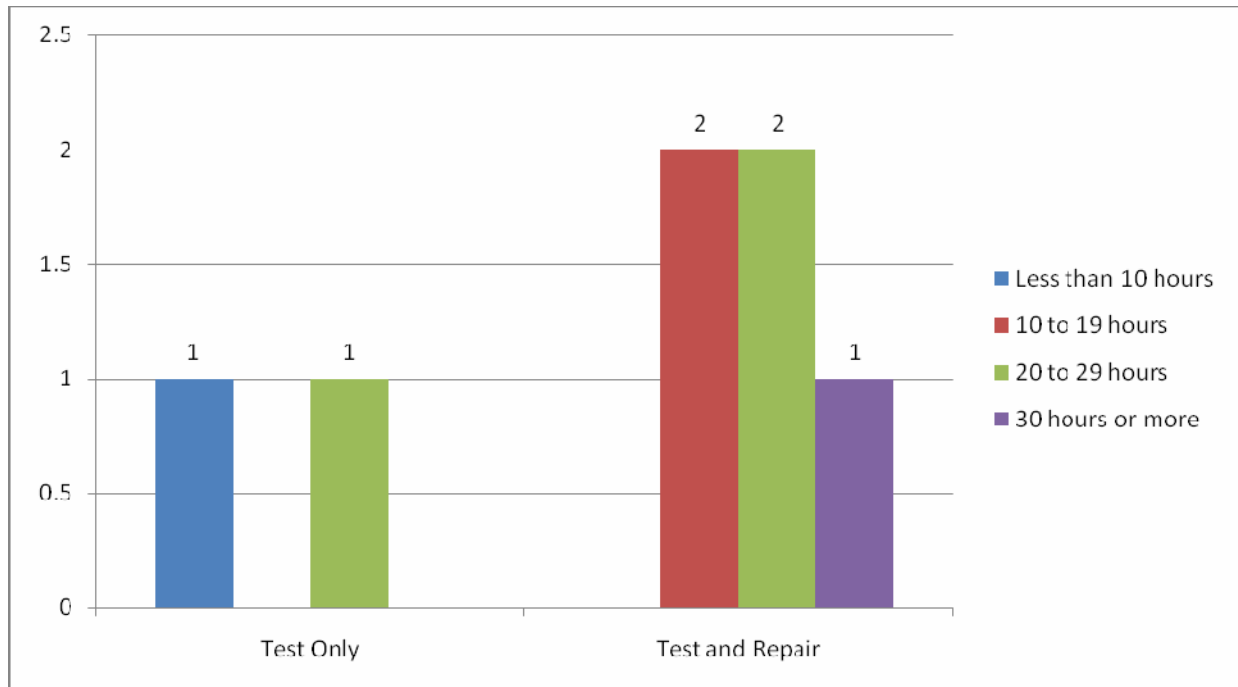
Test Type	Number	Number of Responses	Percent
<b>TEST-ONLY</b>			
OBD-only	<i>Missing</i>	0	0%
	1	20	48%
	2	11	26%
	3	4	10%
	4	4	10%
	5	2	5%
	7	1	2%
	<b>Total</b>	<b>42</b>	<b>100%</b>
ASM/OBD	<i>Missing</i>	4	3%
	0	1	1%
	1	65	41%
	2	46	29%
	3	21	13%
	4	9	6%
	5	8	5%
	6	3	2%
	7	1	1%
	<b>Total</b>	<b>158</b>	<b>100%</b>
<b>TEST-AND-REPAIR</b>			
OBD-only	<i>Missing</i>	2	1%
	1	59	42%
	2	35	25%
	3	21	15%
	4	7	5%
	5	7	5%
	6	4	3%
	7	1	1%
	8	3	2%
	33	1	1%
	<b>Total</b>	<b>140</b>	<b>100%</b>
ASM/OBD	<i>Missing</i>	4	1%
	0	1	0%
	1	96	28%
	2	106	31%
	3	65	19%
	4	35	10%
	5	16	5%
	6	7	2%
	7	2	1%
	8	2	1%
	9	3	1%
	10	3	1%
	12	2	1%
	14	1	0%
	15	1	0%
	16	1	0%
	18	1	0%
	45	1	0%
	<b>Total</b>	<b>347</b>	<b>100%</b>

**Table V-8. Number of Part-time Emissions Inspectors – HGB/DFW**

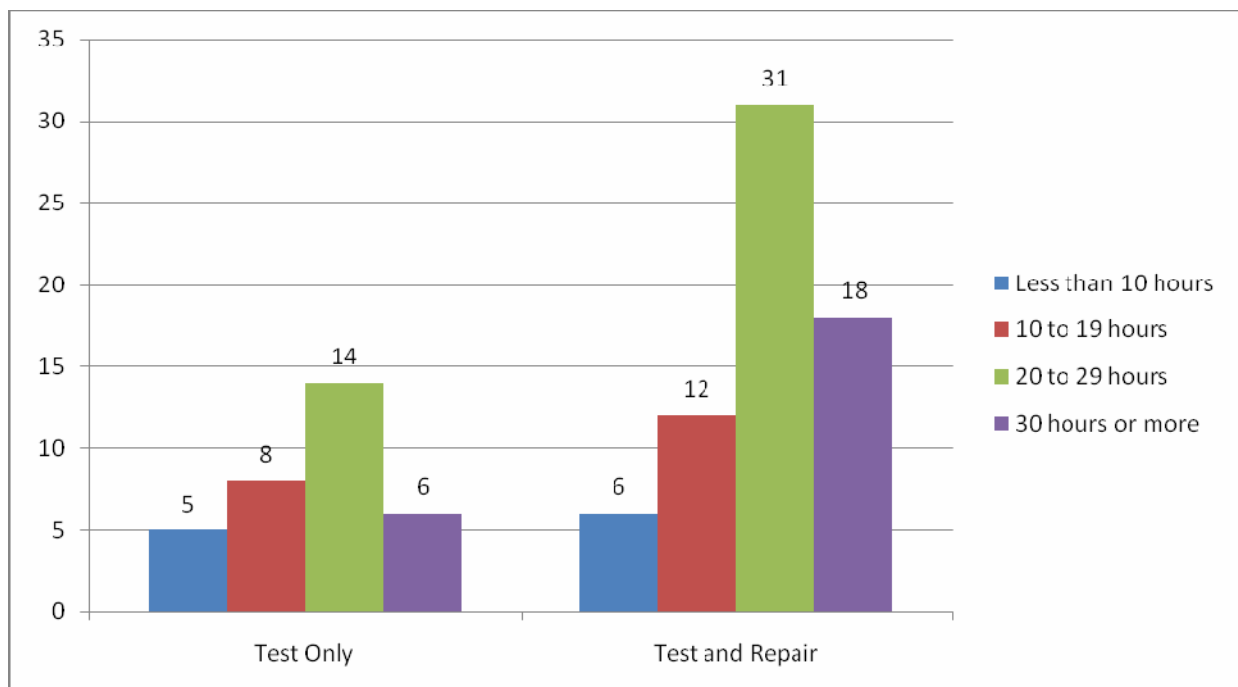
<b>Test Type</b>	<b>Number</b>	<b>Number of Responses</b>	<b>Percent</b>
<b>TEST-ONLY</b>			
OBD-only	<i>Missing</i>	37	88%
	0	2	5%
	1	2	5%
	12	1	2%
	<b>Total</b>	<b>42</b>	<b>100%</b>
ASM/OBD	<i>Missing</i>	113	72%
	0	2	1%
	1	28	18%
	2	13	8%
	3	1	1%
	9	1	1%
	<b>Total</b>	<b>158</b>	<b>100%</b>
<b>TEST-AND-REPAIR</b>			
OBD-only	<i>Missing</i>	116	83%
	0	14	10%
	1	6	4%
	2	2	1%
	4	1	1%
	20	1	1%
	<b>Total</b>	<b>140</b>	<b>100%</b>
ASM/OBD	<i>Missing</i>	219	63%
	0	21	6%
	1	87	25%
	2	17	5%
	3	3	1%
	<b>Total</b>	<b>347</b>	<b>100%</b>

Question 9 in the HGB/DFW survey also asks how many hours per week that part-time staff work. The responses are summarized in Figures V-3 and V-4. Figure V-3 addresses OBD-only stations. This figure shows that there were a limited number of responses to this question (7 in total) and no particular pattern in the number of hours worked when summarized in 10-hour intervals. Figure V-4 addresses OBD and ASM-equipped stations. The most prevalent situation at those stations is for part-timers to work 20-29 hours per week.

**Figure V-3. Work Hours of Part-time Emissions Inspectors at OBD-only Stations – HGB/DFW**



**Figure V-4. Work Hours of Part-time Emissions Inspectors at ASM/OBD Stations – HGB/DFW**



Questions 12 through 15 below refer only to T&R stations. These questions are concerned with the relationship between station inspections and other products and services offered on site. Question 12 in the HGB/DFW T&R survey asks about the percentage of the total workspace at the facility that is used for emissions testing. These results are provided in Table V-9. The average fraction of the reported workspace used for emissions testing was 16 percent for OBD-only and 28 percent for full service stations. The median reported values were 12 and 22 percent, respectively.

**Table V-9. Percent of Workspace Used Only for Emissions Testing – HGB/DFW**

Test Type	Average	Median	Mode	Minimum	Maximum
<b>TEST-AND-REPAIR</b>					
OBD-only	16%	12%	10%	-%	100%
ASM/OBD	28%	22%	25%	-%	100%

HGB/DFW T&R survey question 13 asks about the percentage of repair revenues from failed emission inspections. Table V-10 summarizes these results, which show that 90 percent of the OBD-only and 83 percent of the OBD plus ASM stations derive less than 10 percent of their repair revenues from failed emission tests. Table V-11 shows that HGB and DFW stations are typically performing emissions-related repairs on about 5 to 10 vehicles per month. A typical repair cost for these vehicles is about \$200 to \$275, as indicated in Table V-12.

**Table V-10. Proportion of Repair Revenues Results From Failed Emission Inspections – HGB/DFW**

Test Type	Proportion of Repair Revenue	Number of Responses	Percent
OBD-only	0%	8	6%
	Less than 10%	117	84%
	About 25%	13	9%
	About 50%	0	0%
	About 75%	0	0%
	Between 75% and 95%	1	1%
	Missing	1	1%
ASM/OBD	0%	61	18%
	Less than 10%	226	65%
	About 25%	51	15%
	About 50%	2	1%
	About 75%	0	0%
	Between 75% and 95%	0	0%
	More than 95%	0	0%
Missing	7	2%	

**Table V-11. Typical Number of Repair Jobs per Month Resulting from Failed Emissions Tests – HGB/DFW**

Test Type	Average	Median	Mode	Minimum	Maximum
OBD-only	6	4	10	0	50
ASM/OBD	8	5	10	0	300

**Table V-12. Typical Repair Cost for an Emissions Test Failure – HGB/DFW**

Test Type	Average	Median	Mode	Minimum	Maximum
OBD-only	\$275	\$200	\$200	\$-	\$1,500
ASM/OBD	\$272	\$210	\$200	\$-	\$4,000

The next set of questions asks about how I/M test stations (both T&R and test-only) paid for or financed their emissions testing equipment and any additional building or land expenses. Table V-13 summarizes the financing options selected by stations. For full service stations that purchased both OBD and ASM equipment, the lease-to-purchase and bank loan options are the dominant financing options. OBD-only equipped stations were more likely to have paid cash for their equipment. For example, 48 percent of the test-only OBD-only stations paid cash, while 43 percent of the T&R OBD-only stations paid cash. Lease-to-purchase arrangements were more prevalent than bank loans for all OBD-only stations. These two financing options were about equally selected by the ASM and OBD purchasers. The loan period for these financing options is the same for all groups, 5 years, except for OBD-only T&R stations where the median period is 3 years, as shown in Table V-14. Table V-15 shows that the interest rates were typically in the 8 to 9 percent range for lease-to-purchase arrangements and bank loans. (Some of the maximum and minimum interest rates reported do not make sense.)

**Table V-13. Financing Mechanisms for Purchasing Emissions Testing Equipment – HGB/DFW**

Test Type	Finance Type	Number of Stations	Percent
<b>TEST-ONLY</b>			
OBD-only	Paid Cash	20	48%
	Lease-to-Purchase Agreement Arranged with Vendor	14	33%
	Loan from Bank	8	19%
ASM/OBD	Paid Cash	33	21%
	Lease-to-Purchase Agreement Arranged with Vendor	60	38%
	Loan from Bank	59	37%
	No Response Given	6	4%
<b>TEST-AND-REPAIR</b>			
OBD-only	Paid Cash	60	43%
	Lease-to-Purchase Agreement Arranged with Vendor	47	34%
	Loan from Bank	28	20%
	Other	1	1%
	No Response Given	4	3%
ASM/OBD	Paid Cash	99	29%
	Lease-to-Purchase Agreement Arranged with Vendor	111	32%
	Loan from Bank	127	37%
	Paid cash, Loan from bank	1	0%
	No Response Given	9	3%



**Table V-14. Lease-To-Purchase or Bank Loan Term (Years) – HGB/DFW**

Test Type	Average	Median	Mode	Minimum	Maximum
<b>TEST-ONLY</b>					
OBD-only	4	5	5	2	5
ASM/OBD	5	5	5	1	25
<b>TEST-AND-REPAIR</b>					
OBD-only	3	3	5	1	6
ASM/OBD	5	5	5	1	19

**Table V-15. Interest Rate for Lease-To-Purchase or Bank Loan – HGB/DFW**

Test Type	Average	Median	Mode	Minimum	Maximum
<b>TEST-ONLY</b>					
OBD-only	8%	9%	1%	1%	15%
ASM/OBD	10%	8%	8%	1%	85%
<b>TEST-AND-REPAIR</b>					
OBD-only	9%	8%	8%	1%	18%
ASM/OBD	9%	8%	8%	1%	19%

Questions 19 (for T&R stations) and 13 (for test-only stations) in the HGB/DFW surveys ask about the maintenance package costs for the emissions testing equipment. Table V-16 shows that this median annual cost was about \$1,000 for OBD-only stations and \$4,000 for ASM plus OBD sites.

**Table V-16. Annual Maintenance Package Costs – HGB/DFW**

Test Type	Average	Median	Mode	Minimum	Maximum
<b>TEST-ONLY</b>					
OBD-only	\$ 1,069	\$ 1,000	\$ 1,200	\$ 750	\$ 1,800
ASM/OBD	\$ 4,066	\$ 4,000	\$ 4,000	\$ 1,000	\$ 15,200
<b>TEST-AND-REPAIR</b>					
OBD-only	\$ 1,208	\$ 900	\$ 1,200	\$ 100	\$ 5,000
ASM/OBD	\$ 4,218	\$ 4,000	\$ 4,000	\$ 300	\$ 42,000

HGB/DFW survey questions 20 and 14 ask about costs paid during the past year for maintaining their emissions testing equipment beyond those included in the service contract. These costs are reported in Table V-17 and have averaged about \$800 per year for OBD-only stations and just above \$2,000 per year for ASM and OBD equipped sites.

**Table V-17. Extra Maintenance Cost in 2007 – HGB/DFW**

Test Type	Average	Median	Mode	Minimum	Maximum
<b>TEST-ONLY</b>					
OBD-only	\$ 898	\$ 363	\$ -	\$ -	\$ 8,000
ASM/OBD	\$ 2,266	\$ 1,500	\$ 2,000	\$ -	\$ 15,000
<b>TEST-AND-REPAIR</b>					
OBD-only	\$ 804	\$ 400	\$ -	\$ -	\$ 6,700
ASM/OBD	\$ 2,017	\$ 1,500	\$ 2,000	\$ -	\$ 8,000

Table V-18 summarizes the responses to questions 21 and 15 in the HGB/DFW surveys which ask about the prevalence of free retests. About 74 percent of the OBD-only stations report that they did not perform free retests. The free retest percentage for ASM plus OBD equipped stations ranged from 56 percent for test only stations to 67 percent for test and repair stations. A small fraction of the emission inspection stations in these two areas reported having provided emission inspections for a fee less than \$27. Respondent's responses in numbers and percentages are provided in Table V-19, and the amounts of the lower fees charged are shown in Table V-20.

**Table V-18. Free Emissions Tests – HGB/DFW**

Test Type	Test Given	Number of Responses	Percent
<b>TEST-ONLY</b>			
OBD-only	No	31	74%
	Yes	11	26%
ASM/OBD	No Response	2	1%
	No	88	56%
	Yes	67	43%
<b>TEST-AND-REPAIR</b>			
OBD-only	No Response	2	1%
	No	103	74%
	Yes	35	25%
ASM/OBD	No Response	6	2%
	No	234	67%
	Yes	107	31%

**Table V-19. Fee Less Than \$27.00 – HGB/DFW**

Test Type	Charged Less Than \$27?	Number of Responses	Percent
<b>TEST-ONLY</b>			
OBD-only	No	39	93%
	Yes	3	7%
ASM/OBD	No	135	85%
	Yes	23	15%
<b>TEST-AND-REPAIR</b>			
OBD-only	No Response	2	1%
	No	130	93%
	Yes	8	6%
ASM/OBD	No Response	3	1%
	No	326	94%
	Yes	18	5%

Table V-20. Fee Charged When Less Than \$27.00 – HGB/DFW

Test Type	Fee	Number of Responses	Percent
<b>TEST-ONLY</b>			
OBD-only	<i>Missing</i> <sup>1</sup>	39	93%
	\$0.00	1	2%
	\$22.00	1	2%
	\$25.00	1	2%
	<b>Total</b>	<b>42</b>	<b>100%</b>
ASM/OBD	<i>Missing</i> <sup>1</sup>	39	60%
	\$0.00	1	2%
	\$14.50	1	2%
	\$14.75	1	2%
	\$15.00	1	2%
	\$17.00	1	2%
	\$20.00	1	2%
	\$22.00	4	6%
	\$23.00	1	2%
	\$24.00	1	2%
	\$25.00	11	17%
	\$27.00	1	2%
	\$39.75	2	3%
	<b>Total</b>	<b>65</b>	<b>100%</b>
<b>TEST-AND-REPAIR</b>			
OBD-only	<i>Missing</i> <sup>1</sup>	132	94%
	\$0.00	1	1%
	\$14.50	1	1%
	\$22.00	3	2%
	\$22.50	1	1%
	\$25.00	2	1%
<b>Total</b>	<b>140</b>	<b>100%</b>	
ASM/OBD	<i>Missing</i> <sup>1</sup>	328	95%
	\$0.00	3	1%
	\$8.00	1	0%
	\$12.00	1	0%
	\$14.25	1	0%
	\$17.49	1	0%
	\$19.99	1	0%
	\$20.00	4	1%
	\$22.00	1	0%
	\$23.00	1	0%
	\$24.00	2	1%
	\$25.00	1	0%
	\$27.25	1	0%
	\$30.00	1	0%
<b>Total</b>	<b>347</b>	<b>100%</b>	

<sup>1</sup> Includes respondents that said they never charge less than test fee

Questions 23 and 17 in the HGB/DFW surveys ask whether any vehicles failing an inspection in the past two months have not returned for a retest. The responses are provided in Table V-21. The test-only OBD-only stations reported the highest rate of non-returnees - 67 percent. Other test types reported failed vehicles not returning for a retest in the range of 48 to 67 percent of the time. The median number of vehicles not returning for a retest was in the range of 2 to 4, depending on test type, as shown in Table V-22.

**Table V-21. Failed Vehicles Not Returning for Retest Within Last Two Months – HGB/DFW**

Test Type	Non-Returning Vehicles	Number of Responses	Percent
<b>TEST-ONLY</b>			
OBD-only	No	14	33%
	Yes	28	67%
ASM/OBD	No Response	3	2%
	No	53	34%
	Yes	102	65%
<b>TEST-AND-REPAIR</b>			
OBD-only	No Response	1	1%
	No	72	51%
	Yes	67	48%
ASM/OBD	No Response	8	2%
	No	125	36%
	Yes	214	62%

**Table V-22. Number of Failed Vehicles Not Returning for Retest within Last Two Months – HGB/DFW**

Test Type	Average	Median	Mode	Minimum	Maximum
<b>TEST-ONLY</b>					
OBD-only	2	2	1	1	5
ASM/OBD	6	4	3	1	50
<b>TEST-AND-REPAIR</b>					
OBD-only	2	2	2	1	15
ASM/OBD	5	3	2	1	25

The last survey question asks the HGB/DFW stations whether they believe that the inspection fee covers their costs of performing the emission tests. Table V-23 shows that between 29 and 68 percent of the stations believe that the fee does not cover their costs, varying widely by station type. Test-only OBD-only stations are the only test type where more than half of the respondents felt that the fee covered their costs.

**Table V-23. Does Fee Cover Emissions Testing Costs? – HGB/DFW**

<b>Test Type</b>	<b>Fee Cover Costs?</b>	<b>Number of Responses</b>	<b>Percent</b>
<b>TEST-ONLY</b>			
OBD-only	No Response	1	2%
	No	12	29%
	Yes	29	69%
ASM/OBD	No Response	8	5%
	No	108	68%
	Yes	42	27%
<b>TEST-AND-REPAIR</b>			
OBD-only	No Response	6	4%
	No	73	52%
	Yes	61	44%
ASM/OBD	No Response	13	4%
	No	236	68%
	Yes	98	28%

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## CHAPTER VI. COST MODEL ANALYSES

This section of the report presents the results of cost analyses performed for each of the following geographic areas/test types:

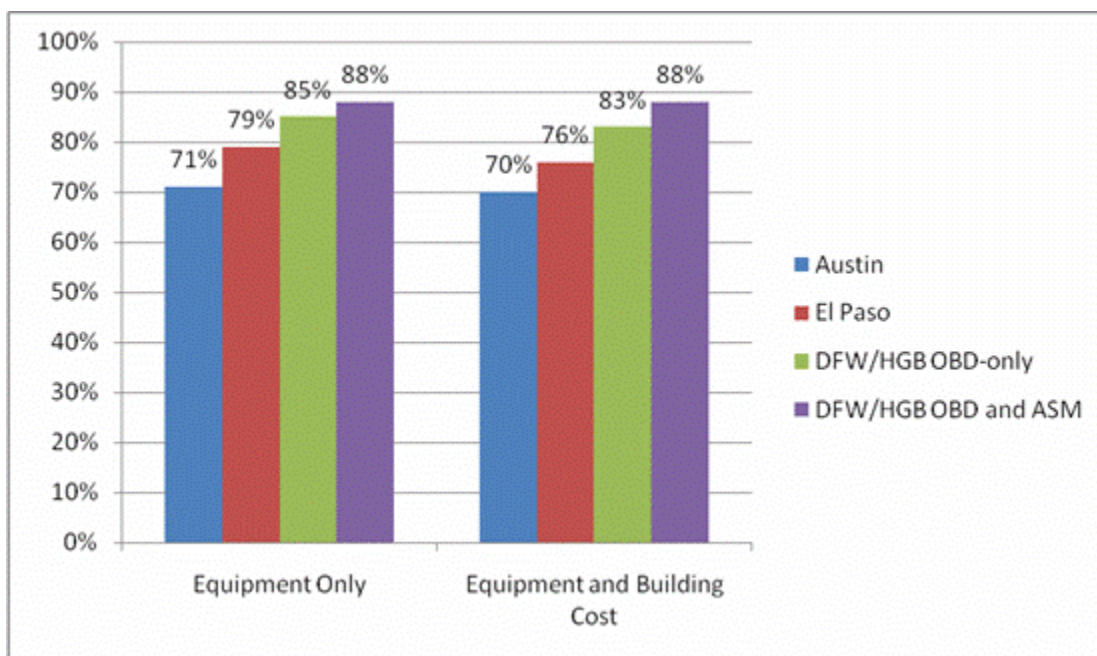
- Austin OBD and TSI;
- El Paso OBD and TSI;
- DFW/HGB OBD-only; and
- DFW/HGB OBD and ASM.<sup>1</sup>

There are two cost scenarios that are analyzed for each of the above. The first includes only the costs of inspection equipment, tools, and other equipment. The second includes these equipment costs, plus the costs of constructing building space for vehicle inspections. Figure VI-1 summarizes the percentage of stations for which inspection fee revenues cover or exceed station inspection costs by business model. In each case, 70+ percent of stations report enough inspection revenue to cover total inspection costs. Table VI-1 below displays the percentage of survey respondents that said that they had ever incurred equipment costs and had ever incurred both equipment and building costs. It is expected that some portion of these stations are no longer paying off their equipment, but the survey did not request information to determine whether payments were ongoing. In fact, a misinterpretation of the question asking if they had ever incurred costs to inquire whether they are currently paying costs may be part of the explanation for the less than 100 percent *yes* response for inspection equipment costs. As indicated by Table VI-1, a fairly small proportion of stations indicate that they have ever incurred both equipment and building costs. Therefore, the equipment costs scenario is considered the most representative case.

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<sup>1</sup> All business models reflect median cost values computed from the survey responses of both test and test-and-repair stations. A review of DFW/HGB station responses indicates that median costs do not differ significantly between the two types of stations. The business models that are incorporated into the break-even analyses in this chapter only account for inspection fee revenue. To the extent that test-and-repair stations generate additional revenues from emissions inspection-generated repair activities, a higher proportion of stations would be able to cover inspection costs than are indicated by the break-even analyses reported in this chapter.

**Figure VI-1. Stations At/Above Break-Even Number of Inspections**



**Table VI-1. Cost Incidence by Geographic Area/Test Type**

Percentage Having Ever Incurred	Austin	El Paso	DFW HGB OBD Only	DFW HGB OBD/ASM
Equipment Costs	94%	100%	89%	89%
Equipment <u>and</u> Building Costs	12%	28%	14%	22%

Table VI-2 presents a summary of the information sources from which inspection cost and revenue data were obtained for performing the cost model analyses. Most cost variables are derived from the median of the values reported by survey respondents for the given geographic area/test type. This information was supplemented with information from government sources, the previous AirCheck fee analysis study and the TCEQ (See Chapter IX. References). Table VI-3 provides the inspection fees charged for testing in each area, and the net revenue that accrues to stations from these fees.



**Table VI-2. Information Sources Used in Cost Model Analyses**

Item	Variable	Resolution	Source	Comment
<b>Fixed Costs</b>				
Testing Equipment	Purchase Price	Test area; OBD vs. OBD/ASM	Survey median	
Tools and Other Equipment	Purchase Price	Test area; OBD vs. OBD/ASM	Survey median	
All Equipment	Loan Period	Test area; OBD vs. OBD/ASM	Survey median	
	Loan Interest Rate	Test area; OBD vs. OBD/ASM	Survey median	
	Useful Life		BEA, 2003	Value of 11 years from BEA service life estimate for "Service industry machinery, other than wholesale and retail trade"
Building Space	Purchase Price	Test area; OBD vs. OBD/ASM	Survey median	
	Loan Period	Test area; OBD vs. OBD/ASM	Survey median	Used value for Equipment (no separate building space question)
	Loan Interest Rate	Test area; OBD vs. OBD/ASM	Survey median	Used value for Equipment (no separate building space question)
	Useful Life		BEA, 2003	Value of 34 years from BEA estimate of service life for "Other commercial buildings"
Maintenance Agreement	Monthly Cost (\$)	Test area; OBD vs. OBD/ASM	Survey median	
Additional Maintenance Cost	Monthly Cost (\$)	Test area; OBD vs. OBD/ASM	Survey median	
Dedicated Telephone Line	Monthly Cost (\$)		ERG, 2007	Value of \$50 used (the TCEQ re-confirmed value in May 2009)
Electricity	Monthly Cost (\$)		ERG, 2007	Value of \$40 used (the TCEQ re-confirmed value in May 2009)

Item	Variable	Resolution	Source	Comment
<b>Variable Costs</b>				
Communication with VID	Number of Transactions per Inspection		Hoffman, 2009	Value of 2 used
	Cost/call (\$)		Hoffman, 2009	Value of \$0.21/call used
Labor	Number of Minutes per Inspection		ERG, 2007	Value of 20 minutes used
	Wage Rate (\$/hr)	Test area; OBD vs. OBD/ASM	Survey median	Austin: \$11/hr; El Paso: \$10/hr; DFW/HGB-OBD only: \$12.50/hr; DFW/HGB-OBD/ASM: \$11/hr
Fringe Benefits	% of Total Compensation		BLS, 2009	Total benefits make up 30.2% of total compensation
Computer Ink and Paper	Cost/inspection (\$)		ERG, 2007	\$0.05/inspection (the TCEQ re-confirmed value in May 2009)
<b>Revenue</b>				
Net Revenue	Net Revenue/inspection (\$)	Test area; OBD vs. OBD/ASM	Maximum fee allowed less administrative and LIRAP fees (see details below in Table VI-3)	Austin: \$11.50; El Paso: \$11.50; DFW/HGB-OBD: \$18.50; DFW/HGB-ASM: \$24.50

**Table VI-3. Net Revenue From Emissions Inspection**

	Austin	El Paso	DFW/HGB-OBD	DFW/HGB-ASM
Fee to Customer	\$16.00	\$14.00	\$27.00	\$27.00
TCEQ/DPS I/M Administrative Fee	\$2.50	\$2.50	\$2.50	\$2.50
LIRAP Fee	\$2.00		\$6.00	
<b>Net Revenue</b>	<b>\$11.50</b>	<b>\$11.50</b>	<b>\$18.50</b>	<b>\$24.50</b>

Tables VI-4 and VI-5 present Austin area monthly fixed and variable (per inspection) costs. Table VI-6 displays the break-even analysis computed for Austin area stations. The break-even analyses indicate that 71 percent of stations had a sufficient number of inspections to cover typical area equipment costs. A slightly lower proportion of stations (70 percent) had sufficient inspection volume to cover area equipment and building costs. As noted earlier, only 12 percent of Austin area stations indicated that they had ever incurred both equipment and building space costs.

**Table VI-4. Austin Area Monthly Fixed Cost Estimates**

<b>Cost Item</b>	<b>No. of Respondents</b>	<b>Equipment Cost Only</b>	<b>Equipment and Building Space Cost</b>
<b>• Equipment</b>			
Testing Equipment, Purchase Price	18	\$17,621	\$17,621
Tools and Other Equipment, Purchase Price	9	\$1,037	\$1,037
Loan Period, Years	39	5	5
Loan Interest Rate	29	8%	8%
Interest Paid		\$4,041	\$4,041
<b>Total Monthly Equipment Cost</b>		<b>\$172</b>	<b>\$172</b>
<b>• Building Space</b>			
Building Space, Purchase Price	11	-	\$9,957
Loan Period, Years	39	-	5
Loan Interest Rate	29	-	8%
Interest Paid		-	\$2,157
<b>Total Monthly Building Space Cost</b>		<b>-</b>	<b>\$30</b>
<b>• Other</b>			
Maintenance Agreement, Monthly	59	\$167	\$167
Additional Maintenance, Monthly	71	\$67	\$67
Dedicated Telephone Line, Monthly		\$50	\$50
Electricity, Monthly		\$40	\$40
<b>Total Other</b>		<b>\$324</b>	<b>\$324</b>
<b>Total Fixed Cost, Monthly</b>		<b>\$495</b>	<b>\$525</b>

**Table VI-5. Austin Area Variable (Per Inspection) Cost Estimates**

<b>Cost Item</b>	<b>Number of Respondents</b>	<b>Cost Per Inspection</b>
Communication with VID (\$0.21/transaction, 2 per inspection)		\$0.42
Labor (20 minutes per inspection)	72	\$3.67
Fringe Benefits (30.2% of total compensation)		\$1.59
Computer Ink and Paper (\$0.05 per inspection)		\$0.05
<b>Total Variable Cost, Per Inspection</b>		<b>\$5.72</b>

**Table VI-6. Austin Area Break-Even Analysis**

<b>Item</b>	<b>Equipment Only</b>	<b>Equipment and Building Cost</b>
Fixed Cost per Month	\$495	\$525
Variable Cost per Inspection	\$5.72	\$5.72
Net Revenue per Inspection	\$11.50	\$11.50
Break-Even Number of Inspections	86	91
Stations at/above Break-Even Number of Inspections	71%	70%

El Paso area monthly fixed and variable cost estimates are displayed in Tables VI-7 and VI-8. Table VI-9 reports the break-even analysis calculated for El Paso inspection stations. For El Paso stations, 79 percent had inspection volumes indicative of break-even status or better given typical area equipment costs, while 76 percent of area stations had inspection volumes that would cover both equipment and building space costs.

**Table VI-7. El Paso Area Monthly Fixed Cost Estimates**

<b>Cost Item</b>	<b>No. of Respondents</b>	<b>Equipment Cost Only</b>	<b>Equipment and Building Space Cost</b>
<b>• Equipment</b>			
Testing Equipment, Purchase Price	12	\$17,259	\$17,259
Tools and Other Equipment, Purchase Price	10	\$1,294	\$1,294
Loan Period, Years	24	5	5
Loan Interest Rate	20	9%	9%
Interest Paid		\$4,286	\$4,286
<b>Total Monthly Equipment Cost</b>		<b>\$173</b>	<b>\$173</b>
<b>• Building Space</b>			
Building Space, Purchase Price	9	-	\$15,033
Loan Period, Years	24	-	5
Loan Interest Rate	20	-	9%
Interest Paid		-	\$3,473
<b>Total Monthly Building Space Cost</b>		<b>-</b>	<b>\$45</b>
<b>• Other</b>			
Maintenance Agreement, Monthly	29	\$175	\$175
Additional Maintenance, Monthly	28	\$50	\$50
Dedicated Telephone Line, Monthly		\$50	\$50
Electricity, Monthly		\$40	\$40
<b>Total Other</b>		<b>\$315</b>	<b>\$315</b>
<b>Total Fixed Cost, Monthly</b>		<b>\$488</b>	<b>\$533</b>

**Table VI-8. El Paso Area Variable (Per Inspection) Cost Estimates**

<b>Cost Item</b>	<b>Number of Respondents</b>	<b>Cost Per Inspection</b>
Communication with VID (\$0.21/transaction, 2 per inspection)		\$0.42
Labor (20 minutes per inspection)	29	\$3.33
Fringe Benefits (30.2% of total compensation)		\$1.44
Computer Ink and Paper (\$0.05 per inspection)		\$0.05
<b>Total Variable Cost, Per Inspection</b>		<b>\$5.25</b>

**Table VI-9. El Paso Area Break-Even Analysis**

<b>Item</b>	<b>Equipment Only</b>	<b>Equipment and Building Cost</b>
Fixed Cost per Month	\$488	\$533
Variable Cost per Inspection	\$5.25	\$5.25
Net Revenue per Inspection	\$11.50	\$11.50
Break-Even Number of Inspections	78	85
Stations at/above Break-Even Number of Inspections	79%	76%

Tables VI-10 and VI-11 present DFW/HGB area monthly fixed and per inspection costs for OBD-only inspection stations. Table VI-12 displays the break-even analysis for these stations. The break-even analyses indicate that 85 percent of stations had a sufficient number of inspections to cover typical area equipment costs, while 83 percent of such stations had inspection volumes sufficient to cover equipment/building space costs.

**Table VI-10. HGB/DFW Area Monthly Fixed Cost Estimates – OBD Only**

<b>Cost Item</b>	<b>No. of Respondents</b>	<b>Equipment Cost Only</b>	<b>Equipment and Building Space Cost</b>
• Equipment			
Testing Equipment, Purchase Price	17	\$9,489	\$9,489
Tools and Other Equipment, Purchase Price	13	\$1,054	\$1,054
Loan Period, Years	87	3	3
Loan Interest Rate	67	8%	8%
Interest Paid		\$1,351	\$1,351
<b>Total Monthly Equipment Cost</b>		<b>\$90</b>	<b>\$90</b>
• Building Space			
Building Space, Purchase Price	22	-	\$3,149
Loan Period, Years	87	-	3
Loan Interest Rate	67	-	8%
Interest Paid		-	\$403

Cost Item	No. of Respondents	Equipment Cost Only	Equipment and Building Space Cost
<b>Total Monthly Building Space Cost</b>		-	<b>\$9</b>
• Other			
Maintenance Agreement, Monthly	92	\$80	\$80
Additional Maintenance, Monthly	117	\$33	\$33
Dedicated Telephone Line, Monthly		\$50	\$50
Electricity, Monthly		\$40	\$40
<b>Total Other</b>		<b>\$203</b>	<b>\$203</b>
<b>Total Fixed Cost, Monthly</b>		<b>\$293</b>	<b>\$302</b>

**Table VI-11. HGB/DFW Area Variable (Per Inspection) Cost Estimates – OBD Only**

Cost Item	Number of Respondents	Cost Per Inspection
Communication with VID (\$0.21/transaction, 2 per inspection)		\$0.42
Labor (20 minutes per inspection)	135	\$4.17
Fringe Benefits (30.2% of total compensation)		\$1.80
Computer Ink and Paper (\$0.05 per inspection)		\$0.05
<b>Total Variable Cost, Per Inspection</b>		<b>\$6.44</b>

**Table VI-12. HGB/DFW Area Break-Even Analysis – OBD Only**

Item	Equipment Only	Equipment and Building Cost
Fixed Cost per Month	\$293	\$302
Variable Cost per Inspection	\$6.44	\$6.44
Net Revenue per Inspection	\$18.50	\$18.50
Break-Even Number of Inspections	24	25
Stations at/above Break-Even Number of Inspections	85%	83%

For DFW/HGB area stations performing both OBD and ASM inspections, an even higher percentage (88 percent and 89 percent) had sufficient inspection volumes to cover typical area equipment and equipment/building space costs. The net revenue per inspection for these stations (\$19.53) was calculated as the weighted average of the net revenue for OBD inspections and ASM inspections based on the percentage of total HGB/DFW inspections in each category (83 percent of inspections were ASM and 17 percent OBD:  $0.83 * \$18.50 + 0.17 * \$24.50 = \$19.53$ ). The costs and break-even analyses for these stations are presented in Tables VI-13 through VI-15.

**Table VI-13. HGB/DFW Area Monthly Fixed Cost Estimates – OBD/ASM**

<b>Cost Item</b>	<b>No. of Respondents</b>	<b>Equipment Cost Only</b>	<b>Equipment and Building Space Cost</b>
<b>• Equipment</b>			
Testing Equipment, Purchase Price	33	\$45,007	\$45,007
Tools and Other Equipment, Purchase Price	24	\$3,744	\$3,744
Loan Period, Years	292	5	5
Loan Interest Rate	264	8%	8%
Interest Paid		\$10,559	\$10,559
<b>Total Monthly Equipment Cost</b>		<b>\$449</b>	<b>\$449</b>
<b>• Building Space</b>			
Building Space, Purchase Price	111	-	\$10,715
Loan Period, Years	292	-	5
Loan Interest Rate	264	-	8%
Interest Paid		-	\$2,321
<b>Total Monthly Building Space Cost</b>		<b>-</b>	<b>\$32</b>
<b>• Other</b>			
Maintenance Agreement, Monthly	363	\$333	\$333
Additional Maintenance, Monthly	445	125	125
Dedicated Telephone Line, Monthly		\$50	\$50
Electricity, Monthly		\$40	\$40
<b>Total Other</b>		<b>\$548</b>	<b>\$548</b>
<b>Total Fixed Cost, Monthly</b>		<b>998</b>	<b>\$1,030</b>

**Table VI-14. HGB/DFW Area Variable (Per Inspection) Cost Estimates – OBD/ASM**

<b>Cost Item</b>	<b>Number of Respondents</b>	<b>Cost Per Inspection</b>
Communication with VID (\$0.21/transaction, 2 per inspection)		\$0.42
Labor (20 minutes per inspection)	373	\$3.67
Fringe Benefits (30.2% of total compensation)		\$1.59
Computer Ink and Paper (\$0.05 per inspection)		\$0.05
<b>Total Variable Cost, Per Inspection</b>		<b>\$5.72</b>

**Table VI-15. HGB/DFW Area Break-Even Analysis – OBD/ASM**

<b>Item</b>	<b>Equipment Only</b>	<b>Equipment and Building Cost</b>
Fixed Cost per Month	\$998	\$1,030
Variable Cost per Inspection	\$5.72	\$5.72
Net Revenue per Inspection	\$19.53	\$19.53
Break-Even Number of Inspections	72	75
Stations at/above Break-Even Number of Inspections	88%	88%

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## **CHAPTER VII. COMMENTS FROM I/M TEST FEE SURVEY RECIPIENTS**

This chapter summarizes some of the key comments provided by the surveyed I/M test stations in response to the final survey question.

1. There were many comments about the need for more than one service provider for equipment, which because they are a monopoly provider, results in high service contract costs, slow response to equipment outages, and high replacement costs for equipment parts.
2. More than one station implied that the state staff promised them a system that would allow a profit margin of 10 percent or so, so it is not clear to them whether the expectation is that I/M testing is a break-even business or one where the fees would be set at a level that will allow them to make a profit.
3. It was suggested by some that inspection fees be set in a way that they increase in proportion to operating and maintenance cost increases.
4. In the DFW and HGB areas, a number of OBD-only stations suggested that the logic of restricting the number of inspections that they can perform per month be reviewed.
5. It was suggested that the state offer a standard I/M technician training class and certification.
6. An important factor affecting the economics of I/M testing in the DFW and HGB areas is the decreasing number of vehicles in the model years subject to ASM tests, which makes it more difficult with time to recoup the costs of the ASM equipment purchase and maintenance.
7. There were a number of comments about the frequency of floppy disk change-outs and the associated high cost of doing so.
8. Some stations suggested that a limit be placed on the number of stations allowed to perform emission inspections in an area, and that there might also be distance restrictions so that they would have a limited number of competitors within 1 or 2 miles of their station.
9. Stations recommended that the state reduce the cost of OBD II stickers to the same as ASM, which provides stations with an immediate revenue increase without increasing motorist costs.

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## CHAPTER VIII. CONCLUSIONS/FINDINGS

Table VIII-1 summarizes the percentage of I/M stations by program area and test type that indicated in their survey responses that the emissions inspection fee covered the costs of emissions testing. In Austin, 22 percent of the test-only stations and 20 percent of the T&R stations said that the test fee covered their costs of performing this test. The El Paso station responses to this question showed a much greater disparity in how test-only and T&R stations responded. Only 8 percent of test-only stations in El Paso believe that fees cover costs, while 43 percent of T&R stations do. The HGB and DFW areas have the highest percentages of positive responses to the test fee adequacy question (and also the highest test fees). Almost 70 percent of test-only stations with only OBD tests performed indicated that the test fee was adequate, while 44 percent of OBD-only T&R stations in HGB-DFW indicated the fee to be adequate. Positive responses to the test fee adequacy question were received from 27 and 28 percent of test-only and T&R full service stations in the HGB-DFW area.

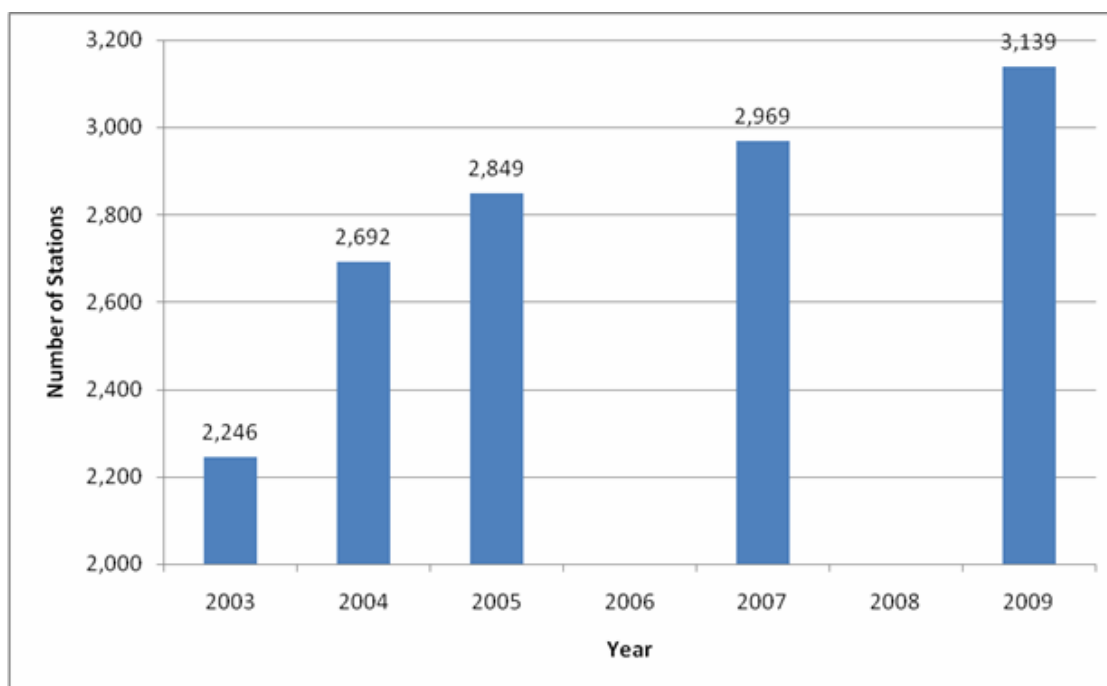
**Table VIII-1. Percentage of Respondents Claiming Test Fees Cover Their Costs**

Program Area	Test Type	Fee Covers Costs
Austin		
Test-Only	All	22%
Test and Repair	All	20%
El Paso		
Test-Only	All	8%
Test and Repair	All	43%
HGB and DFW		
Test-Only	OBD-only	69%
	ASM/OBD	27%
Test and Repair	OBD-only	44%
	ASM/OBD	28%

One of the indicators of the economics of operating a motor vehicle emissions inspection program in Texas is the number of stations joining or leaving the program in each calendar year. A declining number of stations offering service indicates the likelihood that stations are finding that fees are not sufficient to cover their variable costs, while an increasing number of stations would suggest that fees are able to cover both fixed and variable costs (or else stations are making decisions to offer service based on poor estimates of their costs for doing so, or find that there are other benefits to offering service that make it worthwhile to their bottom line). While the TCEQ does not keep historical statistics on the number of inspection stations, the information from prior year analyses (ERG, 2007) and the counts made in March 2009 for this study were used to develop the following comparisons.

Figure VIII-1 summarizes the counts for the HGB-DFW region from the TCEQ Vehicle Identification Database since 2003. Vehicle counts were not available for 2006 and 2008.

**Figure VIII-1. HGB-DFW Station Counts from the TCEQ Vehicle Identification Database**



The growth in the number of stations offering emissions inspections in the HGB-DFW area suggests that the fee is adequate in that program area.

Table VIII-2 compares the number of emission inspection stations in the Austin and El Paso program areas for 2007 and 2009. This table shows that the number of test and repair stations has remained relatively constant during the past two years, but that there has been growth in the number of test-only stations in both areas. In both the Austin and El Paso areas, the number of inspection stations has increased by 6.5 percent since 2007. This is evidence that the fees are adequate in these two areas as well.

**Table VIII-2. Historical Number of Inspection Stations in Austin and El Paso Program Areas**

Test Type	Austin 2007	Austin 2009	El Paso 2007	El Paso 2009
Test Only	33	51	47	59
Test and Repair	271	273	134	134
Total	304	324	181	193

As noted in the comments from survey recipients in the previous chapter, an important factor affecting the economics of I/M testing in the DFW and HGB areas is the decreasing number of vehicles in the model years subject to ASM tests, which makes it difficult with time to recoup the costs of the ASM equipment purchase and maintenance. A related comment is that in the DFW and HGB areas, the logic of restricting the number of inspections at OBD-only stations be reviewed. By the spring of 2009, the fraction of the light-duty vehicle fleet that is still subject to

the ASM test in the HGB and DFW area is about 20 percent. Therefore, the OBD test is the dominant test being given at inspection stations. In addition, the investment in ASM equipment at program initiation has been paid off in most cases. As a result, having a restriction on the number of emission inspections at OBD-only sites seems unnecessary at this juncture.

One possible reaction to removing the limit of the number of emission inspections at OBD-only stations in HGB-DFW is that stations currently offering ASM may decide to drop that service. This might occur at stations that believe their ASM equipment maintenance costs are too high. However, removing inspection limits would be expected to improve motorist convenience by eliminating situations where motorists were turned away by an OBD-only station that had reached their inspection limit.

The business model/cost model results presented in Chapter VI show that the most important variables affecting the economics of the current inspection fees in each program area are the hourly wage rate for inspectors and the elapsed time to perform each inspection. The analyses presented in Chapter VI are based on 20 minutes per inspection. This time estimate seems reasonable and perhaps overestimates the time needed to perform an OBD test. Pechan's cost analysis shows that in Austin, the break-even number of inspections is 91 per month and that 70 percent of Austin area stations meet or exceed this level. The El Paso area analysis found the break-even number of inspections to be 83 per month with 77 percent of existing stations exceeding this threshold. For the HGB-DFW areas, separate analyses were performed for OBD-only and OBD/ASM stations. The OBD-only stations in these areas break-even at 25 inspections per month or above, and 81 percent meet or exceed this amount. Stations in these areas equipped with both OBD and ASM equipment have to perform 54 or more inspections per month in order to break even, and 92 percent of existing stations meet or exceed this threshold.

Note that Pechan's analysis excluded repair revenues. If that revenue was included in the analysis, even more stations would exceed the break-even point than are reflected in this analysis.

There are also unquantified benefits to the automotive service industry of offering emissions inspections like customer convenience and goodwill that are not considered in this cost modeling analysis. The study conclusion is that the current set of vehicle emissions inspection fees are adequate, and do not need to be increased or decreased.

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## CHAPTER IX. REFERENCES

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## **APPENDIX A. 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. In what year did this station first offer OBD and TSI emissions testing? \_\_\_\_\_**

**4. 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)	<input type="checkbox"/> Yes . . How much? \$ _____, _____ <input type="checkbox"/> No
b. Tools and other equipment	<input type="checkbox"/> Yes . . How much? \$ _____, _____ <input type="checkbox"/> No
c. Building space	<input type="checkbox"/> Yes . . How much? \$ _____, _____ <input type="checkbox"/> No
d. Land	<input type="checkbox"/> Yes . . How much? \$ _____, _____ <input type="checkbox"/> No

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

a. Inspectors	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No
b. Other mechanics	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No
c. Supervisors	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No
d. Others	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No

**6. 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

**7. How many emissions inspectors currently work at this station?**

\_\_\_\_\_ inspectors

**8. Of the emissions inspectors identified in Question 7, 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.**

**9. 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

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

\_\_\_\_\_ years

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

\_\_\_\_\_percent

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

\$\_\_\_\_\_, \_\_\_\_\_ per month/quarter/year

**13. 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?**

\$\_\_\_\_\_, \_\_\_\_\_

**14. 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

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

- Yes. What is the lowest fee that you charge? \$ \_\_\_\_ \_\_\_\_ . \_\_\_\_ \_\_\_\_
- No

16. 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

17. 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. If you require additional space for your comments, please include them on a separate piece of paper.

***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. In what year did this station first offer OBD and TSI emissions testing? \_\_\_\_\_**

**4. 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)	<input type="checkbox"/> Yes . . How much? \$ _____, _____ <input type="checkbox"/> No
b. Tools and other equipment	<input type="checkbox"/> Yes . . How much? \$ _____, _____ <input type="checkbox"/> No
c. Building space	<input type="checkbox"/> Yes . . How much? \$ _____, _____ <input type="checkbox"/> No
d. Land	<input type="checkbox"/> Yes . . How much? \$ _____, _____ <input type="checkbox"/> No

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

a. Inspectors	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No
b. Other mechanics	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No
c. Supervisors	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No
d. Others	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No

**6. 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

**7. How many emissions inspectors currently work at this station?**

\_\_\_\_\_ inspectors

**8. Of the emissions inspectors identified in Question 7, how many are full-time and how many are part-time employees?**

\_\_\_\_\_ full-time

\_\_\_\_\_ part-time (about \_\_\_ hours/week)

**9. 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

**10. 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

**11. 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

12. 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%

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

\_\_\_\_\_ repair jobs

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

\$\_\_\_\_, \_\_\_\_ \_\_\_\_ per repair for a failed emission test

15. 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

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

\_\_\_\_\_ years

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

\_\_\_\_\_percent

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

\$\_\_\_\_, \_\_\_\_ \_\_\_\_ per month/quarter/year

19. 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?

\$\_\_\_\_, \_\_\_\_ \_\_\_\_

20. 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



21. 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

22. 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

23. 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. If you require additional space for your comments, please include them on a separate piece of paper.

***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. In what year did this station first offer OBD and TSI emissions testing? \_\_\_\_\_**

**4. 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)	<input type="checkbox"/> Yes . . How much? \$ _____, _____ <input type="checkbox"/> No
b. Tools and other equipment	<input type="checkbox"/> Yes . . How much? \$ _____, _____ <input type="checkbox"/> No
c. Building space	<input type="checkbox"/> Yes . . How much? \$ _____, _____ <input type="checkbox"/> No
d. Land	<input type="checkbox"/> Yes . . How much? \$ _____, _____ <input type="checkbox"/> No

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

a. Inspectors	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No
b. Other mechanics	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No
c. Supervisors	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No
d. Others	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No

**6. 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

**7. How many emissions inspectors currently work at this station?**

\_\_\_\_\_ inspectors

**8. Of the emissions inspectors identified in Question 7, 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.**

**9. 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

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

\_\_\_\_\_ years

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

\_\_\_\_\_percent

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

\$\_\_\_\_\_, \_\_\_\_\_ per month/quarter/year

**13. 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?**

\$\_\_\_\_\_, \_\_\_\_\_

**14. 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

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

- Yes. What is the lowest fee that you charge? \$ \_\_\_\_ \_\_\_\_ . \_\_\_\_ \_\_\_\_
- No

16. 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

17. 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. If you require additional space for your comments, please include them on a separate piece of paper.

***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. In what year did this station first offer OBD and TSI emissions testing? \_\_\_\_\_**

**4. 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)	<input type="checkbox"/> Yes . . . How much? \$ _____, _____ <input type="checkbox"/> No
b. Tools and other equipment	<input type="checkbox"/> Yes . . . How much? \$ _____, _____ <input type="checkbox"/> No
c. Building space	<input type="checkbox"/> Yes . . . How much? \$ _____, _____ <input type="checkbox"/> No
d. Land	<input type="checkbox"/> Yes . . . How much? \$ _____, _____ <input type="checkbox"/> No

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

a. Inspectors	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No
b. Other mechanics	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No
c. Supervisors	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No
d. Others	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No

**6. 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

**7. How many emissions inspectors currently work at this station?**

\_\_\_\_\_ inspectors

**8. Of the emissions inspectors identified in Question 7, how many are full-time and how many are part-time employees?**

\_\_\_\_\_ full-time

\_\_\_\_\_ part-time (about \_\_\_ hours/week)

**9. 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

**10. 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

**11. 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

12. 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%

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

\_\_\_\_\_ repair jobs

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

\$\_\_\_\_, \_\_\_\_ \_\_\_\_ per repair for a failed emission test

15. 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

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

\_\_\_\_\_ years

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

\_\_\_\_\_percent

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

\$\_\_\_\_, \_\_\_\_ \_\_\_\_ per month/quarter/year

19. 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?

\$\_\_\_\_, \_\_\_\_ \_\_\_\_

20. 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



21. Besides retesting a vehicle within 15 days of failing an emission test, do you ever charge less than \$14.00 for an emission test?

- Yes. What is the lowest fee that you charge? \$ \_\_\_\_ \_\_\_\_ . \_\_\_\_ \_\_\_\_
- No

22. 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

23. 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. If you require additional space for your comments, please include them on a separate piece of paper.

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

**DALLAS-FORT WORTH/  
HOUSTON-GALVESTON-BRAZORIA**

## 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 only, or ASM and OBD 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)	<input type="checkbox"/> Yes . . How much? \$ _____ <input type="checkbox"/> No
b. Tools and other equipment	<input type="checkbox"/> Yes . . How much? \$ _____ <input type="checkbox"/> No
c. Building space	<input type="checkbox"/> Yes . . How much? \$ _____ <input type="checkbox"/> No
d. Land	<input type="checkbox"/> Yes . . How much? \$ _____ <input type="checkbox"/> No

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

a. Inspectors	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No
b. Other mechanics	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No
c. Supervisors	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No
d. Others	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> 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)

**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. 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

**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. If you require additional space for your comments, please include them on a separate piece of paper.

***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 only, or ASM and OBD 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.**

f. Emissions testing equipment (Including installation costs)	<input type="checkbox"/> Yes . . How much? \$ _____ <input type="checkbox"/> No
b. Tools and other equipment	<input type="checkbox"/> Yes . . How much? \$ _____ <input type="checkbox"/> No
c. Building space	<input type="checkbox"/> Yes . . How much? \$ _____ <input type="checkbox"/> No
d. Land	<input type="checkbox"/> Yes . . How much? \$ _____ <input type="checkbox"/> No

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

a. Inspectors	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No
b. Other mechanics	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No
c. Supervisors	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> No
d. Others	<input type="checkbox"/> Yes . . . . How many? _____ <input type="checkbox"/> 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. If you require additional space for your comments, please include them on a separate piece of paper.

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

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