



**VEHICLE EMISSIONS
INSPECTION PROGRAM TEST
FEE ANALYSIS FOR
AIRCHECKTEXAS PROGRAM**

Prepared for:

Texas Commission on Environmental Quality
Air Quality Division

Prepared by:

Eastern Research Group, Inc.

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EXECUTIVE SUMMARY

A. BACKGROUND

The purpose of this study was to assess the adequacy of the vehicle emissions inspection fee in the AirCheckTexas program areas — that is, whether revenue from emissions inspections covers the associated costs. This study evaluates the adequacy of the fee from the perspective of the station owners (survey responses) and investors (prospective shop owners considering to join the emissions inspection market), and through analytical cost models developed from both survey and non-survey data.

This study evaluates the adequacy of the AirCheckTexas motor vehicle emissions inspection fee in four program areas:

- Houston-Galveston-Brazoria (HGB): Brazoria, Fort Bend, Galveston, Harris, and Montgomery Counties
- Dallas–Fort Worth (DFW): Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, and Tarrant Counties
- El Paso: El Paso County
- Austin-Round Rock (ARR): Travis and Williamson Counties

Any vehicle emissions inspection station in these program areas must offer both safety-only and safety and emissions inspections; however, this study only evaluates the emissions inspection portion of the fee and the incremental costs associated with performing emissions inspection. Currently, under 30 Texas Administrative Code (TAC) §§114.53 and 114.87, the motor vehicle emissions inspection fee is capped at \$27.00 per inspection in the HGB and DFW program areas, \$16.00 in the ARR program area, and \$14.00 in the El Paso program area. Table ES-1 shows the total fee charged to customers broken down into the safety inspection cost (\$12.75) and emissions inspection cost.

Table ES-1. Safety and Emissions Testing Fees

Region	Safety Inspection Fee	Emissions Inspection Fee (Maximum)	Total Inspection Fee (Maximum)
ARR	\$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

In 2001, the 77th Texas Legislature required the Texas Commission on Environmental Quality (TCEQ) to review the fee established for the motor vehicle emissions inspection program no less frequently than biennially. This review was performed by ERG in 2005 (ERG, 2005) and 2007 (ERG, 2007), and by E.H. Pechan & Associates, Inc. in 2009 (Pechan, 2009). For consistency, the surveys sent to the stations for this study were very

similar to those sent out in past years, and the structure of the cost models were also similar to those previously used.

B. SURVEY ADMINISTRATION AND ANALYSIS METHODS

In February of 2012, survey questionnaires were sent to the entire population of vehicle emissions inspection stations in the four AirCheckTexas program areas. As was done in previous fee studies, ERG sent out six different survey instruments to account for regional and station type variations (see Appendix A):

- ARR test-only stations
- ARR test-and-repair (T&R) stations
- El Paso test-only stations
- El Paso T&R stations
- HGB/DFW test-only stations
- HGB/DFW T&R stations

The TCEQ sent an initial notification bulletin to the inspection stations a week in advance of the survey mailings to provide advance notification that they would be receiving a survey through the mail. ERG mailed the surveys to the vehicle emissions inspection stations in the four program areas. These stations were identified using the AirCheckTexas Emissions Inspection program database provided by the TCEQ on January 25, 2012. The survey package included a personalized cover letter, a three- (test-only) or four- (T&R) page survey with a unique identifier to track incoming surveys, and a business reply envelope. The surveys were mailed on February 15, 2012, and responses were accepted until April 11, 2012. Additionally, over the duration of the survey period, the TCEQ sent four bulletins to remind stations to return their completed surveys, and to contact ERG's phone or email hotline if they needed a replacement survey.

As mentioned above, ERG provided both an email and telephone hotline to survey respondents to help administer requests for replacement surveys and answer other questions. Upon request, ERG also accepted surveys by fax and email. Any questions that ERG could not answer were forwarded to the TCEQ.

Of the 4,327 vehicle emissions inspection stations identified in the TCEQ emissions inspection database as of January 2012, 4,211 were sent surveys; the other 116 were identified as duplicate names/addresses and were removed from the mailing. Additionally, 65 surveys were returned as undeliverable for incorrect address information or because they were out of business. After the deadline, ERG received six additional surveys including three completed surveys and three returned for an incorrect address. These six surveys were not included in the analysis or response rate.

Table ES-2 shows the breakdown of the 4,327 vehicle emissions inspection stations in the TCEQ emissions inspection database by region and station type. ERG received 872 completed surveys during the survey period; Table ES-3 shows the breakdown of these 872 surveys by region and station type. The overall response rate was 21 percent, which is consistent with the previous TCEQ Inspection and Maintenance (I/M) fee survey studies. Table ES-4 shows the response rate by region and station type.

Table ES-2. Number of Texas Emissions Inspection Stations in the TCEQ Database by Area/Station Type (January 2012)

Program Area	Test-Only	Test-and-Repair	Total
ARR	86	303	389
El Paso	70	137	207
HGB/DFW	1,183	2,548	3,731
Total	1,339	2,988	4,327

Table ES-3. Survey Responses by Area/Station Type

Program Area	Test-Only	Test-and-Repair	Total
ARR	9	75	84
El Paso	17	26	43
HGB/DFW	244	501	745
Total	270	602	872

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

Program Area	Test-Only	Test-and-Repair	Total*
ARR	11%	25%	22%
El Paso	25%	20%	21%
HGB/DFW	22%	20%	21%
Total	21%	21%	21%

* Response rates were calculated as: [Surveys Received]/([Total Number Stations]-[Surveys Removed as Duplicates]-[Surveys Returned for Incorrect Addresses]).

C. FINDINGS

As shown in Table ES-5, when survey respondents were asked whether the emissions inspection fee covers their costs associated with emissions inspections, only 17 and 18 percent responded “yes” in ARR and El Paso, respectively. A larger percentage (24 percent) responded “yes” in the HGB/DFW region for shops that perform both Acceleration Simulation Mode (ASM) and On-Board Diagnostic (OBD) inspections, and a markedly higher percentage (44 percent) responded affirmatively in that region at OBD-only stations.

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

Program Area	Test Type	Test-Only	Test-and-Repair	Total
ARR	All	27%	15%	17%
El Paso	All	25%	16%	18%
HGB/DFW	ASM/OBD	24%	24%	24%
HGB/DFW	OBD-only	42%	44%	44%

Figures ES-1 and ES-2 show the number of stations performing vehicle emissions inspections over the past several years. The number of stations entering the I/M program underwent one of the largest net increases since the program's inception. The number of stations performing emissions inspections increased by approximately 20 percent in both the ARR and HGB/DFW areas from 2009 to 2011 and by 7 percent in the El Paso area over that same period. This serves as one indicator that the fee is sufficiently high, and the expected costs and revenue streams are such that station owners have made the business decision to either remain in or enter the emissions inspection market. However, stations are not always able to make decisions with perfect market information. Thus, it is important to also consider quantitative cost models to provide a clearer picture on the adequacy of the fee.

Figure ES-1. Historical Number of Inspection Stations in HGB/DFW Program Areas

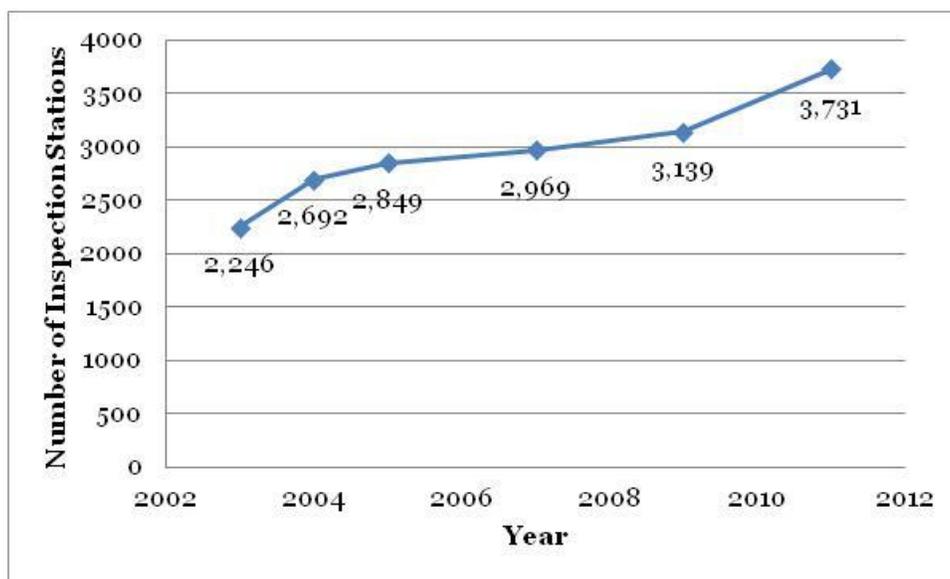
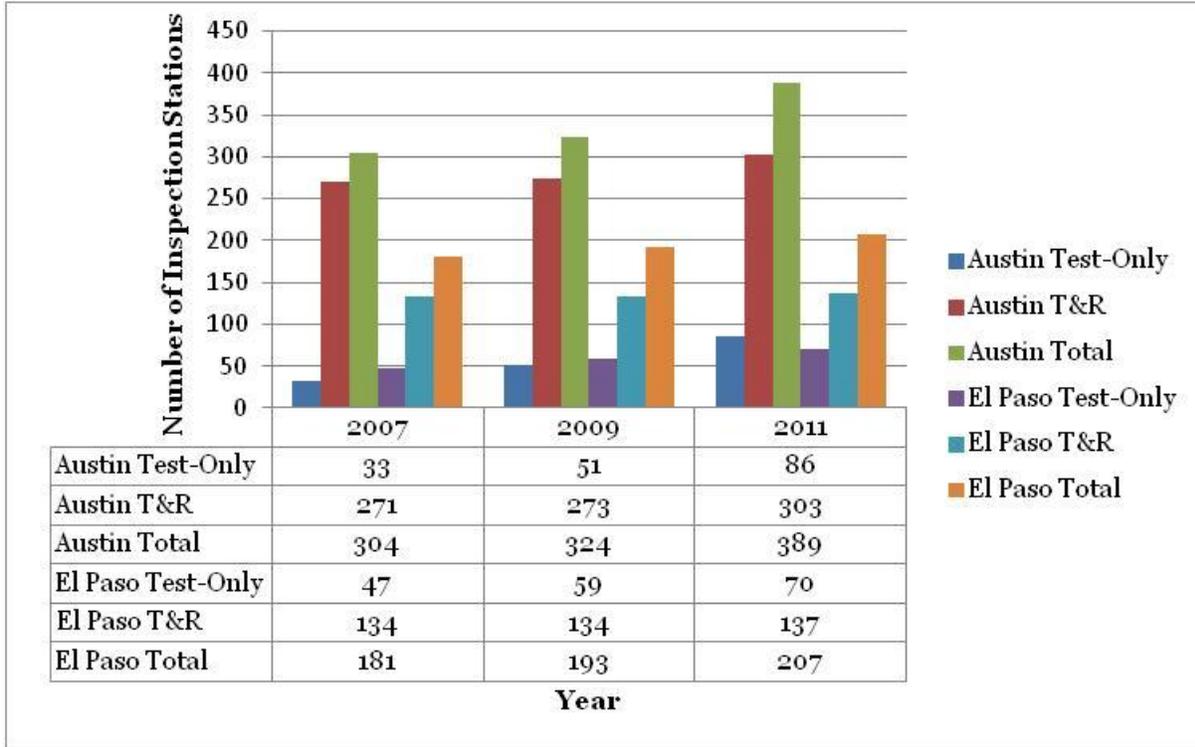


Figure ES-2. Historical Number of Inspection Stations in ARR and El Paso Program Areas



The break-even cost model used a combination of survey and non-survey data to calculate the number of emissions inspections a station must perform in a month for net revenue to equal total costs. These break-even results are summarized in Table ES-6. At least 77 percent of stations in El Paso and HGB/DFW (both test types) are shown to have sufficient throughput to generate emissions inspection revenues that meet or exceed variable and fixed costs. In ARR, 59 percent of stations have sufficient throughput to generate emissions inspection revenues that meet or exceed variable and fixed costs. As shown above and in Table ES-6, the analyses of data gathered, both independently and from the survey, suggest that the emissions fee revenue covers the costs associated with emissions inspections for a significantly greater percentage (58 to 86 percent) of stations than reflected in Table ES-5 (17 to 44 percent).

The model station analyses were based on the same cost and revenue data as the break-even analyses, using those data to present the typical cost and revenue streams for representative small, medium, and large stations. The station sizes were determined based on actual stations in the 25th, 50th (median), and 75th percentile for testing throughput out of all 4,327 shops identified in the TCEQ database. Table ES-7 shows the net revenue and total costs associated with emissions inspections. The table shows that representative small, medium, and large stations in El Paso and HGB/DFW (both test

types) all generate enough revenue from emissions inspections to recoup costs associated with emissions inspections. In ARR, this is true for representative medium and large stations but not a representative small station.

Table ES-6. Stations At/Above Break-Even Number of Inspections

	ARR	El Paso	HGB/DFW OBD-Only	HGB/DFW ASM/OBD
Break-Even Number of Tests (Per Month)				
Including equipment costs	98	67	22	71
Including equipment and building costs	103	68	23	75
Percent of Stations Above Break-Even Number				
Including equipment costs	59%	78%	79%	86%
Including equipment and building costs	58%	77%	78%	85%

Table ES-7. Do Model Stations Recoup Cost?

	ARR	El Paso	HGB/DFW OBD-Only	HGB/DFW ASM/OBD
Small station total revenue	\$736	\$851	\$500	\$2,067
Small station total costs	\$943	\$812	\$453	\$1,624
Medium station total revenue	\$1,461	\$1,530	\$1,018	\$3,698
Medium station total costs	\$1,336	\$1,095	\$633	\$2,131
Large station total revenue	\$2,806	\$2,645	\$1,647	\$5,917
Large station total costs	\$2,065	\$1,560	\$852	\$2,821

Based on the results of the cost model analyses — which show over 75 percent of stations with net revenue covering costs and an increasing number of stations entering the market — ERG recommends that the TCEQ maintain the current fee in the HGB/DFW and El Paso regions.

In the ARR region, a significantly smaller percentage of stations are shown to break even in the cost model analyses (approximately 60 percent). It appears that this is in part because of the recent large increase in the number of vehicle emissions inspection stations and resulting average decreasing throughput at the stations since the 2009 study (Pechan, 2009) was performed. ERG recommends that the TCEQ maintain the current fee in the ARR region; however, if the market becomes increasingly unfavorable after having a chance to react to the recent overexpansion, it may be a candidate for a small emissions inspection fee increase two years from now pending the results of the next survey.

CHAPTER I. INTRODUCTION

A. BACKGROUND

This study evaluates the adequacy of the AirCheckTexas motor vehicle emissions inspection fee (i.e., whether revenue covers costs) in four program areas:

- HGB: Brazoria, Fort Bend, Galveston, Harris, and Montgomery Counties
- DFW: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, and Tarrant Counties
- El Paso: El Paso County
- ARR: Travis and Williamson Counties

Inspection stations in these program areas must offer both safety-only and safety and emissions inspections; however, this study evaluates only the emissions inspection portion of the fee and the incremental costs associated with performing emissions inspection. Currently under 30 TAC §§114.53 and 114.87, the motor vehicle emissions inspection fee is capped at \$27.00 per inspection in both the HGB and DFW program areas, \$16.00 in the ARR program area, and \$14.00 in the El Paso program area. Table I-1 shows the total fee charged to customers, broken down into the safety inspection and the emissions inspection fee.

Table I-1. Safety and Emissions Testing Fees

Region	Safety Inspection Fee	Emissions Inspection Fee (Maximum)	Total Inspection Fee (Maximum)
ARR	\$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

In 2001, the 77th Texas Legislature required the TCEQ to review the fee established for the motor vehicle emissions inspection program no less frequently than biannually. Additionally, the TCEQ was authorized to implement ASM and OBD inspection technologies in the emissions inspection programs in the HGB and DFW program areas (Texas Health and Safety Code §382.202(f)(1)).

Within these two program areas, inspection stations choose to be either full service stations, offering ASM and OBD inspections, or OBD-only stations offering only OBD inspections. OBD-only stations are limited to 1,800 inspections per year (150 per month). For OBD inspections, \$6.00 from the emissions fee is collected to fund the Low Income Repair and Replacement Assistance Program (LIRAP). In this study, the data collected from the HGB and DFW regions are aggregated together in assessing the fee; however, within the HGB/DFW program areas, this study assesses the fee for OBD-only

stations as well as ASM/OBD stations. As summarized in Table I-2, ASM and OBD inspections in these counties began on either May 1, 2002 (Collin, Dallas, Denton, Harris, and Tarrant Counties) or May 1, 2003 (Brazoria, Ellis, Fort Bend, Galveston, Johnson, Kaufman, Montgomery, Parker, and Rockwall Counties).

Vehicle emissions inspections began in the ARR area on September 1, 2005 using Two-Speed Idle (TSI) and OBD inspection technologies. Inspections stations in this area must offer both the TSI and OBD inspections. (TSI inspections are performed on model-year 1995 and older vehicles, and OBD inspections are performed on model-year 1996 and newer vehicles.) For each emissions inspection, \$2.00 is collected to fund the LIRAP.

Vehicle emissions inspections began in the El Paso area on January 1, 2007 using TSI and OBD inspection technologies. Inspections stations in this area must offer both the TSI and OBD inspections. (TSI inspections are performed on model-year 1995 and older vehicles and OBD inspections are performed on model-year 1996 and newer vehicles.) El Paso does not collect funding for the LIRAP.

Table I-2. Tests Performed and Program Start Dates by Region

Region	Tests Performed	I/M Program Start Date
ARR	OBD and TSI	September 1, 2005
El Paso	OBD and TSI	January 1, 2007
HGB	OBD and ASM	May 1, 2002, and May 1, 2003 (varies by county)
DFW	OBD and ASM	May 1, 2002, and May 1, 2003 (varies by county)

This study is performed every two years by the TCEQ. It was performed by ERG in 2005 (ERG, 2005) and 2007 (ERG, 2007) and by E.H. Pechan & Associates, Inc., in 2009 (Pechan, 2009). For consistency, the surveys sent to the stations were very similar to those sent out in past years, and the structure of the cost models were also similar to those previously used.

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.

Section III (ARR), Section IV (El Paso), and Section V (HGB/DFW) present the survey findings by region. The HGB and DFW regions are analyzed together because they have the same emissions inspection fee cap and have similar cost and revenue structures. Within each region, findings are broken down by test-only and T&R stations. Within the HGB/DFW regions, the findings are broken down further by OBD-only stations and

ASM/OBD stations. As mentioned in the section above, OBD-only stations are limited to 1,800 inspections per year (150 per month) whereas ASM/OBD stations are not capped.

Section VI presents the cost model analyses for four geographic area and test type groupings:

- ARR OBD and TSI
- El Paso OBD and TSI
- HGB/DFW OBD-only
- HGB/DFW OBD and ASM

This section includes both “model station” analyses (analyses of representative small, medium, and large stations based on testing throughput) and “break-even” analyses (analyses calculating the number of emissions inspections per month a station must perform for revenue to equal costs). While data from test-only and T&R stations are aggregated together in these cost models, there is further discussion about how the business models for these station types differ.

Section VII summarizes the comments from the survey respondents.

Section VIII presents the conclusions and findings from this study.

The survey instruments are provided in Appendix A.

C. REPORT TERMINOLOGY

The analyses presented in Sections III, IV, V, and VI of this report use the statistical terminology “median,” “mean,” “mode,” “percentile,” and “quartile”:

- 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 (or the average of the two middle values).
- The mean (or average) is the sum of the observations divided by the number of observations. In the cost models analyses, the median is typically used in preference to the mean because the mean is often heavily influenced by a few extreme values or outliers.
- The mode is the value that occurs most frequently in a data set. The mode is not presented in cases where more than one value is the mode.
- The 25th percentile (also known as the 1st quartile) is the value below which 25 percent (or one-quarter) of the observations fall.

- The 50th percentile (also known as the median or 2nd quartile) is the value below which 50 percent (or half) of the observations fall.
- The 75th percentile (also known as the 3rd quartile) is the value below which 75 percent (or three-quarters) of the observations fall.

CHAPTER II. ANALYSIS METHODS SUMMARY

In February of 2012 survey questionnaires were sent to all 4,327 emissions inspection stations¹ in the four Texas program areas. As was the case in the previous three I/M fee studies performed for the TCEQ in 2005 (ERG, 2005), 2007, (ERG, 2007), and 2009 (Pechan, 2009), two different survey instruments were developed based on whether a facility was a test-only station or T&R station. Test-only stations are defined as stations that responded to the survey as performing either “no other services” or “non-repair services” (in addition to emissions inspections); thus, these stations do not have an additional revenue stream from repairing vehicles. T&R stations are defined as stations that responded to the survey as performing either “repair services only” or “repair services and non-repair services” (in addition to emissions inspections).

These instruments were sent to vehicle emissions inspection stations in four different regions corresponding to an emissions inspections fee of \$14.00 (El Paso), \$16.00 (ARR), and \$27.00 (HGB and DFW). As was done in previous fee studies, to account for these regional and station type variations, ERG sent out six different survey instruments (see Appendix A):

- ARR test-only stations
- ARR T&R stations
- El Paso test-only stations
- El Paso T&R stations
- HGB/DFW test-only stations
- HGB/DFW T&R stations

ERG reviewed the 2005, 2007, and 2009 survey instruments and developed a similar survey instrument for the TCEQ to review that would allow for year-to-year comparability with previous surveys. Changes included the addition of a question that asked whether a station has purchased a maintenance package. Other changes were minor and included slight wording clarifications to a few questions.

The TCEQ sent an initial notification bulletin to the inspection stations a week in advance of the surveys being mailed provide advance notification that they would be receiving a survey. ERG mailed the survey to the vehicle emissions inspection stations in the four program areas identified in a database provided by the TCEQ on January 25, 2012. The survey package included a personalized cover letter, a three- (test-only) or four- (T&R) page survey with a unique identifier to track incoming surveys, and a

¹ These 4,327 stations do not include facilities that service government vehicles or facilities that service their own fleets. Examples of the former include the U.S. Postal Service; examples of the latter include Verizon, Federal Express, and UPS. For these companies, emissions testing is done as part of their cost of business (i.e., to maintain their fleet of vehicles) and the operators do not offer these services to the public.

business reply envelope. The surveys were mailed on February 15, 2012 and responses were accepted until April 11, 2012. Additionally, over the duration of the survey period the TCEQ sent out four bulletins to remind stations to send their survey and to contact ERG's telephone or email hotline if they needed a replacement survey.

As mentioned above, ERG provided a phone and email hotline to survey respondents to help field requests for replacement surveys and answer other questions. Upon request, ERG also accepted surveys by fax and email. Any questions that ERG could not answer were forwarded to the TCEQ.

Of the 4,327 vehicle emissions inspection stations identified in the TCEQ vehicle emissions inspection database as of January 2012, 4,211 were sent surveys; the other 116 were identified as duplicate names/addresses and were removed from the mailing. Additionally, 65 surveys were returned as undeliverable for incorrect address information or because they were out of business. After the deadline, ERG received six additional surveys including three completed surveys and three returned for an incorrect address. These six surveys were not included in the analysis or response rate. Table II-1 shows the breakdown of the 4,327 vehicle emissions inspection stations in the TCEQ vehicle emissions inspection database by region and station type. ERG received 872 completed surveys during the survey period; Table II-2 shows the breakdown of these 872 surveys by region and station type. The overall response rate was 21 percent, which is consistent with the previous TCEQ I/M fee survey studies. Table II-3 shows the response rate by region and station type.

Table II-1. Number of Texas Emissions Inspection Stations in the TCEQ Database by Area/Station Type (January 2012)

Program Area	Test-Only	Test-and-Repair	Total
ARR	86	303	389
El Paso	70	137	207
HGB/DFW	1,183	2,548	745
Total	1,339	2,988	4,327

Table II-2. Survey Responses by Area/Station Type

Program Area	Test-Only	Test-and-Repair	Total
ARR	9	75	84
El Paso	17	26	43
HGB/DFW	244	501	745
Total	270	602	872

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

Program Area	Test-Only	Test-and-Repair	Total*
ARR	11%	25%	22%
El Paso	25%	20%	21%
HGB/DFW	22%	20%	21%
Total	21%	21%	21%

* Response rates were calculated by: [Surveys Received]/([Total Number Stations]-[Surveys Removed as Duplicates]-[Surveys Returned for Incorrect Addresses]).

Data in the following sections are displayed as submitted by the reporters except if a survey response was illegible, represented an impossible value (e.g., a value of over 100 percent was written in an answer that would only allow a response between 0 and 100), or did not answer the question (e.g., an explanation where a simple numerical value was asked for). As a result, there are some select cases in the following sections of very high and very low data points, which at times heavily influence the “average” value shown in the tables below. Thus, while the minimum, maximum, and average values are displayed in many of the tables, the median values are likely most representative of a typical station.

CHAPTER III. ARR SURVEY RESULTS

This section of the report describes the survey responses for test-only and T&R stations in the ARR region. The two surveys (T&R survey and test-only survey) can be found in Appendix A of this report. The information in the tables in this section was obtained from stations that responded to the 2012 survey. Any survey fields that were left blank (possibly due to a field being blank or not applicable), were completely illegible, or incorrectly answered the question (e.g., a text explanation for a question that required a numerical response) are reported as “missing.” Additionally, due to rounding, the percentages in many of the tables do not always sum to 100 percent. As noted in Section II, only nine test-only stations in ARR submitted the survey — a small number compared to the 75 T&R stations that responded — so caution should be taken in assessing these test-only data due to the small sample size.

Table III-1 summarizes the answers to Question 4 of the ARR survey. The question inquired about the items acquired in the transition to offer emissions inspections. All stations² reported purchasing emissions inspection equipment. Very few stations among both station types reported purchasing additional land.

Table III-1. Items Added or Acquired When Emissions Testing Was Offered — ARR

Item Purchased	Number of Responses			Total
	Yes	No	Missing	
Test-Only				
Emissions testing equipment	9	0	2	11
Tools and other equipment	3	3	5	11
Building space	1	5	5	11
Land	1	5	5	11
Test-and-Repair				
Emissions testing equipment	70	0	3	73
Tools and other equipment	48	16	9	73
Building space	16	48	9	73
Land	5	56	12	73

Question 4 of the ARR survey also addressed test-related costs for purchasing or acquiring space and equipment. Table III-2 summarizes the survey findings, showing that the median costs for emissions inspection equipment, tools and other equipment, and building space are nearly identical for T&R and test-only stations. The median values of \$17,000 and \$18,000 for emissions inspection equipment coincide rather well with the price for a single new certified TSI/OBD analyzer, which typically ranges from

² Excluding respondents who left the question blank.

\$15,495 to \$15,995 (TCEQ, 2011). On the other hand, the average values for tools and other equipment, building space, and land are much higher for T&R than test-only stations as a result of a few very high maximum values; thus the median values are probably more representative of a typical station. Because of some high (e.g., \$279,000 for tools and equipment) and low values that may influence average values throughout this table, the median seems to be a much more representative value throughout the table.

Table III-2. Additional Costs for Added or Acquired Items — ARR

Item Purchased	Average	Median	Mode	Minimum	Maximum
Test-Only					
Emissions testing equipment	\$22,309	\$18,000	—*	\$2,400	\$60,000
Tools and other equipment	\$1,217	\$1,000	—*	\$500	\$2,000
Building space	\$86,667	\$10,000	—*	\$0	\$250,000
Land	\$98,400	\$71,800	—*	\$0	\$250,000
Test-and-Repair					
Emissions testing equipment	\$17,561	\$17,000	\$18,000	\$435	\$33,000
Tools and other equipment	\$7,724	\$1,000	\$1,000	\$50	\$278,558
Building space	\$135,282	\$9,250	\$10,000	\$250	\$821,500
Land	\$376,000	\$500,000	\$20,000	\$20,000	\$800,000

* More than one mode.

Table III-3 shows the percentage of stations that hired additional staff when they began offering emissions inspections, based on answers to the ARR survey Question 5. Overall, test-only stations were more likely to hire additional staff than T&R stations.

Table III-3. Additional Staff Hired When Station Began Offering Emissions Testing — ARR

Staff Hired	Number of Responses				Percent		
	Yes	No	Missing	Total	Yes	No	Missing
Test-Only							
Inspectors	8	3	0	11	73%	27%	0%
Other mechanics	0	9	2	11	0%	82%	18%
Supervisors	1	8	2	11	9%	73%	18%
Others	1	8	2	11	9%	73%	18%
Test-and-Repair							
Inspectors	36	34	3	73	49%	47%	4%
Other mechanics	8	59	6	73	11%	81%	8%
Supervisors	4	62	7	73	5%	85%	10%
Others	5	61	7	73	7%	84%	10%

Assuming a respondent indicated that they hired a particular type of staff, Question 5 prompted stations to specify the number of employees hired in each category. Tables III-4a and III-4b summarize this information. These tables show that the average number of inspectors hired by each station is higher than that for other staff categories.

Table III-4a. Additional Staff Hired When Station Began Offering Emissions Testing (Test-Only) – ARR

Staff Hired	Number	Number of Respondents	Percent
Inspectors	1	4	36%
	2	3	27%
	3	1	9%
	<i>Missing</i>	3	27%
	Total	11	100%
Other mechanics	<i>Missing</i>	11	100%
	Total	11	100%
Supervisors	1	1	9%
	<i>Missing</i>	10	91%
	Total	11	100%
Others	2	1	9%
	<i>Missing</i>	10	91%
	Total	11	100%

Table III-4b. Additional Staff Hired When Station Began Offering Emissions Testing (Test-and-Repair) – ARR

Staff Hired	Number	Number of Respondents	Percent
Inspectors	1	16	22%
	1.5	2	3%
	2	9	12%
	3	4	6%
	4	3	4%
	6	2	3%
	<i>Missing</i>	37	51%
	Total	73	100%
	Other mechanics	1	4
2		2	3%
4		1	1%
6		1	1%
<i>Missing</i>		65	89%
Total		73	100%
Supervisors	1	4	6%
	<i>Missing</i>	69	95%
	Total	73	100%
Others	1	3	4%
	2	2	3%
	<i>Missing</i>	68	93%
	Total	73	100%

In Question 6 of the survey, respondents were asked about the average wage (unloaded) they pay each type of employee. Table III-5 summarizes the responses. Median wages are slightly higher at T&R stations (\$12.00) than test-only stations (\$10.75). These values are consistent with the \$11.95 hourly wage shown for the ARR area for level 1 auto service technicians and mechanics as reported by the Foreign Labor Center Data Center (FLC, 2012). There is a larger gap in the average hourly wages for inspectors

(\$13.77 for T&R versus \$10.41 for test-only); however, this is highly influenced by a few much higher wages at T&R stations that are not representative of what most stations reported. Note: some stations provided weekly, monthly, or yearly wages, and in converting to an hourly wage, it was assumed that a full-time employee worked 40 hours per week. In these cases, if employees actually worked more or less than 40 hours per week, values could be higher or lower (e.g., below minimum wage).

Table III-5. Current Wage Paid (\$/hr) – ARR

Employee Type	Average	Median	Mode	Minimum	Maximum
Test-Only					
Inspectors	\$10.41	\$10.75	\$10	\$2.79	\$15
Other mechanics	\$12	\$12	\$12	\$12	\$12
Supervisors	\$14	\$15	\$15	\$12	\$15
Others	\$9	\$9	\$9	\$9	\$9
Test-and-Repair					
Inspectors	\$13.77	\$12	\$10	\$8.50	\$32
Other mechanics	\$23.47	\$25	\$30	\$5	\$33
Supervisors	\$23.90	\$22.60	\$25	\$5	\$43.27
Others	\$12.28	\$10.50	\$10	\$5	\$23.08

Table III-6 is based on Question 7, which asked respondents to provide the number of inspectors employed at their respective stations. The majority of respondents reported employing one, two, or three inspectors at their station. The largest number of inspectors reported by test-only stations was five, while one T&R station reported having 30 inspectors.

Table III-6. Number of Emissions Inspectors Currently Working at the Station — ARR

Number	Number of Respondents	Percent
Test-Only		
1	2	18%
2	3	27%
3	4	36%
4	1	9%
5	1	9%
Total	11	100%
Test-and-Repair		
0	1	1%
1	11	15%
2	22	30%
3	11	15%
3.5	1	1%
4	6	8%
5	3	4%
6	5	7%
7	5	7%
10	2	3%
11	1	1%
12	1	1%
30	1	1%
<i>Missing</i>	3	4%
Total	73	100%

Question 8 of the ARR survey, summarized in Tables III-7 and III-8, inquired about the number of inspectors employed full-time and part-time. The tables show that ARR-area stations tend to employ more full-time than part-time emissions inspectors. This is especially true for T&R stations, where only 19 percent of the stations reported having any part-time employees, and those that did had two or less. Additionally, no test-only stations reported employing more than two part-time inspectors.

Table III-7. Number of Full-Time Emissions Inspectors — ARR

Number	Number of Respondents	Percent
Test-Only		
1	5	46%
2	3	27%
3	2	18%
4	1	9%
Total	11	100%
Test-and-Repair		
1	15	21%
2	23	32%
3	8	11%
4	6	8%
5	3	4%
6	6	8%
7	3	4%
10	2	3%
11	1	1%
12	1	1%
30	1	1%
<i>Missing</i>	4	6%
Total	73	100%

Table III-8. Number of Part-Time Emissions Inspectors — ARR

Number	Number of Respondents	Percent
Test-Only		
1	4	36%
2	1	9%
<i>Missing</i>	6	55%
Total	11	100%
Test-and-Repair		
1	12	16%
2	2	3%
<i>Missing</i>	59	81%
Total	73	100%

The following results are from Questions 9 through 14 of the ARR T&R survey. These questions were not asked on the ARR test-only survey; thus, the results in Tables IV-9 to 14 only encompass T&R stations.

To understand the extent to which T&R stations focus on services other than inspections, Questions 9 and 10 of the T&R survey inquired about how much time inspectors spend performing emissions inspections. Tables III-9 and III-10 show the answers for full-time inspectors and part-time inspectors, respectively.

Tables III-9 and III-10 show the total number of inspectors summed across all respondents by the percent of the time they perform inspections. Table III-9 shows that

28 percent of full-time emissions inspectors spend the majority of their time performing inspections, and 24 percent of full-time inspectors only spend about 5 percent of their time performing inspections. Table III-10 shows that 31 percent of full-time emissions inspectors spend the majority of their time performing inspections, and 38 percent of full-time inspectors only spend about 5 to 10 percent of their time performing inspections. This shows that the majority of inspectors are not focused primarily on inspections.

Table III-9. Of Inspectors Who Work Full-Time: Number of Inspectors by Percent of Time Spent on Inspections — ARR

Percent of Time Performing Inspections	Total Number of Inspectors (Sum of All Respondents)	Percent
50% or more	34	28%
About 25%	23	19%
About 15%	14	11%
About 10%	23	19%
About 5%	29	24%
Total	123	100%

Table III-10. Of Inspectors Who Work Part-Time: Number of Inspectors by Percent of Time Spent on Inspections — ARR

Percent of Time Performing Inspections	Total Number of Inspectors (Sum of All Respondents)	Percent
50% or more	5	31%
About 25%	3	19%
About 15%	2	13%
About 10%	3	19%
About 5%	3	19%
Total	16	100%

The percentage of the workspace devoted exclusively to emissions inspections is shown in Table III-11 and was asked in Question 11 of the ARR T&R survey. The respondents reported using an average of 16 percent and median of 11 percent of the workspace exclusively for emissions inspections. In many cases, it is likely that stations have available space that is for multiple uses, which can account for stations that have 0 percent of their space being used exclusively for emissions inspections.

Table III-11. Percent of Workspace Used Only for Emissions Testing — ARR

Mean	Median	Mode	Minimum	Maximum
16%	11%	10%	0%	100%

Survey Questions 12 through 14 of the ARR T&R survey addressed the revenue stream for T&R stations generated from repairs after failed emissions inspections. As Table III-

12 shows, the majority of stations reported that less than 10 percent of their income came from repairs following failed emissions inspections. None of the stations that answered the question reported generating more than about 25 percent of their income from repairs after failed emissions inspections. Table III-13 shows that the average number of repair jobs per month is six and the median value is four, and Figure III-1 shows the distribution of the responses in a histogram. Table III-14 shows that the average cost of such a repair is \$322 with a median value of \$275, and Figure III-2 shows the distribution of these responses in a histogram. This only gives insight into the gross revenue generated from repairs from failed inspections; it does not provide any insight as to the additional profit from these repairs.

Table III-12. Proportion of Repair Revenues Resulting from Failed Emissions Inspections — ARR

Number	Number of Respondents	Percent
0% — perform inspections only	5	7%
Less than 10%	56	77%
About 25%	5	7%
About 50%	0	0%
About 75%	0	0%
Between 75% and 95%	0	0%
More than 95%	0	0%
<i>Missing</i>	7	10%
Total	73	100%

Table III-13. Typical Number of Repair Jobs per Month Resulting from Failed Emissions Tests — ARR

Mean	Median	Mode	Minimum	Maximum
6	4	1	0	50

Figure III-1. Distribution of Typical Number of Repair Jobs per Month Resulting from Failed Emissions Tests – ARR

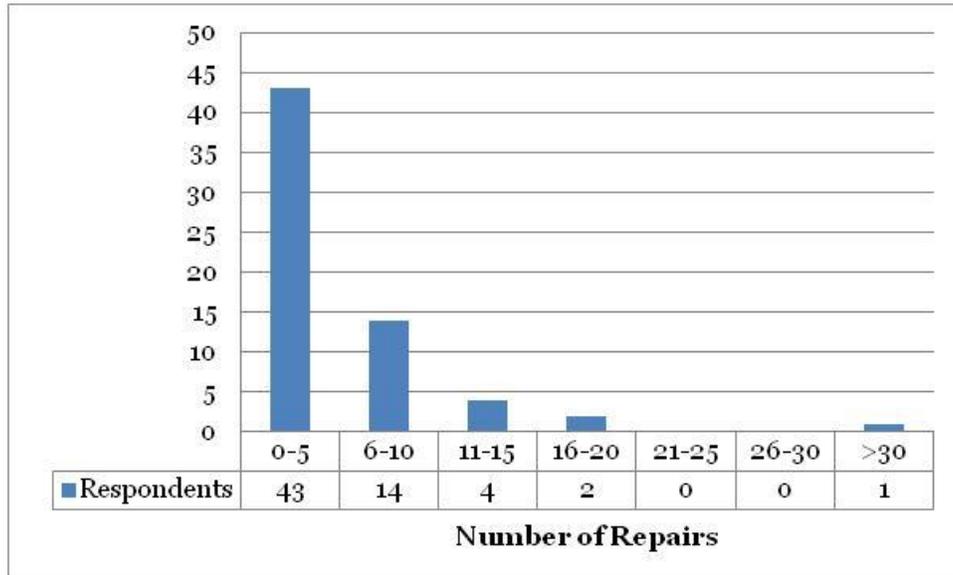
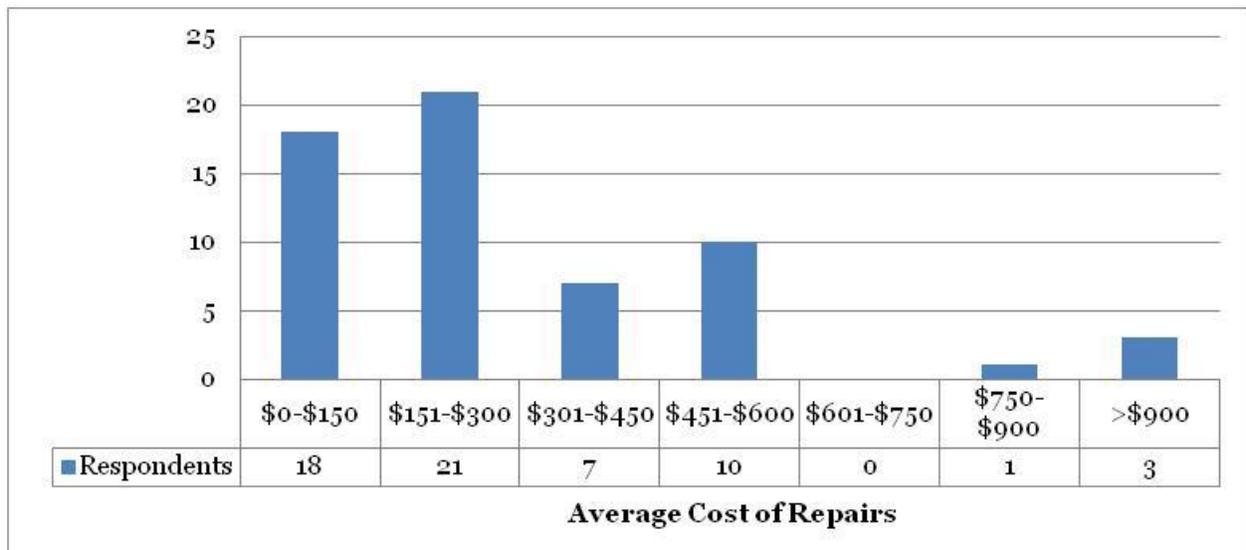


Table III-14. Typical Repair Cost for an Emissions Test Failure – ARR

Mean	Median	Mode	Minimum	Maximum
\$322	\$275	\$100	\$0	\$2,000

Figure III-2. Distribution of Typical Repair Costs for an Emissions Test Failure – ARR



Question 15 (T&R survey) and Question 9 (test-only survey) asked stations to provide information on how they financed their purchase of emissions inspection equipment. Of

the test-only stations that responded, 27 percent reported paying cash and 73 percent financed with lease-to-purchase agreements. In contrast, 48 percent of T&R stations reported paying cash, 26 percent financed with lease-to-purchase agreements, and 25 percent took out loans from the bank.

Table III-15. Financing Mechanisms for Purchasing Emissions Testing Equipment — ARR

Finance Type	Number of Respondents	Percent
Test-Only		
Paid cash	3	27%
Lease-to-purchase agreement arranged with vendor	8	73%
Total	11	100%
Test-and-Repair		
Paid cash	35	48%
Lease-to-purchase agreement arranged with vendor	19	26%
Bank loan	18	25%
<i>Missing</i>	1	1%
Total	73	100%

Questions 16 and 17 (T&R survey) and Questions 10 and 11 (test-only survey) further inquired about the financing process for those stations that did not pay with cash.

Table III-16 shows that the average lease-to-purchase or bank loan term is 4.5 years with a median value of 5 years for test-only stations. Those values for T&R stations were nearly identical, with an average term of 4.6 years and median term of 4.6 years. Figure III-3 shows the distribution of these loan terms for test-only and T&R stations combined.

Table III-16. Lease-to-Purchase or Bank Loan Term (Years) — ARR

Business Model	Average	Median	Mode	Minimum	Maximum
Test-only	4.5	5	5	3	5
Test-and-repair	4.6	4.5	—*	0	20

* More than one mode.

Figure III-3. Distribution of Lease-to-Purchase or Bank Loan Term (Years) – ARR

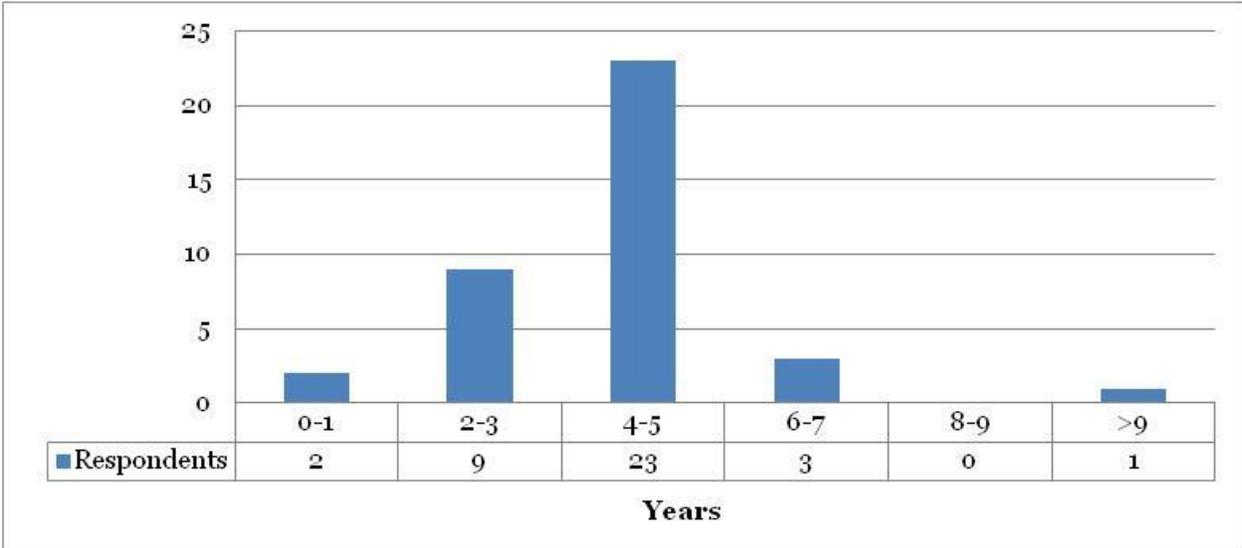


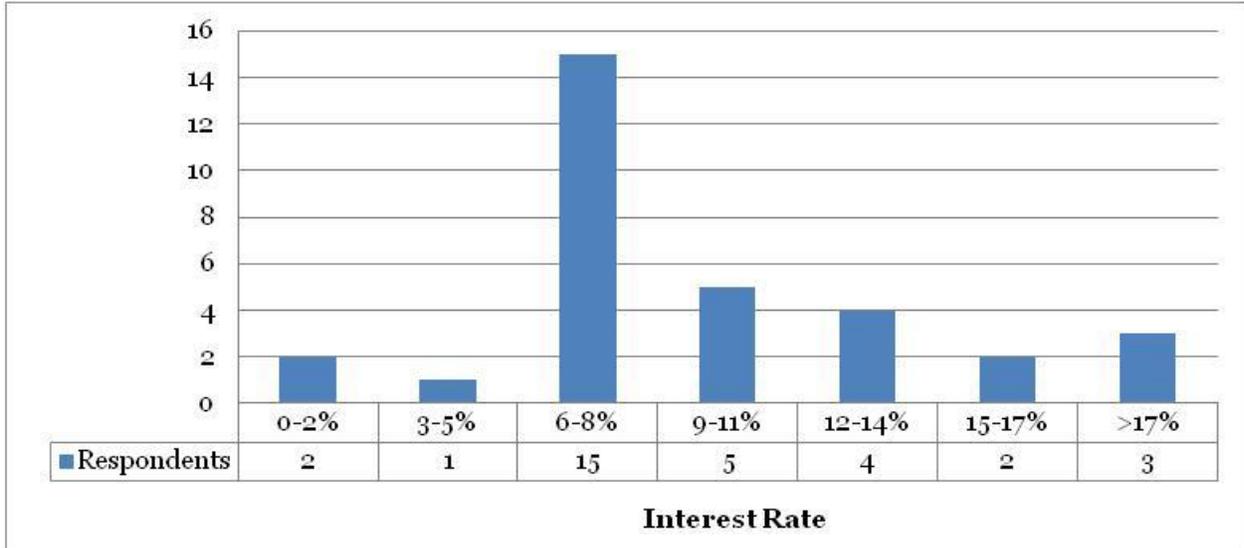
Table III-17 shows the lease-to-purchase or bank loan interest rates. Test-only and T&R stations reported similar averages of 10 percent and 10.5 percent, respectively. The reported interest rates ranged from 0 to 50 percent for T&R stations and 8 to 12 percent in test-only stations. The 50 percent maximum is much higher than other rates reported and may strongly influence the average; thus, the median may be a more representative statistic in this case. The median shows that test-only stations reported a slightly higher median interest rate than T&R stations (10 percent and 8 percent, respectively). Figure III-4 shows the distribution of these loan interest rates for test-only and T&R stations combined.

Table III-17. Interest Rate for Lease-to-Purchase or Bank Loan – ARR

Business Model	Average	Median	Mode	Minimum	Maximum
Test-only	10%	10%	—*	8%	12%
Test-and-repair	10.5%	8%	—*	0%	50%

* More than one mode.

Figure III-4. Interest Rate for Lease-to-Purchase or Bank Loan — ARR



The survey also addressed the annual maintenance costs for all stations. Table III-18 summarizes the answers to Question 19 (T&R survey) and Question 13 (test-only survey), which show that stations pay approximately \$2,300 to \$2,400 annually for a maintenance package for their emissions inspection equipment. Of the 73 T&R survey respondents, 37 (51 percent) confirmed they have a maintenance plan (Question 18 of the T&R survey), and of the 11 test-only respondents, eight (73 percent) confirmed they have a maintenance plan (Question 12 of the test-only survey).

Table III-18. Annual Maintenance Package Costs — ARR

Business Model	Average	Median	Mode	Minimum	Maximum
Test-only	\$2,925	\$2,300	\$1,800	\$1,600	\$6,000
Test-and-repair	\$2,203	\$2,400	\$2,500	\$1,200	\$3,812

Additionally, for stations that responded that they purchased a maintenance agreement, respondents reported their extra maintenance costs (costs not covered by their maintenance agreement) in the year 2011. (Stations that did not purchase a maintenance agreement were not asked to provide additional maintenance costs.) The median reported value of these costs was \$600 annually for T&R stations and \$1,000 annually for test-only stations.

Table III-19. Extra Maintenance Costs in 2011 — ARR

Business Model	Average	Median	Mode	Minimum	Maximum
Test-only	\$1,429	\$1,000	\$1,000	\$0	\$4,000
Test-and-repair	\$1,230	\$600	\$500	\$0	\$9,000

Survey Questions 21 and 22 (T&R survey) and Questions 15 and 16 (test-only survey) asked stations about whether they offer reduced-fee and free emissions inspections other than performing free retests after an initial failure inspection at their station. The tables show that 27 percent of test-only stations reported ever providing free emissions inspections other than free retests after an initial failure at their station, and 9 percent reported ever offering emissions inspections at reduced fees (under \$16). Similarly, 21 percent of T&R stations reported ever providing free tests other than free retests after an initial failure at their station, and 4 percent reported ever offering emissions inspections at reduced fees. Stations reported several reasons for offering free emissions inspections including rewarding preferred customers, attracting new customers, and offering a free emissions inspection with repairs.

Table III-20. Other Than Free Retests — Free Emissions Tests — ARR

Free Test Given	Number of Respondents	Percent
Test-Only		
Yes	3	27%
No	8	73%
Total	11	100%
Test-and-Repair		
Yes	15	21%
No	58	79%
Total	73	100%

Table III-21. Other Than Free Retests — Fee Less Than \$16.00 — ARR

Charged Less Than \$16.00?	Number of Respondents	Percent
Test-Only		
Yes	1	9%
No	10	91%
Total	11	100%
Test-and-Repair		
Yes	3	4%
No	70	96%
Total	73	100%

As shown in Table III-22, stations that reported ever charging a reduced fee for an emissions inspection reported a median value of \$13.25 as the lowest fee they would charge.

Table III-22. Typical Fee Charged Less Than \$16.00 — ARR

Mean	Median	Mode	Minimum	Maximum
\$13.38	\$13.25	\$12.25	\$12.25	\$14.75

The survey also inquired about failed vehicles and retests. Question 23 (T&R survey) and Question 17 (test-only survey) asked the stations whether they had vehicles that failed an emissions inspection within the two months before the survey and did not return for a retest. Table III-23 summarizes the responses. Over 50 percent of respondents had at least one vehicle that did not return for a retest after being failed within the previous two months.

Table III-23. Failed Vehicles Not Returning for Retest Within Last Two Months – ARR

Not Return?	Number of Respondents	Percent
Test-Only		
Yes	7	64%
No	4	36%
Total	11	100%
Test-and-Repair		
Yes	44	60%
No	24	33%
<i>Missing</i>	5	7%
Total	73	100%

Additionally, Question 23 (T&R survey) and Question 17 (test-only survey) also asked stations that answered “yes” to the first part to specify the *number* of failed vehicles that did not return for a retest within two months. Table III-24 shows a median value of two vehicles, for both T&R and test-only stations.

Table III-24. Number of Failed Vehicles Not Returning for Retest Within Last Two Months – ARR

Business Model	Average	Median	Mode	Minimum	Maximum
Test-only	2.2	2	—*	1.5	4
Test-and-repair	3.1	2	2	1	15

* More than one mode.

The final question of the survey asked respondents whether the fee for emissions inspections covers their costs associated with emissions inspections. The majority of the respondents answered “no;” 73 percent of responding test-only stations and 84 percent of responding T&R stations believed that the fee does not cover costs.

Table III-25. Does Fee Cover Emissions Testing Costs? — ARR

Fee Covers Costs?	Number of Respondents	Percent
Test-Only		
Yes	3	27%
No	8	73%
Total	11	100%
Test-and-Repair		
Yes	11	15%
No	61	84%
<i>Missing</i>	1	1%
Total	73	100%

CHAPTER IV. EL PASO SURVEY RESULTS

This section of the report describes the survey responses for test-only and T&R stations in the El Paso region. The two surveys (T&R survey and test-only survey) can be found in Appendix A of this report. The information in the tables in this section strictly comes from stations that responded to the 2012 survey. Any survey fields that were left blank (possibly due to a field being blank or not applicable), were completely illegible, or incorrectly answered the question (e.g., an explanation in a question that required a numerical response) are reported as “missing.” Additionally, due to rounding, the percentages in many of the tables do not always add up to 100 percent.

Table IV-1 summarizes the answers to Question 4 of the El Paso survey. The question inquired about the items acquired in the transition to offer emissions inspections. All stations (excluding those that left the question blank) reported purchasing emissions inspection equipment. Very few stations among both station types reported purchasing additional land.

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

Item Purchased	Number of Responses			Total
	Yes	No	Missing	
Test-Only				
Emissions testing equipment	12	0	0	12
Tools and other equipment	6	4	2	12
Building space	6	3	3	12
Land	2	7	3	12
Test-and-Repair				
Emissions testing equipment	28	0	4	32
Tools and other equipment	22	4	6	32
Building space	7	19	6	32
Land	2	24	6	32

Question 4 of the El Paso survey also addressed emissions-related costs for purchasing or acquiring space and equipment. Table IV-2 summarizes the survey findings, showing a similar median purchase price of emissions inspection equipment between test-only (\$17,000) and T&R stations (\$15,000). These values for emissions inspection equipment coincide with the price for a single new certified TSI/OBD analyzer, which typically ranges from \$15,495 to \$15,995 (TCEQ, 2011). Due to some very high reported values for the purchase of building space, the average purchase price for T&R stations is much greater than the mean; thus, the median value (\$15,000) is probably more representative of a typical station.

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

Item Purchased	Average	Median	Mode	Minimum	Maximum
Test-Only					
Emissions testing equipment	\$16,082	\$17,000	\$20,000	\$1,000	\$25,000
Tools and other equipment	\$2,925	\$1,000	—*	\$200	\$10,000
Building space	\$23,056	\$1,900	—*	\$400	\$150,000
Land	\$35,000	\$35,000	—*	\$20,000	\$50,000
Test-and-Repair					
Emissions testing equipment	\$22,203	\$15,000	\$15,000	\$10,000	\$180,000
Tools and other equipment	\$3,512	\$2,000	—*	\$250	\$15,000
Building space	\$86,514	\$15,000	—*	\$800	\$300,000
Land	\$465,000	\$465,000	—*	\$150,000	\$780,000

* More than one mode.

Table IV-3 shows the number and percentage of stations that hired additional staff when they began offering emissions inspections based on answers to the El Paso survey Question 5. Overall, test-only stations (75 percent of respondents) were slightly more likely to hire additional inspectors to their staff than T&R stations (69 percent of respondents).

Table IV-3. Additional Staff Hired When Station Began Offering Emissions Testing — El Paso

Staff Hired	Number of Responses				Percent		
	Yes	No	Missing	Total	Yes	No	Missing
Test-Only							
Inspectors	9	3	0	12	75%	25%	0%
Other mechanics	2	8	2	12	17%	67%	17%
Supervisors	0	10	2	12	0%	83%	17%
Others	1	9	2	12	8%	75%	17%
Test-and-Repair							
Inspectors	22	10	0	32	69%	31%	0%
Other mechanics	14	15	3	32	44%	47%	9%
Supervisors	4	25	3	32	13%	78%	9%
Others	1	25	6	32	3%	78%	19%

Assuming a respondent indicated that they hired a particular type of staff, Question 5 also prompted stations to specify the number of employees hired in each category. Tables IV-4a and IV-4b summarize this information.

Table IV-4a. Additional Staff Hired When Station Began Offering Emissions Testing (Test-Only) — El Paso

Employee Type	Number	Number of Respondents	Percent
Inspectors	1	6	50%
	2	3	25%
	<i>Missing</i>	3	25%
	Total	12	100%
Other mechanics	1	1	8%
	4	1	8%
	<i>Missing</i>	10	83%
	Total	12	100%
Supervisors	<i>Missing</i>	12	100%
	Total	12	100%
Others	1	1	8%
	<i>Missing</i>	11	92%
	Total	12	100%

Table IV-4b. Additional Staff Hired When Station Began Offering Emissions Testing (Test-and-Repair) — El Paso

Employee Type	Number	Number of Respondents	Percent
Inspectors	1	9	28%
	2	9	28%
	3	2	6%
	5	1	3%
	12	1	3%
	<i>Missing</i>	10	31%
	Total	32	100%
Other mechanics	1	8	25%
	2	5	16%
	3	1	3%
	<i>Missing</i>	18	56%
	Total	32	100%
Supervisors	1	4	13%
	<i>Missing</i>	28	88%
	Total	32	100%
Others	1	1	3%
	<i>Missing</i>	31	97%
	Total	32	100%

In Question 6 of the El Paso survey, respondents were asked about the average wage (unloaded) they pay each type of employees. Table IV-5 summarizes the responses. The median hourly wage of an inspector at test-only stations (\$8.50) is just slightly less than that reported for T&R stations (\$9.62). These values are consistent with the \$9.32 hourly wage shown for the El Paso area for level 1 auto service technicians and mechanics as reported by the Foreign Labor Center Data Center (FLC, 2012). The wage gap from the mean values is higher, but this is influenced by a few significantly higher wages at T&R stations that are not as representative of what most stations reported.

Note: some stations provided weekly, monthly, or yearly wages, and in converting to an hourly wage, it was assumed that a full-time employee worked 40 hours per week. In these cases, if employees worked more or less than 40 hours per week, values could be higher or lower (e.g., those below minimum wage).

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

Employee Type	Average	Median	Mode	Minimum	Maximum
Test-Only					
Inspectors	\$8.89	\$8.50	—*	\$7.35	\$12.50
Other mechanics	—†	—†	—†	—†	—†
Supervisors	—†	—†	—†	—†	—†
Others	\$8.50	\$8.50	\$8.50	\$8.50	\$8.50
Test-and-Repair					
Inspectors	\$10.71	\$9.62	\$10	\$7.25	\$25
Other mechanics	\$13.08	\$12.25	—*	\$8	\$23.08
Supervisors	\$13.35	\$12.50	—*	\$10	\$18
Others	\$8	\$8	\$8	\$8	\$8

* More than one mode.

† Population estimates cannot be calculated due to no reported data.

Table IV-6 is based on Question 7 of the El Paso survey, which requires respondents to provide the number of inspectors employed at their respective stations. The majority of respondents reported employing one, two, or three inspectors at their station. The largest test-only station reported employing three inspectors, while one T&R station reported employing 18 inspectors.

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

Number	Number of Respondents	Percent
Test-Only		
1	6	50%
2	5	42%
3	1	8%
Total	12	100%
Test-and-Repair		
0	1	3%
1	7	22%
2	12	38%
3	7	22%
4	1	3%
5	1	3%
6	1	3%
18	1	3%
<i>Missing</i>	1	3%
Total	32	100%

Question 8 of the El Paso survey, summarized in Tables IV-7 and IV-8, inquired about the number of inspectors employed full-time and part-time. The tables show that El Paso-area stations tend to hire inspectors more frequently on a full-time basis instead of a part-time basis.

Table IV-7. Number of Full-Time Emissions Inspectors — El Paso

Number	Number of Respondents	Percent
Test-Only		
1	9	75%
2	3	25%
Total	12	100%
Test-and-Repair		
1	9	28%
2	13	41%
3	5	16%
4	1	3%
5	1	3%
6	1	3%
18	1	3%
<i>Missing</i>	1	3%
Total	32	100%

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

Number	Number of Respondents	Percent
Test-Only		
1	3	25%
2	1	8%
<i>Missing</i>	8	67%
Total	12	100%
Test-and-Repair		
1	6	19%
2	2	6%
<i>Missing</i>	24	75%
Total	32	100%

The following results are from Questions 9 through 14 of the El Paso T&R survey. These questions were not asked on the El Paso test-only survey; thus, the results in Tables IV-9 to 14 only encompass T&R stations.

To understand the extent to which T&R stations focus on services other than emissions inspections, Questions 9 and 10 of the El Paso T&R survey inquired about how much time inspectors spend on performing emissions inspections. Tables IV-9 and IV-10 show the answers for full-time inspectors and part-time inspectors, respectively.

Tables IV-9 and IV-10 show the total number of inspectors summed across all respondents by what percent of the time they perform inspections. Table IV-9 shows that 31 percent of full-time emissions inspectors spend the majority of their time performing inspections, and 19 percent of full-time inspectors only spend about 5 to 10 percent of their time performing inspections. Table IV-10 shows that 29 percent of full-time emissions inspectors spend the majority of their time performing inspections, and 14 percent of full-time inspectors only spend about 5 to 10 percent of their time performing inspections. This shows that full-time and part-time inspectors are being hired to perform emissions inspections as their primary duty and as supplemental side work. Overall, this shows that the majority of inspectors are not focused primarily on inspections.

Table IV-9. Of Inspectors Who Work Full-Time: Number of Inspectors by Percent of Time Spent on Inspections — El Paso

Percent of Time Performing Inspections	Total Number of Inspectors (Sum of All Respondents)	Percent
50% or more	11	31%
About 25%	10	28%
About 15%	8	22%
About 10%	4	11%
About 5%	3	8%
Total	36	100%

Table IV-10. Of Inspectors Who Work Part-Time: Number of Inspectors by Percent of Time Spent on Inspections — El Paso

Percent of Time Performing Inspections	Total Number of Inspectors (Sum of All Respondents)	Percent
50% or more	2	29%
About 25%	2	29%
About 15%	2	29%
About 10%	1	14%
About 5%	0	0%
Total	7	100%

The percentage of the workspace devoted exclusively to emissions inspections is shown in Table IV-11 and was asked in Question 11 of the El Paso T&R survey. The respondents reported using an average of 22 percent and median of 20 percent of the workspace exclusively for emissions inspections. In many cases, it is likely that stations have available space that is for multiple uses, which can account for stations that have 0 percent of their space being used exclusively for emissions inspections.

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

Mean	Median	Mode	Minimum	Maximum
22%	20%	—*	0%	75%

* More than one mode.

Survey Questions 12 through 14 of the El Paso T&R survey addressed the revenue stream for T&R stations generated from repairs after failed emissions inspections. As Table IV-12 shows, half of the stations reported that less than 10 percent of their income came from failed emissions repairs, 9 percent of the stations reported that about 75 percent of their revenue was generated from repairs following failed emissions inspections, but no stations reported that more than 75 percent of their revenue resulted from such repairs. Table IV-13 shows that both the average and median number of repair jobs per month is 10, and Figure IV-1 shows the distribution of the responses in a histogram. Table IV-14 shows that the average cost of such a repair was \$184 with a median value of \$150, and Figure IV-2 shows the distribution of these responses in a histogram. This only gives insight into the gross revenue generated from repairs from failed inspections; it does not provide any insight into the additional profit from these repairs.

Table IV-12. Proportion of Repair Revenues Resulting from Failed Emissions Inspections — El Paso

Number	Number of Respondents	Percent
0% — perform inspections only	0	0%
Less than 10%	16	50%
About 25%	5	16%
About 50%	0	0%
About 75%	3	9%
Between 75% and 95%	0	0%
More than 95%	0	0%
Missing	8	25%
Total	32	100%

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

Mean	Median	Mode	Minimum	Maximum
10	10	10	0	35

Figure IV-1. Distribution of Typical Number of Repair Jobs per Month Resulting from Failed Emissions Tests — El Paso

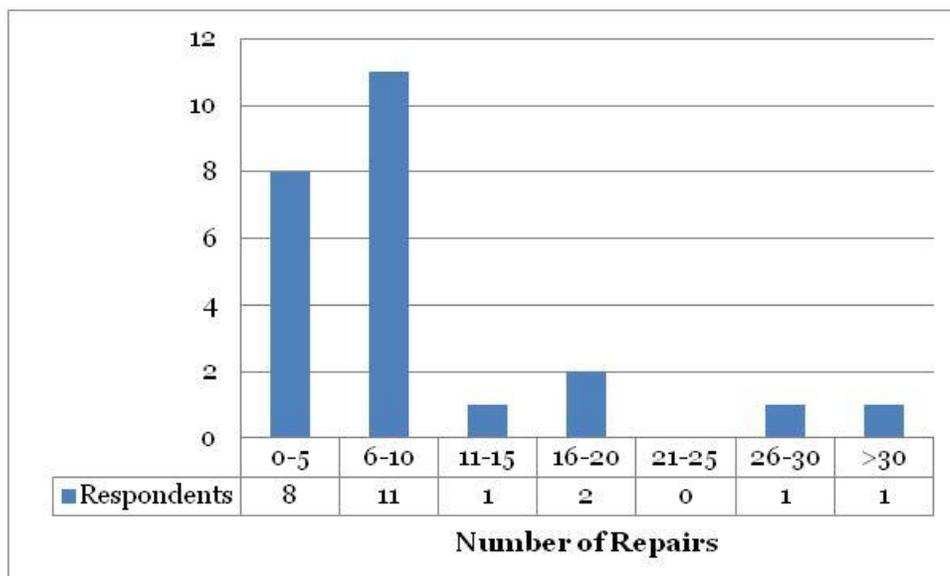
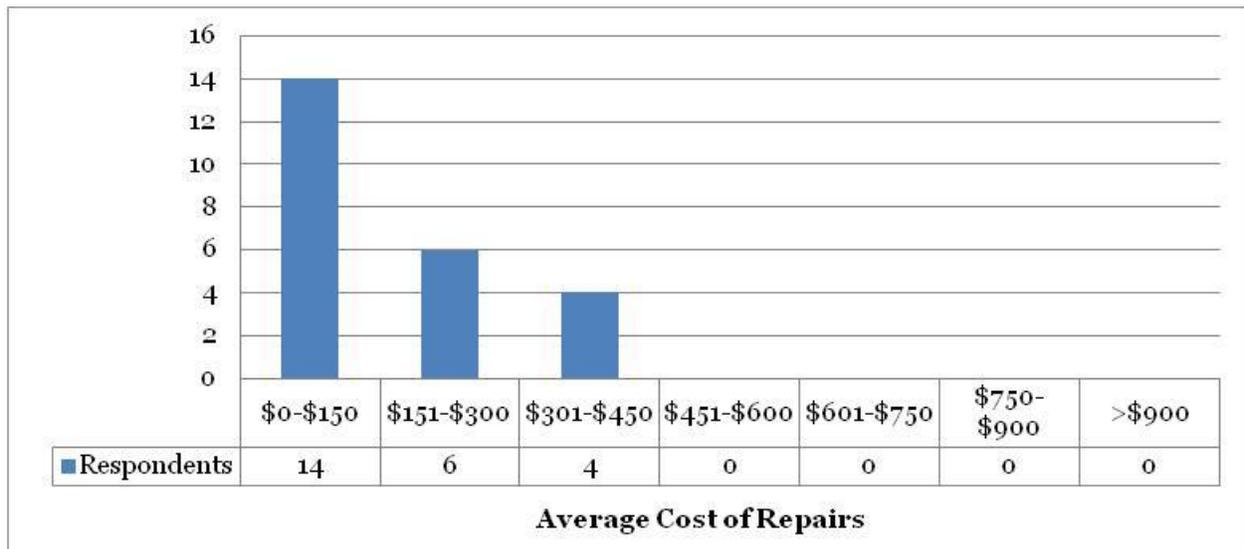


Table IV-14. Typical Repair Cost for an Emissions Test Failure — El Paso

Mean	Median	Mode	Minimum	Maximum
\$184	\$150	\$150	\$0	\$400

Figure IV-2. Distribution of Typical Repair Costs for an Emissions Test Failure — El Paso



Question 15 (T&R survey) and Question 9 (test-only survey) asked stations to provide information on how they financed their purchase of emissions inspection equipment. Of the test-only stations that responded, 17 percent reported paying cash, 58 percent financed with lease-to-purchase agreements, and 25 percent took out a loan from the bank. In the case of T&R station respondents, 13 percent paid with cash, 63 percent financed with lease-to-purchase agreements, and 22 percent took out a loan from the bank.

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

Finance Type	Number of Respondents	Percent
Test-Only		
Paid cash	2	17%
Lease-to-purchase agreement arranged with vendor	7	58%
Loan from bank	3	25%
Total	12	100%
Test-and-Repair		
Paid cash	4	13%
Lease-to-purchase agreement arranged with vendor	20	63%
Loan from bank	7	22%
<i>Missing</i>	1	3%
Total	32	100%

Questions 16 and 17 (T&R survey) and Questions 10 and 11 (test-only survey) further inquired about the financing process for those stations that did not pay with cash.

Table IV-16 shows that the lease-to-purchase or bank loan term is on average 5.1 years with a median of 5 years for test-only stations and an average and median of 4 years for T&R stations. Figure IV-3 shows the distribution of these loan terms for test-only and T&R stations combined.

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

Business Model	Average	Median	Mode	Minimum	Maximum
Test-only	5.1	5	5	4	7
Test-and-repair	4	4	5	0	20

Figure IV-3. Distribution of Lease-to-Purchase or Bank Loan Term (Years) – El Paso

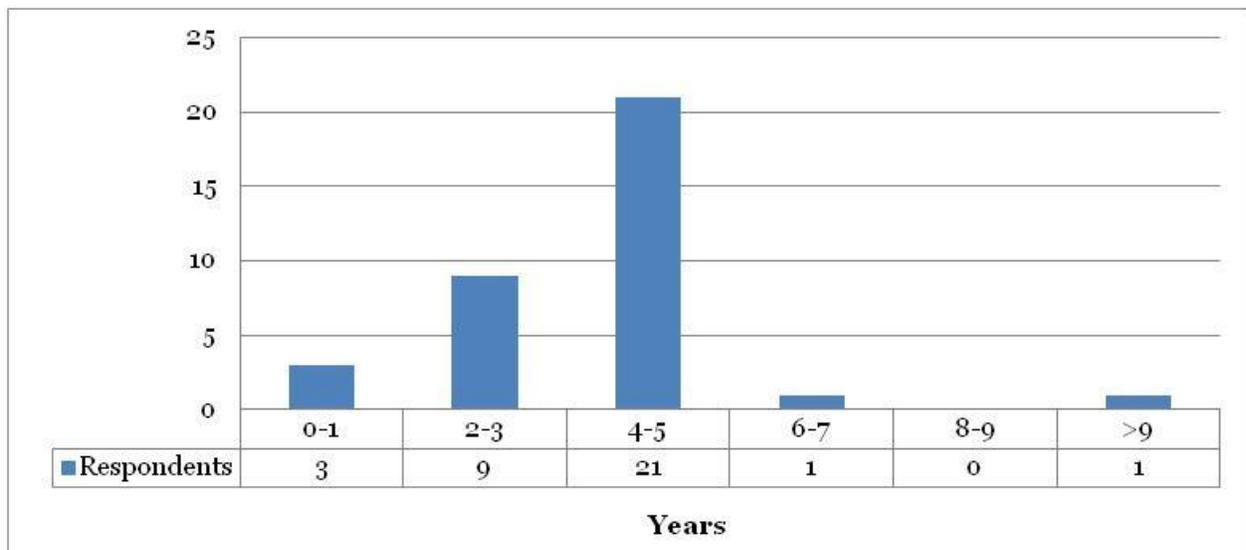


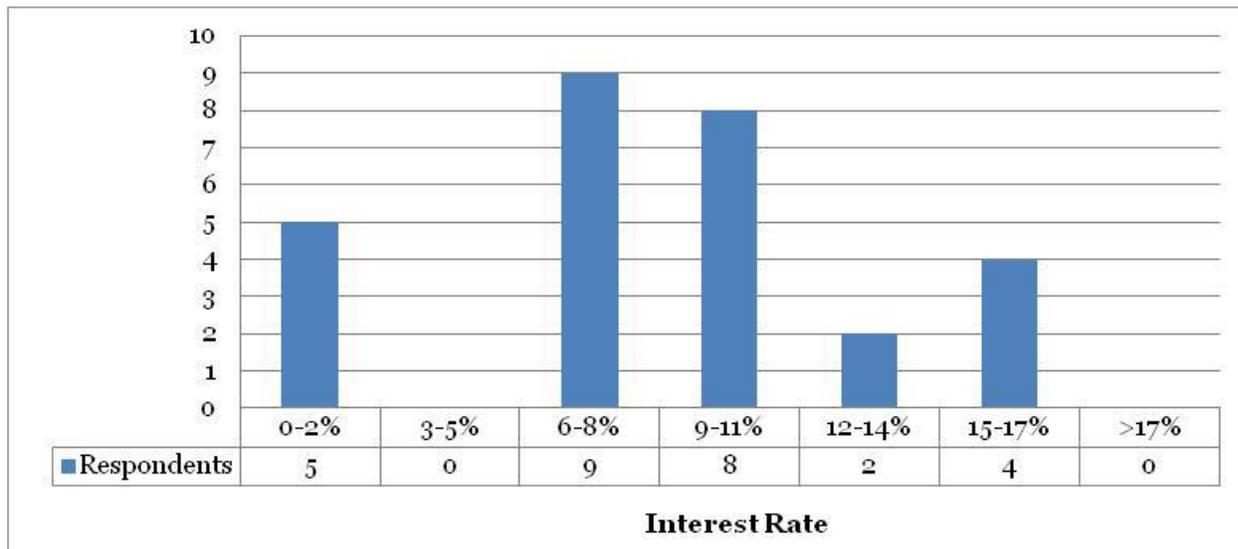
Table IV-17 shows that the lease-to-purchase or bank loan interest rates reported by respondents at test-only stations were slightly higher than those reported by respondents at T&R stations. Test-only stations reported a 10.9 percent and 10 percent average and median, respectively, and the average and median reported values for T&R stations were 7.4 percent and 7.8 percent, respectively. Figure IV-4 shows the distribution of these loan terms for test-only and T&R stations combined.

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

Business Model	Average	Median	Mode	Minimum	Maximum
Test-only	10.9%	10%	—*	7.5%	15%
Test-and-repair	7.4%	7.8%	—*	0%	15%

* More than one mode.

Figure IV-4. Distribution of Interest Rate for Lease-to-Purchase or Bank Loan — El Paso



The survey also addressed the annual maintenance costs for all stations. Table IV-18 summarizes the answers to Question 19 (T&R survey) and Question 13 (test-only survey), which shows that stations pay approximately \$1,600 to \$1,800 annually for a maintenance package. Of the 32 T&R survey respondents, 16 (50 percent) confirmed they have a maintenance plan (Question 18 of the T&R survey), and of the 12 test-only respondents, five (42 percent) confirmed they have a maintenance plan (Question 12 of the test-only survey).

Table IV-18. Annual Maintenance Package Costs — El Paso

Business Model	Average	Median	Mode	Minimum	Maximum
Test-only	\$1,783	\$1,800	—*	\$1,500	\$2,050
Test-and-repair	\$2,007	\$1,600	\$1,200	\$1,200	\$4,800

* More than one mode.

Additionally, for stations that responded that they purchased a maintenance agreement, respondents reported their extra maintenance costs (costs not covered by their maintenance agreement) in the year 2011. (Stations that did not purchase a maintenance agreement were not asked to provide additional maintenance costs.) The median reported value of these costs was \$550 annually for T&R stations and \$1,390 annually for test-only stations.

Table IV-19. Extra Maintenance Costs in 2011 — El Paso

Business Model	Average	Median	Mode	Minimum	Maximum
Test-only	\$2,045	\$1,390	—*	\$400	\$5,000
Test-and-repair	\$824	\$550	\$600	\$0	\$4,500

* More than one mode.

Survey Questions 21 and 22 (T&R survey) and Questions 15 and 16 (test-only survey) asked stations about whether they offer reduced-fee and free emissions inspections other than performing free retests after a failed inspection at their station. Tables 20 and 21 show that 17 percent of test-only stations reported ever providing free emissions inspections other than free retests after an initial failure at their station, and 8 percent reported ever providing tests at reduced fees (under \$14). Similarly, 19 percent of T&R stations reported ever providing free emissions inspections other than free retests after an initial failure at their station, and 9 percent reported ever providing tests at reduced fees. Stations reported not charging for failed emissions inspections as the primary reason for ever providing free emissions inspections.

Table IV-20. Other Than Free Retests — Free Emissions Tests — El Paso

Free Test Given	Number of Respondents	Percent
Test-Only		
Yes	2	17%
No	10	83%
Total	12	100%
Test-and-Repair		
Yes	6	19%
No	26	81%
Total	32	100%

Table IV-21. Other Than Free Retests — Fee Less Than \$14.00 — El Paso

Charged Less Than \$14.00?	Number of Respondents	Percent
Test-Only		
Yes	1	8%
No	11	92%
Total	12	100%
Test-and-Repair		
Yes	3	9%
No	29	91%
Total	32	100%

As shown in Table IV-22, stations that reported charging a reduced fee for an emissions inspection, reported a median value of \$6.13 as the lowest fee they would ever charge.

Table IV-22. Typical Fee Charged Less Than \$14.00 — El Paso

Mean	Median	Mode	Minimum	Maximum
\$6.56	\$6.13	\$0	\$0	\$14

The survey also inquired about failed vehicles and retests. Question 23 (T&R survey) and Question 17 (test-only survey) asked the stations whether they had vehicles that failed an emissions inspection within the two months before the survey and did not return for a retest. Table IV-23 summarizes the responses. Over 50 percent of respondents had at least one vehicle that did not return for a retest after being failed within the previous two months.

Table IV-23. Failed Vehicles Not Returning for Retest Within Last Two Months — El Paso

Not Return?	Number of Respondents	Percent
Test-Only		
Yes	8	67%
No	4	33%
Total	12	100%
Test-and-Repair		
Yes	18	56%
No	14	44%
Total	32	100%

Additionally, Question 23 (T&R survey) and Question 17 (test-only survey) asked stations that answered “yes” to the first part to specify the number of failed vehicles that did not return for a retest. Table IV-24 shows median values of 4.3 and six vehicles for test-only and T&R stations, respectively.

Table IV-24. Number of Failed Vehicles Not Returning for Retest Within Last Two Months — El Paso

Business Model	Average	Median	Mode	Minimum	Maximum
Test-only	6.2	4.3	1.5	1.5	20
Test-and-repair	7.1	6	1.5	1	15

The final question of the survey asked respondents whether the fee for emissions inspections covers their costs associated with emissions inspections. The majority of the respondents answered “no;” 67 percent of responding test-only stations and 84 percent of responding T&R stations felt that the fee does not cover costs.

Table IV-25. Does Fee Cover Emissions Testing Costs? — El Paso

Fee Covers Costs?	Number of Respondents	Percent
Test-Only		
Yes	3	25%
No	8	67%
<i>Missing</i>	1	8%
Total	12	100%
Test-and-Repair		
Yes	5	16%
No	27	84%
Total	32	100%

CHAPTER V. HGB/DFW SURVEY RESULTS

This section of the report describes the survey responses for test-only and T&R stations in the HGB/DFW region. The two surveys (T&R and test-only survey) can be found in Appendix A of this report. The information in the tables in this section strictly comes from stations that responded to the 2012 survey. This section of the report separately analyzes responses from stations that perform OBD inspections only and full service stations that perform both ASM and OBD inspections. Of note, OBD-only stations are limited to performing 150 emissions inspections per month. Any survey fields that were left blank (possibly due to a field being blank or not applicable), were completely illegible, or incorrectly answered the question (e.g., an explanation in a question that required a numerical response) are reported as “missing.” Additionally, due to rounding, the percentages in many of the tables do not always add up to 100 percent.

Table V-1 summarizes the answers to Question 4 of the HGW/DFW survey. The question inquired about the items acquired in the transition to offer emissions inspections. Stations reported purchasing emissions inspection equipment more than for any other category. Very few stations among both station types reported purchasing additional land.

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

Test Type	Item Purchased	Number of Responses			Total
		Yes	No	Missing	
Test-Only					
OBD-only	Emissions testing equipment	21	3	2	26
	Tools and other equipment	13	9	4	26
	Building space	7	14	5	26
	Land	2	19	5	26
ASM/OBD	Emissions testing equipment	106	9	20	135
	Tools and other equipment	71	32	32	135
	Building space	50	46	39	135
	Land	8	77	50	135
Test-and-Repair					
OBD-only	Emissions testing equipment	176	24	22	222
	Tools and other equipment	107	55	60	222
	Building space	41	114	67	222
	Land	6	139	77	222
ASM/OBD	Emissions testing equipment	293	16	49	358
	Tools and other equipment	181	64	113	358
	Building space	98	140	120	358
	Land	42	188	128	358

Question 5 of the HGB/DFW survey addressed emissions-related costs for purchasing or acquiring space and equipment. Table V-2 summarizes the survey findings.

Respondents at ASM/OBD stations reported paying \$42,000 to \$45,000 for emissions inspection equipment compared to respondents at OBD-only stations who paid approximately \$8,500 to \$9,000. A single new certified ASM/OBD analyzer typically ranges in price from \$33,500 to \$35,995 (TCEQ, 2011), so the reported values may be a slightly high estimate or may indicate stations are purchasing multiple analyzers to increase their maximum throughput (perhaps a certified OBD-only analyzer in addition to an ASM/OBD analyzer). A single new certified OBD analyzer typically ranges in price from \$7,195 to \$8,500, which coincides well with the reported survey values. The certified analyzer purchase and maintenance costs are major differences in the cost structure between an OBD-only and an ASM/OBD station; however, as mentioned above, OBD-only stations are more limited in their revenue stream because they have a cap of 150 emissions inspections per month. While far fewer respondents reported purchasing additional building space, ASM/OBD stations typically spent more acquiring building space than did OBD-only stations across test-only and T&R stations. Of note, one test-only station reported purchasing nearly \$779,000 worth of OBD-only analyzers (the equivalent of approximately 100 analyzers), which significantly biases the average; thus, the median is a much more reliable figure in this case. Because of some similarly high and low values that may influence average values throughout Table V-2 (perhaps because a few stations may have misunderstood the question), the median seems to be a more representative value of a typical station throughout.

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

Test Type	Item Purchased	Average	Median	Mode	Minimum	Maximum
Test-Only						
OBD-only	Emissions testing equipment	\$45,003	\$8,500	—*	\$2,000	\$778,859
	Tools and other equipment	\$688	\$300	\$200	\$50	\$5,000
	Building space	\$24,750	\$1,000	\$50,000	\$200	\$100,000
	Land	\$38,333	\$30,000	\$30,000	\$30,000	\$55,000
ASM/OBD	Emissions testing equipment	\$45,645	\$44,000	\$50,000	\$1,287	\$145,000
	Tools and other equipment	\$3,544	\$2,000	\$5,000	\$49	\$18,000
	Building space	\$34,175	\$7,900	—*	\$0	\$220,000
	Land	\$50,136	\$20,000	—*	\$0	\$151,000
Test-and-Repair						
OBD-Only	Emissions testing equipment	\$13,201	\$8,948	\$8,000	\$650	\$98,000
	Tools and other equipment	\$2,643	\$1,000	\$1,000	\$25	\$30,000
	Building space	\$45,647	\$3,250	\$3,000	\$300	\$650,000
	Land	\$118,409	\$30,000	—*	\$0	\$450,000
ASM/OBD	Emissions testing equipment	\$42,858	\$41,828	\$40,000	\$500	\$450,000
	Tools and other equipment	\$6,949	\$3,000	\$5,000	\$0	\$100,000
	Building space	\$77,358	\$18,000	\$10,000	\$0	\$800,000
	Land	\$120,185	\$30,000	—*	\$0	\$1,500,000

* More than one mode.

Table V-3 shows the number and percentage of stations that hired new staff when they began offering emissions inspections based on answers to the HGB/DFW survey

Question 6. Overall, both T&R and test-only ASM/OBD stations (median values of 74 to 77 percent) were more likely to hire additional staff than T&R and test-only OBD-only stations (median values of 38 to 51 percent).

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

Test Type	Staff Hired	Number of Responses				Percent		
		Yes	No	Missing	Total	Yes	No	Missing
Test-Only								
OBD-only	Inspectors	10	14	2	26	38%	54%	8%
	Other mechanics	0	23	3	26	0%	88%	12%
	Supervisors	2	21	3	26	8%	81%	12%
	Others	0	23	3	26	0%	88%	12%
ASM/OBD	Inspectors	104	27	4	135	77%	20%	3%
	Other mechanics	8	97	30	135	6%	72%	22%
	Supervisors	16	86	33	135	12%	64%	24%
	Others	11	87	37	135	8%	64%	27%
Test-and-Repair								
OBD-only	Inspectors	114	100	8	222	51%	45%	4%
	Other mechanics	48	141	33	222	22%	64%	15%
	Supervisors	19	165	38	222	9%	74%	17%
	Others	9	165	48	222	4%	74%	22%
ASM/OBD	Inspectors	264	80	14	358	74%	22%	4%
	Other mechanics	117	177	64	358	33%	49%	18%
	Supervisors	66	216	76	358	18%	60%	21%
	Others	25	239	94	358	7%	67%	26%

Assuming a respondent indicated that they hired a particular type of staff, Question 6 also prompted stations to specify the number of employees hired in each category. Tables V-4a and V-4b summarize this information. OBD-only test-only stations hired the least amount of staff. ASM/OBD stations in both categories most commonly hired two inspectors for both test-only and T&R stations. OBD-only stations would most commonly hire one new inspector.

Table V-4a. Additional Staff Hired When Station Began Offering Emissions Testing (Test-Only) – HGB/DFW

Test Type	Employee Type	Number	Number of Respondents	Percent	
Test-Only	OBD-only	Inspectors	1	6	23%
			2	5	19%
			<i>Missing</i>	15	58%
		Total	26	100%	
	Other mechanics	<i>Missing</i>	26	100%	
		Total	26	100%	
	Supervisors	1	2	8%	
		<i>Missing</i>	24	92%	
		Total	26	100%	
	Others	<i>Missing</i>	26	100%	
		Total	26	100%	
	ASM/OBD	Inspectors	1	39	29%
			2	47	35%
			3	11	8%
			4	4	3%
			5	3	2%
<i>Missing</i>			31	23%	
Total		135	100%		
Other mechanics		0	1	1%	
		1	7	5%	
		<i>Missing</i>	127	94%	
Total		135	100%		
Supervisors		0	1	1%	
		1	11	8%	
		2	5	4%	
		<i>Missing</i>	118	87%	
		Total	135	100%	
Others		0	1	1%	
		1	10	7%	
		2	1	1%	
		<i>Missing</i>	123	91%	
	Total	135	100%		

Table V-4b. Additional Staff Hired When Station Began Offering Emissions Testing (Test-and-Repair) — HGB/DFW

Test Type	Employee Type	Number	Number of Respondents	Percent
Test-and-repair				
OBD-only	Inspectors	0	1	1%
		1	64	29%
		1.5	1	1%
		2	35	16%
		3	10	5%
		4	1	1%
		8	1	1%
		10	1	1%
		<i>Missing</i>	108	49%
		Total	222	100%
	Other mechanics	1	29	13%
		2	14	6%
		3	4	2%
		4	1	1%
		5	1	1%
		<i>Missing</i>	173	78%
	Total	222	100%	
	Supervisors	1	15	7%
		2	2	1%
		3	1	1%
<i>Missing</i>		204	92%	
Total	222	100%		
Others	1	8	4%	
	2	1	1%	
	<i>Missing</i>	213	96%	
	Total	222	100%	
ASM/OBD	Inspectors	1	89	25%
		2	114	32%
		2.5	1	0%
		3	42	12%
		4	11	3%
		5	2	1%
		6	4	1%
		7	2	1%
		8	1	0%
		10	1	0%
	<i>Missing</i>	91	25%	
	Total	358	100%	
	Other mechanics	1	88	25%
		1.5	1	0%
		2	21	6%
		3	5	1%
		4	2	1%
		5	1	0%
		10	1	0%
		<i>Missing</i>	239	67%
Total		358	100%	

Test Type	Employee Type	Number	Number of Respondents	Percent
	Supervisors	0	1	0%
		1	60	17%
		1.5	1	0%
		2	7	2%
		<i>Missing</i>	289	81%
		Total	358	100%
		Others	0	1
0.5	1		0%	
1	18		5%	
2	4		1%	
3	1		0%	
4	2		1%	
<i>Missing</i>	331		93%	
Total	358		100%	

In Question 7 of the HGB/DFW survey, respondents were asked about the average wage (unloaded) they pay each type of employee. Table V-5 summarizes the responses. Overall, median reported hourly wages for emissions inspectors were very similar across OBD-only (\$10.00 to \$12.50) and ASM/OBD (\$11.00 to \$11.50) stations. These values are consistent with the \$11.37 and \$11.55 hourly wage shown for the Houston and Dallas areas, respectively, for level 1 auto service technicians and mechanics as reported by the Foreign Labor Center Data Center (FLC, 2012). Average reported inspector hourly wages were slightly higher than median values due to a few very high reported wages that influenced the average. Note: some stations provided weekly, monthly, or yearly wages, and in converting to an hourly wage, it was assumed that a full-time employee worked 40 hours per week. In these cases, if employees worked more or less than 40 hours per week, values could be higher or lower (e.g., below minimum wage).

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

Test Type	Employee Type	Average	Median	Mode	Minimum	Maximum
Test-Only						
OBD-only	Inspectors	\$14.52	\$10	\$10	\$8	\$56.25
	Other mechanics	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50
	Supervisors	\$12.50	\$11.25	—*	\$10	\$16.25
	Others	\$11.54	\$11.54	\$11.54	\$11.54	\$11.54
ASM/OBD	Inspectors	\$12.57	\$11	\$10	\$2.50	\$78.77
	Other mechanics	\$10.90	\$9.25	—*	\$7.25	\$18.75
	Supervisors	\$14.95	\$13.13	\$13.13	\$6.92	\$37.50
	Others	\$9.54	\$8.50	—*	\$1.44	\$18.75
Test-and-Repair						
OBD-only	Inspectors	\$13.33	\$12.50	\$10	\$2.50	\$35
	Other mechanics	\$21.99	\$21.32	\$25	\$7.50	\$68.75
	Supervisors	\$22.95	\$24.04	\$25	\$7.50	\$50
	Others	\$12.19	\$10	\$10	\$7.21	\$37.50
ASM/OBD	Inspectors	\$12.78	\$11.50	\$10	\$2.91	\$80
	Other mechanics	\$18.52	\$15	\$15	\$5	\$80
	Supervisors	\$20.37	\$19.23	\$20	\$8.50	\$55
	Others	\$13.44	\$10	\$10	\$3	\$65

* More than one mode.

Tables V-6a and V-6b summarize the results from Question 8 of the HGB/DFW survey for test-only and T&R stations, respectively. The question asked about the number of emissions inspectors currently working at the station. OBD-only stations were more likely to have a single inspector working at their station (30 percent of T&R and 58 percent of test-only stations) than ASM/OBD stations (14 percent of T&R and 24 percent of test-only stations). This probably reflects the fact that ASM/OBD stations do not have a capped emissions inspection throughput like OBD-only stations (150 inspections per month). ASM/OBD stations are most likely to have two inspectors (28 percent of T&R and 39 percent of test-only stations).

Table V-6a. Number of Emissions Inspectors Currently Working at the Station — HGB/DFW (Test-Only)

Test Type	Number	Number of Respondents	Percent
Test-Only			
OBD-only	1	15	58%
	2	6	23%
	3	3	12%
	4	1	4%
	<i>Missing</i>	1	4%
	Total	26	100%
ASM/OBD			
ASM/OBD	1	33	24%
	2	53	39%
	3	27	20%
	4	15	11%
	5	5	4%
	6	1	1%
	<i>Missing</i>	1	1%
	Total	135	100%

Table V-6b. Number of Emissions Inspectors Currently Working at the Station — HGB/DFW (Test-and-Repair)

Test Type	Number	Number of Respondents	Percent
Test-and-Repair			
OBD-only	0	1	1%
	1	67	30%
	1.5	1	1%
	2	85	38%
	3	33	15%
	4	9	4%
	5	6	3%
	6	6	3%
	7	2	1%
	8	4	2%
	9	1	1%
	15	1	1%
	18	1	1%
	19	1	1%
	23	1	1%
	<i>Missing</i>	3	1%
Total	222	100%	
ASM/OBD			
ASM/OBD	0	1	0%
	1	50	14%
	2	101	28%
	3	89	25%
	4	53	15%
	5	21	6%
	6	19	5%
	7	9	3%
8	3	1%	

Test Type	Number	Number of Respondents	Percent
	9	2	1%
	10	1	0%
	12	1	0%
	15	1	0%
	17	1	0%
	20	2	1%
	21	1	0%
	<i>Missing</i>	3	1%
	Total	358	100%

Question 8 of the HGB/DFW survey, summarized in Tables V-7 and V-8, inquired about the number of inspectors employed full-time and part-time. The tables show that 31 percent and 58 percent of OBD-only test-only and T&R stations, respectively, had more than one inspector working full time, and 53 percent and 75 percent of ASM/OBD test-only and T&R stations, respectively, had more than one inspector working full time.

Tables V-7 and V-8 also indicate that ASM/OBD stations are more likely to use part-time inspectors than OBD-only stations. Again, this is likely attributable to the inspection throughput cap on OBD-only stations that leads to a reduced need for additional inspectors.

Table V-7a. Number of Full-Time Emissions Inspectors — HGB/DFW (Test-Only)

Test Type	Number	Number of Respondents	Percent
Test-Only			
OBD-only	1	15	58%
	2	5	19%
	3	2	8%
	4	1	4%
	<i>Missing</i>	3	12%
	Total	26	100%
ASM/OBD	1	58	43%
	2	46	34%
	3	15	11%
	4	7	5%
	5	2	2%
	6	1	1%
	<i>Missing</i>	6	4%
	Total	135	100%

Table V-7b. Number of Full-Time Emissions Inspectors — HGB/DFW (Test-and-Repair)

Test Type	Number	Number of Respondents	Percent
Test-and-Repair			
OBD-only	1	84	38%
	2	75	34%
	3	27	12%
	4	7	3%
	5	5	2%
	6	6	3%
	7	2	1%
	8	4	2%
	9	1	1%
	15	1	1%
	18	1	1%
	23	1	1%
	<i>Missing</i>	8	4%
	Total	222	100%
ASM/OBD	1	82	23%
	2	103	29%
	3	76	21%
	4	36	10%
	5	21	6%
	6	19	5%
	7	6	2%
	8	1	0%
	9	2	1%
	12	1	0%
	15	1	0%
	17	1	0%
	20	2	1%
	21	1	0%
	<i>Missing</i>	6	2%
	Total	358	100%

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

Test Type	Number	Number of Respondents	Percent
Test-Only			
OBD-only	1	3	12%
	2	1	4%
	<i>Missing</i>	22	85%
	Total	26	100%
ASM/OBD	1	33	24%
	2	13	10%
	3	3	2%
	4	2	2%
	<i>Missing</i>	84	62%
	Total	135	100%
Test-and-Repair			
OBD-only	1	26	12%
	2	4	2%
	3	2	1%
	4	2	1%
	<i>Missing</i>	188	85%
	Total	222	100%
ASM/OBD	1	75	21%
	2	21	6%
	3	2	1%
	<i>Missing</i>	260	73%
	Total	358	100%

The following results are from Questions 10 through 15 of the HGB/DFW T&R survey. These questions were not asked on the HGB/DFW test-only survey; thus, the results in Tables IV-9 to 14 only encompass T&R stations.

To understand the extent to which T&R stations focus on services other than emissions inspections, Questions 9 and 10 of the HGB/DFW survey inquired about how much time inspectors spend on performing emissions inspections. Tables V-9 and V-10 show the answers for full-time inspectors and part-time inspectors, respectively

Tables V-9 and V-10 show the total number of inspectors summed across all respondents by the percent of time they perform inspections. Table V-9 shows that 20 percent of full-time emissions inspectors at OBD-only stations and 36 percent of full-time emissions inspectors at ASM/OBD stations spend the majority of their time performing inspections. The table also shows 40 percent of full-time inspectors at OBD-only stations and 24 percent of full-time emissions inspectors at ASM/OBD stations spend about 5 to 10 percent of their time performing inspections. Table V-10 shows that 26 percent of full-time emissions inspectors at OBD-only stations and 37 percent of full-time emissions inspectors at ASM/OBD stations spend the majority of their time performing inspections. The table also shows 32 percent of full-time inspectors at OBD-only stations and 19 percent of full-time emissions inspectors at ASM/OBD stations

spend about 5 to 10 percent of their time performing inspections. This shows that both full-time and part-time inspectors at OBD-only stations tend to spend a much larger percentage of their time performing non-emissions inspection activities. This is likely related to the monthly and yearly emissions inspection throughput cap at OBD-only stations and the need for emissions inspectors at these stations to contribute other services to the station. Overall, this shows that the majority of inspectors are not focused primarily on inspections.

Table V-9. Of Inspectors Who Work Full-Time: Number of Inspectors by Percent of Time Spent on Inspections — HGB/DFW

Test Type	Percent of Time Performing Inspections	Total Number of Inspectors (Sum of All Respondents)	Percent
OBD-only	50% or more	58	20%
	About 25%	72	25%
	About 15%	42	15%
	About 10%	48	17%
	About 5%	66	23%
	Total	286	100%
ASM/OBD	50% or more	147	36%
	About 25%	108	26%
	About 15%	55	13%
	About 10%	51	12%
	About 5%	50	12%
	Total	411	100%

Table V-10. Of Inspectors Who Work Part-Time: Number of Inspectors by Percent of Time Spent on Inspections — HGB/DFW

Test Type	Percent of Time Performing Inspections	Total Number of Inspectors (Sum of All Respondents)	Percent
OBD-only	50% or more	14	26%
	About 25%	17	31%
	About 15%	6	11%
	About 10%	7	13%
	About 5%	10	19%
	Total	54	100%
ASM/OBD	50% or more	41	37%
	About 25%	32	29%
	About 15%	16	15%
	About 10%	9	8%
	About 5%	12	11%
	Total	110	100%

The percentage of the workspace devoted exclusively to emissions inspections is shown in Table V-11 and was asked in Question 12 of the HGB/DFW survey. ASM/OBD (median value of 20 percent and average of 23 percent) stations used a larger percentage of workspace exclusively for inspections than OBD-only (average of 14

percent and median value of 10 percent) stations. In many cases, it is likely that stations have available space that is for multiple uses, which can account for stations that have 0 percent of their space being used exclusively for emissions inspections.

Table V-11. Percent of Workspace Used Only for Emissions Testing – HGB/DFW

Test Type	Mean	Median	Mode	Minimum	Maximum
OBD-only	14%	10%	10%	0%	100%
ASM/OBD	23%	20%	25%	0%	100%

Survey Questions 13 through 15 of the HGB/DFW T&R survey addressed the revenue stream for T&R stations generated from repairs after failed emissions inspections. As Table V-12 shows, the majority of stations reported that less than 10 percent of their income was generated from repairs following failed emissions inspections, and no respondent reported that more than about 50 percent of their income came from such repairs. Table V-13 shows that the number of reported repair jobs from failed emissions inspections is higher at ASM/OBD stations (average of eight and median of five) than at OBD-only stations (average of five and median of three). Figures V-1a and V-1b show the distribution in histogram graphs of the number of repair jobs from failed inspections from ASM/OBD and OBD-only stations, respectively. Table V-14 shows that the average cost of a repair following a failed emissions inspection for an OBD-only station was \$309 with a median of \$300, and that for an ASM/OBD station was \$285 with a median of \$253, and Figures V-2a and V-2b show these distributions in histogram graphs. This information only gives insight into the gross revenue generated from repairs from failed inspections; it does not provide any insight into the additional profit from these repairs.

Table V-12. Proportion of Repair Revenues Resulting from Failed Emissions Inspections – HGB/DFW

Test Type	Number	Number of Respondents	Percent
OBD-only	0% — perform inspections only	12	5%
	Less than 10%	148	67%
	About 25%	17	8%
	About 50%	2	1%
	About 75%	0	0%
	Between 75% and 95%	0	0%
	More than 95%	0	0%
	<i>Missing</i>	43	19%
	Total	222	100%
ASM/OBD	0% — perform inspections only	10	3%
	Less than 10%	168	47%
	About 25%	58	16%
	About 50%	3	1%
	About 75%	0	0%
	Between 75% and 95%	0	0%
	More than 95%	0	0%
	<i>Missing</i>	119	33%
	Total	358	100%

Table V-13. Typical Number of Repair Jobs per Month Resulting from Failed Emissions Tests – HGB/DFW

Test Type	Mean	Median	Mode	Minimum	Maximum
OBD-only	5	3	2	0	50
ASM/OBD	8	5	10	0	75

Figure V-1a. Distribution of Typical Number of Repair Jobs per Month Resulting from Failed Emissions Tests – HGB/DFW – ASM/OBD

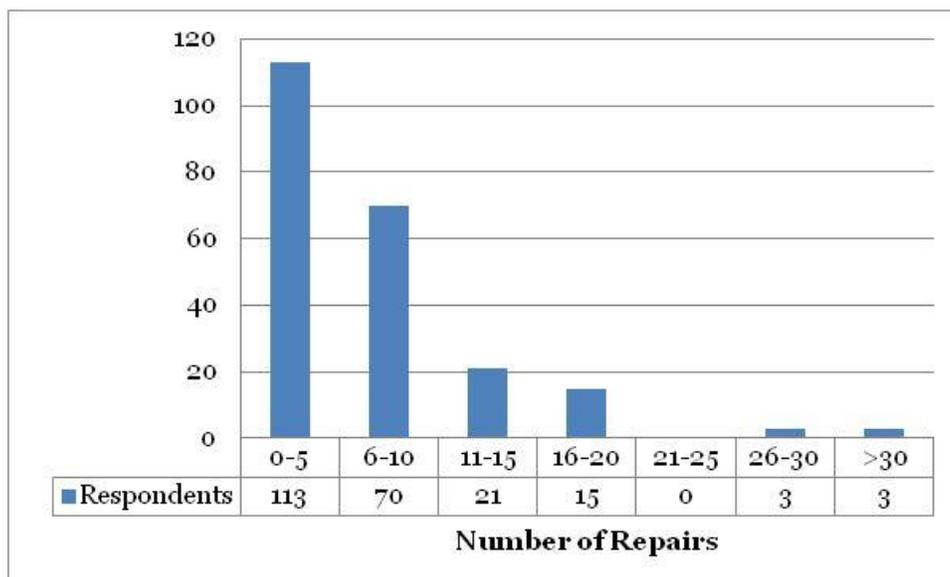


Figure V-1b. Distribution of Typical Number of Repair Jobs per Month Resulting from Failed Emissions Tests – HGB/DFW – OBD-Only

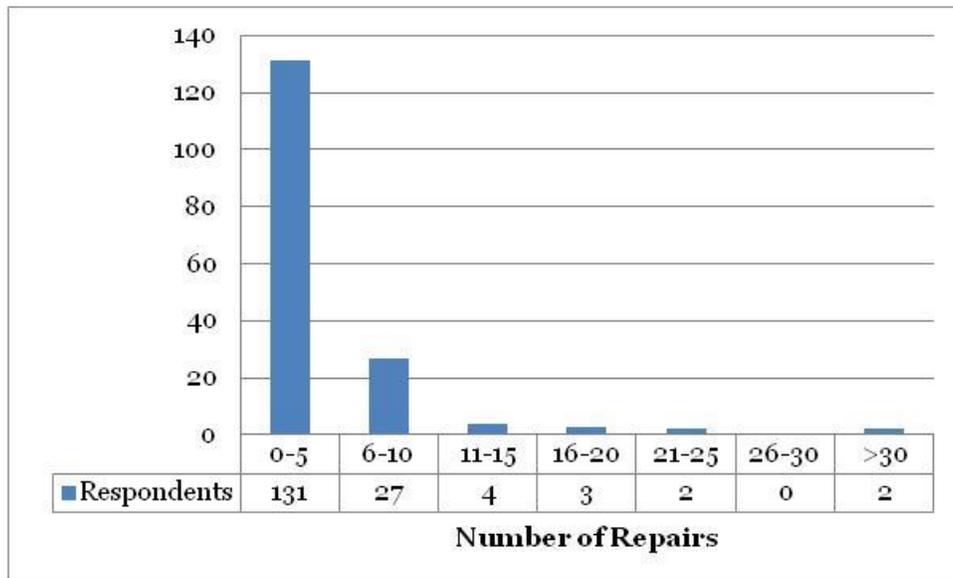


Table V-14. Typical Repair Cost for an Emissions Test Failure – HGB/DFW

Test Type	Mean	Median	Mode	Minimum	Maximum
OBD-only	\$309	\$300	\$300	\$0	\$1,100
ASM/OBD	\$283	\$250	\$200	\$0	\$1,200

Figure V-2a. Distribution of the Typical Repair Cost for an Emissions Test Failure – HGB/DFW – ASM/OBD

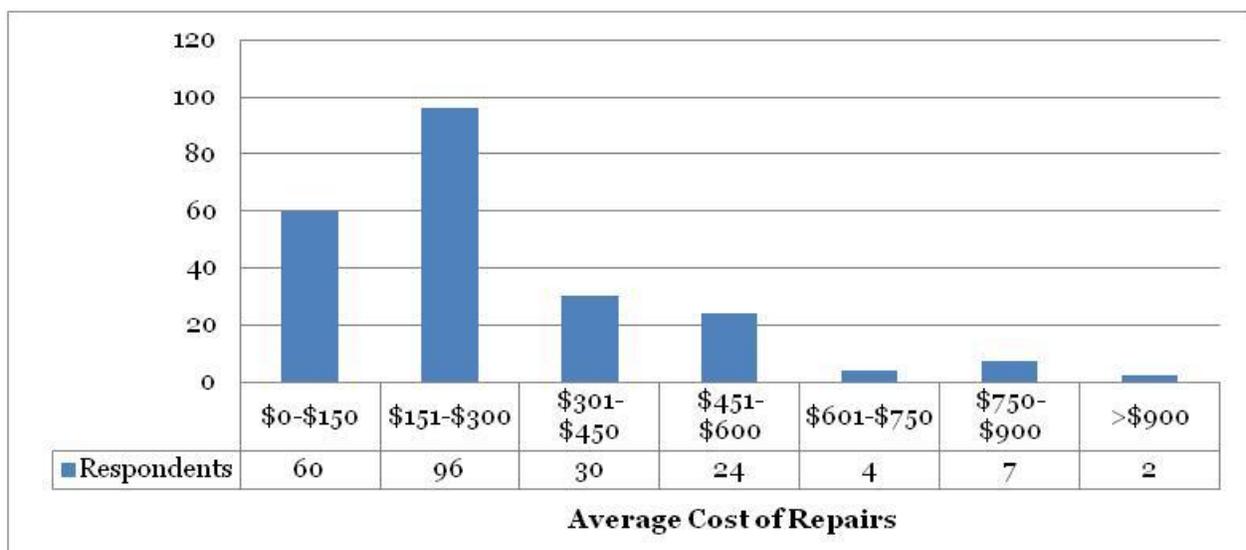
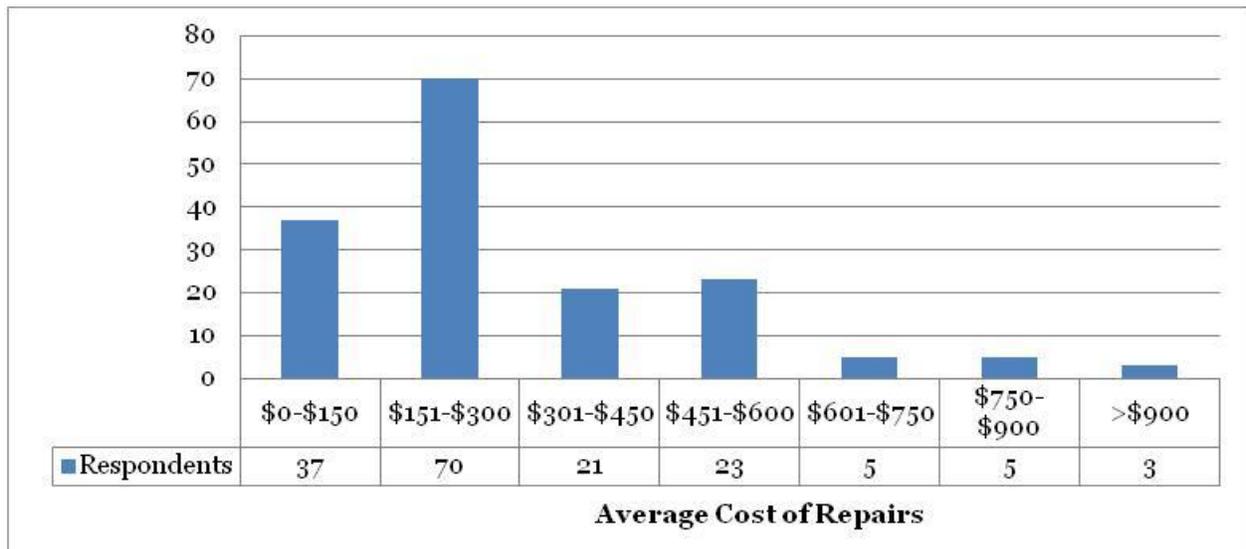


Figure V-2b. Distribution of the Typical Repair Cost for an Emissions Test Failure — HGB/DFW — OBD-Only



Question 16 (T&R survey) and Question 10 (test-only survey) asked stations to provide information on how they financed their purchase of emissions inspection equipment. As shown in Table V-15, OBD-only stations (55 percent for T&R and 39 percent for test-only stations) more frequently paid cash than ASM/OBD stations (23 percent for T&R and 30 percent for test-only stations). This is expected, because certified ASM/OBD analyzers are typically four to five times more expensive than certified OBD-only analyzers.

Table V-15. Financing Mechanisms for Purchasing Emissions Testing Equipment — HGB/DFW

Test Type	Finance Type	Number of Respondents	Percent
Test-Only			
OBD-only	Paid cash	10	39%
	Lease-to-purchase agreement arranged with vendor	5	19%
	Bank loan	11	42%
	Total	26	100%
ASM/OBD	Paid cash	41	30%
	Lease-to-purchase agreement arranged with vendor	53	39%
	Bank loan	38	28%
	<i>Missing</i>	3	2%
	Total	135	100%
Test-and-Repair			
OBD-only	Paid cash	122	55%
	Lease-to-purchase agreement arranged with vendor	55	25%
	Bank loan	40	18%
	<i>Missing</i>	5	2%
	Total	222	100%
ASM/OBD	Paid cash	81	23%
	Lease-to-purchase agreement arranged with vendor	123	34%
	Bank loan	145	41%
	<i>Missing</i>	9	3%
	Total	358	100%

Questions 16 and 17 (T&R survey) and Questions 10 and 11 (test-only survey) further inquired about the financing process for those stations that did not pay with cash.

Table V-16 shows that the lease-to-purchase or bank loan term tends to be longer for ASM/OBD stations (6.4 average for T&R and 5.8 average for test-only) than for OBD-only stations (4.3 average for T&R and 2.8 average for test-only). Again, this is expected, as stations buying a certified OBD-only analyzer pay off much smaller loans for equipment than stations buying a certified ASM/OBD analyzer. Figures V-3a (ASM/OBD) and V-3b (OBD-only) show the distributions of these loan terms for T&R and test-only stations combined.

Table V-16. Lease-to-Purchase or Bank Loan Term (Years) — HGB/DFW

Test Type	Average	Median	Mode	Minimum	Maximum
Test-Only					
OBD-only	2.8	3	—*	0	5
ASM/OBD	5.8	5	5	0	25
Test-and-Repair					
OBD-Only	4.3	4	—*	0	24
ASM/OBD	6.4	5	5	0	30

* More than one mode.

Figure V-3a. Distribution of the Lease-to-Purchase or Bank Loan Term (Years) – HGB/DFW – ASM/OBD

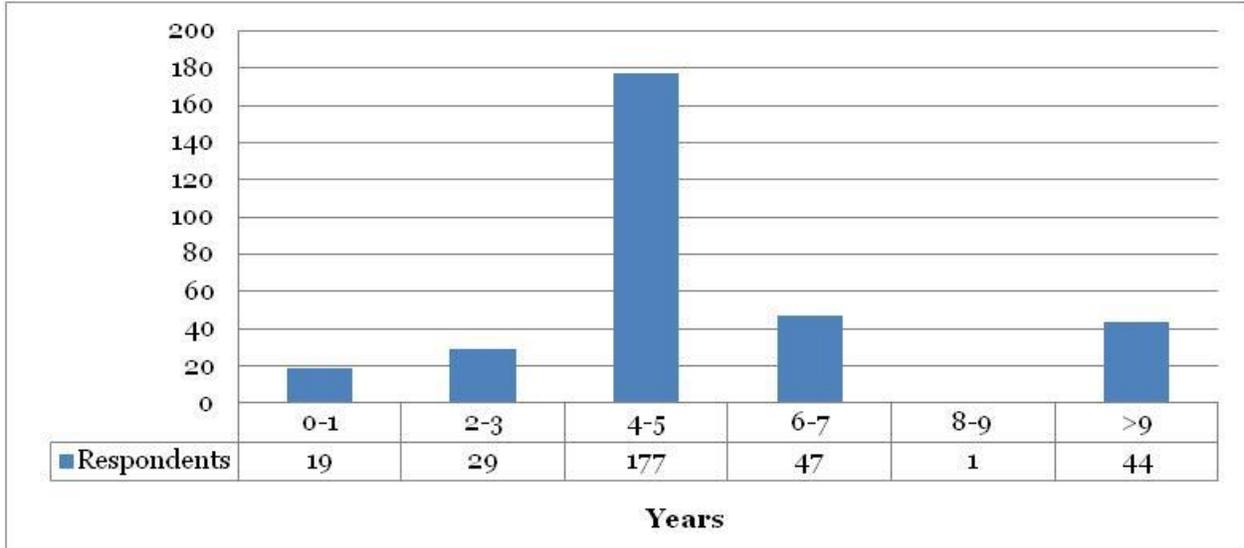


Figure V-3b. Distribution of the Lease-to-Purchase or Bank Loan Term (Years) – HGB/DFW – OBD-Only

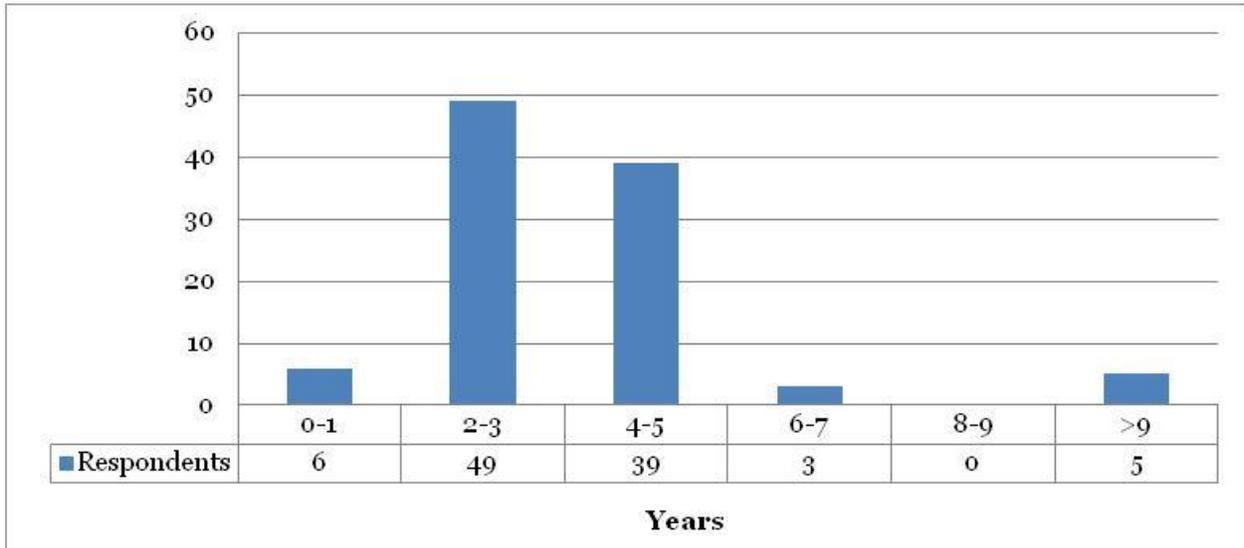


Table V-17 shows that the reported lease-to-purchase or bank loan interest rates were slightly lower for ASM/OBD stations than they were for OBD-only stations, with median values of 8.6 percent and 9 percent, respectively, for test-only stations and 8 percent and 10 percent, respectively, for T&R stations. Figures V-4a (ASM/OBD) and V-4b (OBD-only) show the distributions of these interest rates for test-only and T&R stations combined.

Table V-17. Interest Rate for Lease-to-Purchase or Bank Loan – HGB/DFW

Test Type	Average	Median	Mode	Minimum	Maximum
Test-Only					
OBD-only	8.1%	9%	—*	0%	12%
ASM/OBD	10.4%	8.6%	—*	4%	18%
Test-and-repair					
OBD-only	9.4%	10%	—*	0%	20%
ASM/OBD	8.3%	8%	—*	0%	22%

* More than one mode.

Figure V-4a. Distribution of the Interest Rate for Lease-to-Purchase or Bank Loan – HGB/DFW – ASM/OBD

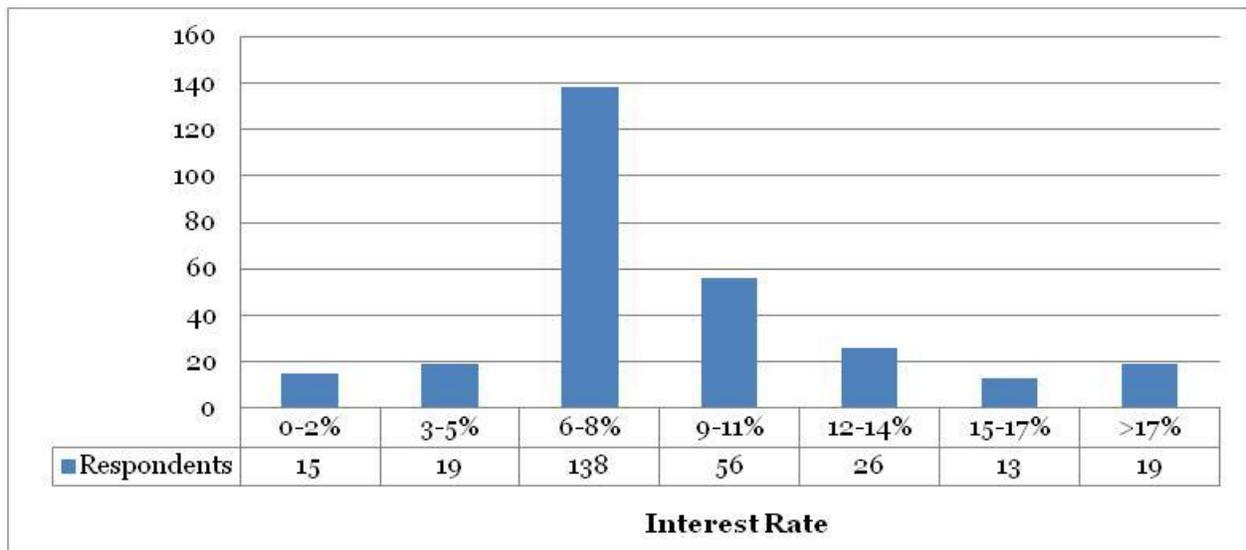
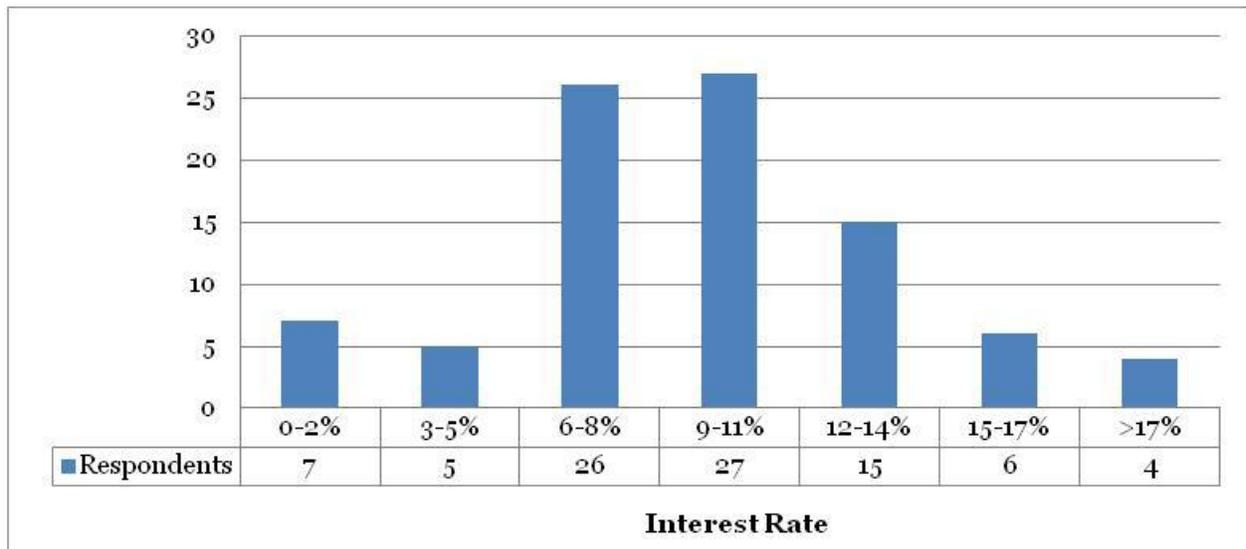


Figure V-4b. Distribution of the Interest Rate for Lease-to-Purchase or Bank Loan — HGB/DFW — OBD-Only



The survey also addressed the annual maintenance costs for all stations. Table V-18 summarizes the answers to Question 20 (T&R survey) and Question 14 (test-only survey), which shows that ASM/OBD stations reported paying a much higher annual maintenance cost (\$4,000 median for both T&R and test-only) than do OBD-only stations (\$918 and \$850 for test-only and T&R, respectively). This is reflective of the much higher purchase price and maintenance costs of the certified ASM/OBD analyzers. Of the 358 T&R survey respondents with ASM/OBD stations, 191 (53 percent) confirmed that they have a maintenance plan (Question 19 of the T&R survey); of the 222 T&R survey respondents with OBD-only stations, 97 (44 percent) confirmed that they have a maintenance plan. Of the 135 test-only respondents with ASM/OBD stations, 97 (68 percent) confirmed that they have a maintenance plan (Question 13 of the test-only survey); and of the 26 test-only respondents with OBD-only stations, 12 (46 percent) confirmed that they have a maintenance plan. Stations with the more expensive ASM/OBD analyzer are much more likely to purchase a maintenance plan than those with the much less expensive OBD-only analyzer.

Table V-18. Annual Maintenance Package Costs — HGB/DFW

Test Type	Average	Median	Mode	Minimum	Maximum
Test-Only					
OBD-only	\$1,497	\$918	\$1,300	\$300	\$5,724
ASM/OBD	\$4,519	\$4,000	\$3,200	\$500	\$12,500
Test-and-Repair					
OBD-only	\$1,169	\$850	\$800	\$300	\$5,000
ASM/OBD	\$4,041	\$4,000	\$4,000	\$300	\$18,000

Additionally, the survey inquired about extra maintenance costs (costs not covered by their maintenance agreement) in the year 2011. (Stations that did not purchase a maintenance agreement were not asked to provide additional maintenance costs.) Again, the costs were much higher for ASM/OBD stations (median range \$1,000–\$1,500) than for OBD-only stations (median range \$200–\$275).

The overall greater maintenance costs for ASM/OBD stations are not surprising as they have more equipment to maintain.

Table V-19. Extra Maintenance Costs in 2011 — HGB/DFW

Test Type	Average	Median	Mode	Minimum	Maximum
Test-Only					
OBD-only	\$404	\$275	\$0	\$0	\$2,000
ASM/OBD	\$1,844	\$1,500	\$1,833	\$0	\$9,000
Test-and-Repair					
OBD-only	\$413	\$200	\$0	\$0	\$3,000
ASM/OBD	\$1,511	\$1,000	\$500	\$0	\$8,200

Survey Questions 22 and 23 (T&R survey) and Questions 16 and 17 (test-only survey) asked stations about whether they have ever offered reduced-fee and free emissions inspections other than performing free retests after a failed inspection at their station. OBD-only and ASM/OBD test-only stations were equally as likely to have ever provided free emissions inspections (27 percent); however, OBD-only T&R stations (21 percent) were less likely than ASM/OBD T&R stations (28 percent) to have ever provided free emissions inspections. Common reasons for providing free retests included a “no pass-no pay” policy, providing free inspections to preferred customers, providing free inspections to poor customers, and honoring competitor coupons.

Table V-20. Other Than Free Retests – Free Emissions Tests – HGB/DFW

Test Type	Free Test Given	Number of Respondents	Percent
Test-Only OBD-only	Yes	7	27%
	No	19	73%
	Total	26	100%
	ASM/OBD	Yes	37
	No	96	71%
	<i>Missing</i>	2	2%
	Total	135	100%
Test-and-Repair OBD-only	Yes	46	21%
	No	172	77%
	<i>Missing</i>	4	2%
	Total	222	100%
ASM/OBD	Yes	99	28%
	No	253	71%
	<i>Missing</i>	6	2%
	Total	358	100%

Table V-21 shows that ASM/OBD stations reported they were more likely to have ever charged a reduced fee (less than \$27.00) (14 percent at T&R and 22 percent at test-only) than OBD-only stations (8 percent at both T&R and test-only).

Table V-21. Other Than Free Retests – Fee Less Than \$27.00 – HGB/DFW

Test Type	Charged Less Than \$27.00?	Number of Respondents	Percent
Test-Only OBD-only	Yes	2	8%
	No	24	92%
	Total	26	100%
	ASM/OBD	Yes	30
	No	100	74%
	<i>Missing</i>	5	4%
	Total	135	100%
Test-and-Repair OBD-only	Yes	17	8%
	No	201	91%
	<i>Missing</i>	4	2%
	Total	222	100%
ASM/OBD	Yes	49	14%
	No	300	84%
	<i>Missing</i>	9	3%
	Total	358	100%

As shown in Table V-22, stations that reported ever charging a reduced fee for an emissions inspection reported a lower median reduced-fee inspection among T&R stations (\$13.50 for OBD-only and \$14.50 for ASM/OBD) than among test-only stations (\$22.00 for OBD-only and \$20.00 for ASM/OBD).

**Table V-22. Other Than Free Retests — Fee Charged When Less Than \$27.00
— HGB/DFW**

Test Type	Mean	Median	Mode	Minimum	Maximum
Test-Only					
OBD-only	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00
ASM/OBD	\$18.49	\$20.00	—*	\$0.00	\$25.00
Test-and-Repair					
OBD-only	\$13.18	\$13.50	\$0.00	\$0.00	\$25.00
ASM/OBD	\$11.55	\$14.50	\$0.00	\$0.00	\$25.25

* More than one mode.

The survey also inquired about failed vehicles and retests. Question 24 (T&R survey) and Question 18 (test-only survey) asked the stations whether they had vehicles that failed an emissions inspection within the two months before the survey and did not return for a retest. Table V-23 summarizes the responses. At least 50 percent of the stations across all station and testing types had at least one vehicle that did not return for a retest after being failed within the past two months.

**Table V-23. Failed Vehicles Not Returning for Retest Within Last Two
Months — HGB/DFW**

Test Type	Not Return?	Number of Respondents	Percent
Test-Only			
OBD-only	Yes	16	62%
	No	10	39%
	Total	26	100%
ASM/OBD	Yes	75	56%
	No	56	42%
	<i>Missing</i>	4	3%
	Total	135	100%
Test-and-Repair			
OBD-only	Yes	111	50%
	No	106	48%
	<i>Missing</i>	5	2%
	Total	222	100%
ASM/OBD	Yes	218	61%
	No	132	37%
	<i>Missing</i>	8	2%
	Total	358	100%

Additionally, Question 24 (T&R survey) and Question 18 (test-only survey) asked stations that answered “yes” to the first part to specify the number of failed vehicles that did not return for a retest. Table V-24 shows that the median number of failed vehicles not returning for a retest is higher for ASM/OBD stations (four for test-only and three for T&R) than for OBD-only stations (two for both test-only and T&R). The observation may be related to the higher throughput and correspondingly higher number of failed

inspections that typically occur at ASM/OBD stations; thus, there are more opportunities for failed vehicles to not return for a retest.

Table V-24. Number of Failed Vehicles Not Returning for Retest Within Last Two Months — HGB/DFW

Test Type	Mean	Median	Mode	Minimum	Maximum
Test-Only					
OBD-only	2.6	2	2	1	10
ASM/OBD	5.6	4	2	1	20
Test-and-Repair					
OBD-only	3.4	2	2	1	20
ASM/OBD	3.9	3	2	1	24

The final question of the survey asked respondents whether the fee for emissions inspections covers their costs associated with emissions inspections. The majority of respondents answered “no;” however, more than 42–44 percent of OBD-only stations answered “yes,” whereas only 24 percent of ASM/OBD stations did.

Table V-25. Does Fee Cover Emissions Testing Costs? — HGB/DFW

Test Type	Fee Covers Costs?	Number of Respondents	Percent
Test-Only			
OBD-only	Yes	11	42%
	No	13	50%
	<i>Missing</i>	2	8%
	Total	26	100%
ASM/OBD	Yes	33	24%
	No	97	72%
	<i>Missing</i>	5	4%
	Total	135	100%
Test-and-Repair			
OBD-only	Yes	97	44%
	No	123	55%
	<i>Missing</i>	2	1%
	Total	222	100%
ASM/OBD	Yes	84	24%
	No	265	74%
	<i>Missing</i>	9	3%
	Total	358	100%

CHAPTER VI. COST MODEL ANALYSES

The section presents the results of the “model station” and “break-even” cost analyses performed for four geographic area and test type combinations:

- ARR OBD and TSI
- El Paso OBD and TSI
- HGB/DFW OBD-only
- HGB/DFW OBD and ASM

This section first summarizes the results of the break-even and model station analyses, presents the applicable costs and revenues that feed into both of the cost models, and then provides these cost models in more detail in region-specific sections.

The break-even analyses show the number of inspections at which the net revenue from emissions inspections (calculated as the average number of emissions inspections performed multiplied by the average net emissions inspection fee) equals the sum of the total incremental costs (fixed and variable) attributed to emissions inspections. These analyses provide the break-even number of emissions inspections for stations that incurred equipment costs and for stations that incurred equipment and building costs. As shown in Table VI-3, almost 100 percent of stations answered that they had incurred costs for purchasing equipment, but only 21 to 35 percent of stations had incurred building and equipment costs due to emissions inspections; thus, the equipment-only scenario is more representative of the industry. Table VI-1 summarizes the break-even analyses' results. The proportion of stations that break even according to the model ranges from 77 to 86 percent in the El Paso and HGB/DFW areas. The ARR area is much lower, at 58 to 59 percent; as discussed below, this may be the result of a large increase in the number of stations entering the emissions inspection market in the region between 2009 and 2011 and a decreasing emissions inspection volume per station.

The model station analyses include representative small, medium, and large stations based on actual 2011 emissions inspection throughput for the 4,327 stations in the TCEQ vehicle emissions inspection database. The small station represents a station with emissions inspection throughput in the 25th percentile (1st quartile), the medium station represents a station with emissions inspection throughput in the 50th percentile (median), and the large station represents a station with emissions inspection throughput in the 75th percentile (3rd quartile). The net revenue and total costs (fixed and variable) for these model stations are shown in Table VI-2. All station types are shown to have net revenue exceeding total costs, except for a representative small station in the ARR area. These models do not make a distinction between test-only and T&R stations (as the incremental emissions inspection costs are the same), but this

section provides supplementary quantitative analysis discussing how the generally higher throughput at test-only stations impacts the cost models. Additionally, this section provides a qualitative analysis of how the additional income from emissions-inspection-generated repairs affects the model.

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

	ARR	El Paso	HGB/DFW OBD-Only	HGB/DFW ASM/OBD
Break-Even Number of Tests (per Month)				
Including equipment costs	98	67	22	71
Including equipment and building costs	103	68	23	75
Percent of Stations Above Break-Even Number				
Including equipment costs	59%	78%	79%	86%
Including equipment and building costs	58%	77%	78%	85%

Table VI-2. Total Costs and Net Revenue at Model Stations

	ARR	El Paso	HGB/DFW OBD-Only	HGB/DFW ASM/OBD
Small station total revenue	\$736	\$851	\$500	\$2,067
Small station total costs	\$943	\$812	\$453	\$1,624
Medium station total revenue	\$1,461	\$1,530	\$1,018	\$3,698
Medium station total costs	\$1,336	\$1,095	\$633	\$2,131
Large station total revenue	\$2,806	\$2,645	\$1,647	\$5,917
Large station total costs	\$2,065	\$1,560	\$852	\$2,821

Table VI-3. Cost Incidence by Geographic Area/Test Type

Percentage Having Ever Incurred*	ARR	El Paso	HGB/DFW OBD-Only	HGB/DFW ASM/OBD
Equipment costs	100%	100%	88%	94%
Equipment and building costs	22%	33%	21%	35%

* Results exclude survey responses that left blank both (a) whether they ever incurred costs for equipment and (b) whether they ever incurred costs for buildings.

A. COSTS AND REVENUES THAT FEED INTO THE MODELS

The model station and break-even cost analyses were compiled from a combination of non-survey data (compiled from government sources, the TCEQ, and previous AirCheckTexas Fee studies) and median values calculated from survey data collected from respondents from the given geographic areas and emissions inspection types. Table VI-4 provides the values for the non-survey data used in both types of analyses, and Table VI-5 presents the median values for the survey data used in the cost models. As noted above, these are the median values for T&R and test-only stations combined. All inputs used in the cost model analyses are provided in Tables VI-4 and 5.

Table VI-4. Non-Survey Data Used in Cost Model Analyses

Variable	Source	Value
All equipment: useful life	BEA, 2003; Cusick, 2012	11 years (from BEA service life estimate for “Service industry machinery, other than wholesale and retail trade”)
Building life: useful life	BEA, 2003; Cusick, 2012	34 years (from BEA estimate of service life for “Other commercial buildings”)
Dedicated telephone line: monthly cost (\$)	ERG, 2007	\$50 (the TCEQ reconfirmed value in May 2012)
Electricity: monthly cost (\$)	ERG, 2007	\$40 (the TCEQ reconfirmed value in May 2012)
Communication with VID (vehicle inspection database): number of transactions per inspection	Pechan, 2009	2 (the TCEQ reconfirmed value in May 2012)
Communication with VID (vehicle inspection database): cost/call (\$)	Pechan, 2009	\$0.21/call (the TCEQ reconfirmed value in May 2012)
Labor: number of minutes per inspection	ERG, 2007	20 minutes (the TCEQ reconfirmed value in May 2012)
Fringe benefits: % of total compensation	BLS, 2012	Total benefits make up 30.6% of total compensation
Computer ink and paper: cost/inspection (\$)	ERG, 2007	\$0.05/inspection (the TCEQ reconfirmed value in May 2012)

Table VI-5. Survey Data Used in Cost Model Analyses

Variable*	ARR	El Paso	HGB/DFW OBD-Only	HGB/DFW ASM/OBD
Building space — median purchase price	\$10,000	\$3,500	\$3,000	\$16,000
Testing equipment — median purchase price	\$17,000	\$15,700	\$8,800	\$42,000
Tools and other equipment — median purchase price	\$1,000	\$2,000	\$1,000	\$2,500
Maintenance agreement — median annual cost	\$2,400	\$1,700	\$851	\$4,000
Extra maintenance — median annual cost	\$700	\$600	\$200	\$1,200
Inspector wage — median hourly salary	\$12.00	\$9.00	\$12.43	\$11.30
Loan term — median length (years)	5	4	3	5
Loan rate — median amount (percent)	8.0%	8.5%	9.0%	8.0%

* As was done in previous studies, land purchases were excluded from the survey because such a small number of stations reported incurring such incremental costs to perform emissions inspections.

The survey data in Table VI-5 were cross-checked with publicly available information. According to the Foreign Labor Center Data Center (FLC, 2012), the average hourly wage for a level 1 auto service technician and mechanic is \$11.95 in ARR, \$9.32 in El Paso, \$11.37 in Houston, and \$11.55 in Dallas. These values are all consistent with the median reported values in the survey shown in Table VI-5. The costs of the certified analyzers and their maintenance agreements are also consistent with publically available information. The cost (TCEQ, 2011) for a new certified OBD-only analyzer ranges between \$7,195 and \$8,500; a new certified ASM/OBD analyzer ranges between

\$33,500 and \$35,995. As shown in Table VI-5, the survey median values for stations purchasing certified OBD-only analyzers and ASM/OBD analyzers in the HGB/DFW area are reasonably close to the listed price of the analyzers. Additionally, a maintenance agreement (TCEQ, 2011) for an OBD-only analyzer is listed to cost between \$786 to \$1,078 annually depending on the agreement (survey median value of \$851), and that for an ASM/OBD analyzer ranges from \$3,466 to \$4,630 annually (survey median value of \$4,000). For both the ARR and El Paso regions, the new certified TSI analyzer is listed to cost between \$15,495 and \$15,995 (TCEQ, 2011), which is consistent with the survey median values of \$17,000 (ARR) and \$15,700 (El Paso). The annual maintenance agreement for these certified analyzers ranges from \$2,230 to \$2,330 annually, which also is reasonably close to the median survey values of \$2,400 (ARR) and \$1,700 (El Paso).

Table VI-6 presents the net fee by geographic area and test type. Offering emissions inspection is incremental to offering safety inspections; thus, the net revenue calculation only considers the net fee to the customer excluding the safety inspection fee and costs associated with the safety inspection. The net fee is the total fee to the customer (excluding the \$12.75 safety fee) minus the administration fee paid to the DPS/TCEQ and the fee to support the LIRAP.

Table VI-6. Net Fee from an Emissions Inspection

	ARR	El Paso	HGB/DFW OBD-Only	HGB/DFW ASM/OBD
Fee to customer	\$16.00	\$14.00	\$27.00	\$27.00
TCEQ/DPS I/M administration fee	\$2.50	\$2.50	\$2.50	\$2.50
LIRAP funding	\$2.00		\$6.00	
Net Fee	\$11.50	\$11.50	\$18.50	\$24.50

B. ARR COST MODELS

Table VI-7 presents the ARR-area model station analysis. It presents the total costs and total revenue for model stations that have a monthly emissions inspection volume of 64 (small station), 127 (medium station), and 244 (large station). These emissions inspection throughputs correspond to the 25th percentile, 50th percentile, and 75th percentile with respect to monthly emissions inspections in the ARR area. As shown in the table, for large and medium stations, the monthly revenues exceed monthly costs by approximately \$750 and \$100, respectively; for a small station, costs exceed revenue by approximately \$200 monthly. As discussed in more detail in Section VIII, this may be the result of lower throughput numbers over the past few years potentially caused by a large increase in the number of vehicle emissions inspection stations in the ARR region.

Table VI-8 presents the ARR-area break-even model analysis. It presents the number of monthly emissions inspections that a station must perform for net revenue to equal costs. Additionally, it presents the proportion of stations that have a monthly average emissions inspection volume greater than or equal to the break-even threshold. This analysis indicates that 59 percent of stations perform enough inspections to cover costs that include equipment (all costs in Table VI-7 except building costs) and 58 percent of shops cover both equipment and building costs (all costs in Table VI-7).

Table VI-7. Model Station Analysis — ARR

Revenues and Costs	Per Test	Number of Inspections per Month*		
		64	127	244
Net Revenue	\$11.50	\$736	\$1,461	\$2,806
Variable Costs	Amount			
Communication with VID (cost per call)	\$0.21	\$0.42		
Communication with VID (calls per test)	2			
Labor (wage per hour)	\$12.00	\$4.00		
Labor (minutes per test)	20			
Fringe benefits (% of total compensation) [†]	30.6%	\$1.76		
Computer ink and paper (cost per test)	\$0.05	\$0.05		
<i>Total Variable Costs per Month</i>		<i>\$6.23</i>	<i>\$399</i>	<i>\$792</i>
Fixed Costs	Amount	Monthly		
Equipment and tools (purchase price) [‡]	\$18,000	\$165.90		
Maintenance agreement (annual cost)	\$2,400	\$200.00		
Additional maintenance cost (annual cost)	\$700	\$58.33		
Building space (purchase price) [§]	\$10,000	\$29.82		
Loan period (years)	5			
Loan interest rate (percent)	8.0%			
Dedicated telephone line (monthly cost)		\$50.00		
Electricity (monthly cost)		\$40.00		
<i>Total Fixed Costs</i>			<i>\$544</i>	<i>\$544</i>
Total Cost			\$943	\$1,336
				\$2,065

* Values represent number of emissions inspections for 25th percentile, median, and 75th percentile stations with respect to emissions inspection throughput of all stations in the region.

† Includes paid leave, supplemental pay, insurance, retirement and savings, and legally required benefits.

‡ Assumes total principal and interest paid over life of loan is spread over useful life of 11 years.

§ Assumes total principal and interest paid over life of loan is spread over useful life of 34 years.

Table VI-8. Break-Even Analysis — ARR

Item	Equipment Only	Equipment and Building Costs
Fixed cost per month	\$514.23	\$544.05
Variable cost per inspection	\$6.23	\$6.23
Net fee per inspection	\$11.50	\$11.50
Break-Even Number of Inspections (Monthly)	98	103
Station At/Above Break-Even Number of Inspections	59%	58%

C. EL PASO COST MODELS

Table VI-9 presents the El Paso-area model station analysis. It presents the total costs and total revenue for model stations that have a monthly emissions inspection volume of 74 (small station), 133 (medium station), and 230 (large station). These emissions inspection throughputs correspond to the 25th percentile, 50th percentile, and 75th percentile with respect to monthly emissions inspections for El Paso area stations. As shown in the table, for representative small, medium, and large stations, the monthly revenues exceed monthly costs by approximately \$50, \$450, and \$1,100, respectively.

Table VI-10 presents the El Paso area break-even model analysis. It presents the number of monthly emissions inspections that a station must perform for revenue to equal costs. Additionally, it presents the proportion of stations that have a monthly average emissions inspection volume greater than or equal to the break-even threshold. This analysis indicates that 78 percent of shops perform enough inspections to cover costs that include equipment (all costs in Table VI-9 except building costs) and 77 percent of shops cover both equipment and building costs (all costs in Table VI-9).

Compared to ARR, the El Paso model shows a slightly lower wage and a higher throughput for the representative small station, which partly explains the more favorable net revenue to a representative small station.

Table VI-9. Model Station Analysis — El Paso

Revenues and Costs	Per Test	Number of Inspections per Month*		
		74	133	230
Net Revenue	\$11.50	\$851	\$1,530	\$2,645
Variable Costs	Amount			
Communication with VID (cost per call)	\$0.21	\$0.42		
Communication with VID (calls per test)	2			
Labor (wage per hour)	\$9.00	\$3.00		
Labor (minutes per test)	20			
Fringe benefits (% of total compensation) [†]	30.6%	\$1.32		
Computer ink and paper (cost per test)	\$0.05	\$0.05		
<i>Total Variable Costs per Month</i>		<i>\$4.79</i>	<i>\$355</i>	<i>\$637</i>
Fixed Costs	Amount	Monthly		
Equipment and tools (purchase price) [‡]	\$17,700	\$165.06		
Maintenance agreement (annual cost)	\$1,700	\$141.67		
Additional maintenance cost (annual cost)	\$600	\$50.00		
Building space (purchase price) [§]	\$3,500	\$10.56		
Loan period (years)	5			
Loan interest rate (percent)	8.5%			
Dedicated telephone line (monthly cost)		\$50.00		
Electricity (monthly cost)		\$40.00		
<i>Total Fixed Costs</i>			<i>\$457</i>	<i>\$457</i>
Total Cost			\$812	\$1,095
				\$1,560

* Values represent number of emissions inspections for 25th percentile, median, and 75th percentile stations with respect to emissions inspection throughput of all stations in the region.

† Includes paid leave, supplemental pay, insurance, retirement and savings, and legally required benefits.

‡ Assumes total principal and interest paid over life of loan is spread over useful life of 11 years.

§ Assumes total principal and interest paid over life of loan is spread over useful life of 34 years.

Table VI-10. Break-Even Analysis — El Paso

Item	Equipment Only	Equipment and Building Costs
Fixed cost per month	\$446.73	\$457.29
Variable cost per inspection	\$4.79	\$4.79
Net fee per inspection	\$11.50	\$11.50
Break-Even Number of Inspections (Monthly)	67	68
Station At/Above Break-Even Number of Inspections	78%	77%

D. HGB/DFW OBD-ONLY COST MODELS

Table VI-11 presents the HGB/DFW OBD-only model station analysis. It presents the total costs and total revenue for model stations that have a monthly emissions inspections volume of 27 (small station), 55 (medium station), and 89 (large station). These emissions inspection throughputs correspond to the 25th percentile, 50th percentile, and 75th percentile with respect to monthly emissions inspections for HGB/DFW–area OBD-only stations. As shown in the table, for representative small,

medium and large stations, the monthly revenues exceed monthly costs by approximately \$50, \$400, and \$800, respectively.

Table VI-12 presents the HGB/DFW OBD-only break-even model analysis. It presents the number of monthly emissions inspections that a station must perform for revenue to equal costs. Additionally, it presents the proportion of stations that have a monthly average emissions inspection volume greater than or equal to the break-even threshold. This analysis indicates that 79 percent of shops perform enough inspections to cover costs that include equipment (all costs in Table VI-11 except building costs) and 78 percent of shops cover both equipment and building costs (all costs in Table VI-11).

Compared to ARR and El Paso, the HGB/DFW model shows a much lower break-even number of emissions inspections. This is partially due to lower equipment, maintenance agreement, and additional maintenance costs (beyond those covered by the maintenance agreement) for OBD-only certified analyzers than for TSI-certified analyzers used in ARR and El Paso. However, these stations are low-volume stations and can only perform up to 150 emissions inspections per month because they do not also perform ASM inspections, and the representative stations perform far fewer monthly emissions inspections than in ARR and El Paso. Overall, the proportion of stations that perform enough inspections to cover costs is almost identical to that in El Paso.

Table VI-11. Model Station Analysis — HGB/DFW (OBD-Only)

Revenues and Costs	Per Test	Number of Inspections per Month*		
		27	55	89
Net Fee	\$18.50	\$500	\$1,018	\$1,647
Variable Costs	Amount			
Communication with VID (cost per call)	\$0.21	\$0.42		
Communication with VID (calls per test)	2			
Labor (wage per hour)	\$12.43	\$4.14		
Labor (minutes per test)	20			
Fringe benefits (% of total compensation) [†]	30.6%	\$1.83		
Computer ink and paper (cost per test)	\$0.05	\$0.05		
<i>Total Variable Costs per Month</i>	<i>\$6.44</i>	<i>\$174</i>	<i>\$354</i>	<i>\$573</i>
Fixed Costs	Amount	Monthly		
Equipment and tools (purchase price) [‡]	\$9,800	\$92.47		
Maintenance agreement (annual cost)	\$851	\$70.92		
Additional maintenance cost (annual cost)	\$200	\$16.67		
Building space (purchase price) [§]	\$3,000	\$9.16		
Loan period (years)	5			
Loan interest rate (percent)	9.0%			
Dedicated telephone line (monthly cost)		\$50.00		
Electricity (monthly cost)		\$40.00		
<i>Total Fixed Costs</i>			<i>\$279</i>	<i>\$279</i>
Total Cost			\$453	\$633
				\$852

* Values represent number of emissions inspections for 25th percentile, median, and 75th percentile stations with respect to emissions inspection throughput of all stations in the region.

† Includes paid leave, supplemental pay, insurance, retirement and savings, and legally required benefits.

‡ Assumes total principal and interest paid over life of loan is spread over useful life of 11 years.

§ Assumes total principal and interest paid over life of loan is spread over useful life of 34 years.

Table VI-12. Break-Even Analysis — HGB/DFW (OBD-Only)

Item	Equipment Only	Equipment and Building Costs
Fixed cost per month	\$270.05	\$279.21
Variable cost per inspection	\$6.44	\$6.44
Net fee per inspection	\$18.50	\$18.50
Break-Even Number of Inspections (monthly)	22	23
Station At/Above Break-Even Number of Inspections	79%	78%

E. HGB/DFW ASM/OBD COST MODELS

Table VI-13 presents the HGB/DFW ASM/OBD model station analysis. It presents the total costs and total revenue for model stations that have a monthly emissions inspection volume of 109 (small station), 195 (medium station), and 312 (large station). These emissions inspection throughputs correspond to the 25th percentile, 50th percentile, and 75th percentile with respect to monthly emissions inspections for HGB/DFW–area ASM/OBD stations. As shown in the table, for representative small,

medium, and large stations, the monthly revenues exceed monthly costs by approximately \$450, \$1,550, and \$2,100, respectively.

Table VI-12 presents the HGB/DFW ASM/OBD break-even model analysis. It presents the number of monthly emissions inspections that a station must perform for revenue to equal costs. Additionally, it presents the proportion of stations that have a monthly average emissions inspection volume greater than or equal to the break-even threshold. This analysis indicates that 86 percent of shops perform enough inspections to cover costs that include equipment (all costs in Table VI-13 except building costs) and 85 percent of shops cover both equipment and building costs (all costs in Table VI-13).

Compared to the other three geographic areas and test types discussed above, the HGB/DFW ASM/OBD geographic area and test type has the largest proportion of stations that cover costs, and shows the most favorable difference between net revenue and total costs among all representative station sizes (small, medium, and large). Despite much higher equipment and maintenance agreement costs, these stations typically have the highest throughput and highest net fee per emissions inspection.

Table VI-13. Model Station Analysis — HGB/DFW (ASM/OBD)

Revenues and Costs	Per Test	Number of Inspections per Month*		
		109	195	312
Net Revenue	\$18.97†	\$2,067	\$3,698	\$5,917
Variable Costs	Amount			
Communication with VID (cost per call)	\$0.21	\$0.42		
Communication with VID (calls per test)	2			
Labor (wage per hour)	\$11.30	\$3.77		
Labor (minutes per test)	20			
Fringe benefits (% of total compensation)‡	30.6%	\$1.66		
Computer ink and paper (cost per test)	\$0.05	\$0.05		
<i>Total Variable Costs per Month</i>		<i>\$5.90</i>	<i>\$643</i>	<i>\$1,150</i>
Fixed Costs	Amount	Monthly		
Equipment and tools (purchase price)§	\$44,500	\$410.14		
Maintenance agreement (annual cost)	\$4,000	\$333.33		
Additional maintenance cost (annual cost)	\$1,200	\$100.00		
Building space (purchase price)	\$16,000	\$47.71		
Loan period (years)	5			
Loan interest rate (percent)	8.0%			
Dedicated telephone line (monthly cost)		\$50.00		
Electricity (monthly cost)		\$40.00		
<i>Total Fixed Costs</i>			<i>\$981</i>	<i>\$981</i>
Total Cost			\$1,624	\$2,131
			\$2,821	

* Values represent number of emissions inspections for 25th percentile, median, and 75th percentile stations with respect to emissions inspection throughput of all stations in the region.

† Net fee for stations performing both ASM and OBD inspections is based on the weighted average of the frequency of each test type at ASM/OBD stations in the TCEQ database, multiplied by the net fee associated with that test type: $0.92 \times \$18.50 + 0.08 \times \24.50 .

‡ Includes paid leave, supplemental pay, insurance, retirement and savings, and legally required benefits.

§ Assumes total principal and interest paid over life of loan is spread over useful life of 11 years.

|| Assumes total principal and interest paid over life of loan is spread over useful life of 34 years.

Table VI-14. Break-Even Analysis — HGB/DFW (ASM/OBD)

Item	Equipment Only	Equipment and Building Costs
Fixed cost per month	\$933.47	\$981.18
Variable cost per inspection	\$5.90	\$5.90
Net fee per inspection	\$18.97	\$18.97
Break-Even Number of Inspections (monthly)	71	75
Station At/Above Break-Even Number of Inspections	86%	85%

CHAPTER VII. COMMENTS FROM EMISSIONS INSPECTION SURVEY RECIPIENTS

In the final question of the survey, respondents were asked if they felt the emissions inspection fee covered their costs associated with emissions inspections, and if not, what they felt the reasons were. This section summarizes the respondents' comments. There were 578 respondents who provided a reason for why the fee did not cover their costs.

A. COST FACTORS PREVENTING STATIONS FROM RECOUPING COSTS

Respondents cited a number of factors as the primary reasons for not being able to recoup costs. The most frequently cited were:

- High equipment-related costs (purchase/maintenance/service agreement) (217)
- The high and increasing cost of labor (110)
- The cost of phone calls, primarily the need for a dedicated line (33)
- High sticker costs/administrative fees (funding toward LIRAP and the TCEQ/DPS) (32)

As indicated above, the most commonly stated factor for why the inspection fee does not cover costs was the high cost of maintaining the emissions inspection equipment (dynamometers). Many of these complaints were from ASM/OBD stations. Station owners cited frequent breakdowns of the equipment, slow response time for service calls, the high cost of service calls, and the cost of replacement parts as reasons they cannot recoup costs.³ Several respondents noted that the lack of service providers of certified analyzers gives the one or two service providers a virtual monopoly on the market, driving up profit for the manufacturers and giving them less incentive to be responsive to service calls. A few stations noted high sticker costs and administrative fees (funding toward LIRAP and the TCEQ/DPS as reasons for not being able to recoup costs). As discussed in Section VI, all of these costs were considered in the cost model.

The respondents stated that downtime of the equipment was a particular concern because in many cases, inspectors cannot be tasked on anything else while there are no inspection customers. Several respondents also noted that the inspection bay cannot always easily be used for other tasks, such as repairs.

Many other respondents (199) provided very general statements that costs have continued to increase to the point that the fee no longer covers their costs. Additionally, a portion of those respondents (32) noted that despite rising costs, the emissions inspection fee cap has never been increased.

³ Any unsatisfactory response on the part of the manufacturer needs to be reported to the Department of Public Safety.

B. OTHER FACTORS PREVENTING STATIONS FROM RECOUPING COSTS

While cost factors were the most commonly cited reason that the fee does not cover costs, there were several other notable factors:

1. **The fee is adequate for OBD-only inspections but not ASM inspections.** Respondents (34) commonly cited higher equipment-related costs and a decreasing number of vehicles subject to ASM inspections as reasons why ASM inspections not profitable. A few respondents claimed that other stations falsely tell their customers their ASM analyzer is “down,” primarily so they can just perform the more profitable OBD inspections.
2. **Emissions inspection volume is too low.** Respondents (19) cited low — and in some cases decreasing — emissions inspection volume as a reason why they cannot recoup costs. A few of these respondents were concerned about too many stations recently entering the market.
3. **Too many stations offer inspections below the cap price.** A number of respondents (nine) expressed concern that they were losing emissions inspection volume to stations offering emissions inspections at reduced cost.
4. **Lost time dealing with customers who fail inspection.** Several respondents (14) noted that customers can be quite difficult when they fail inspection. They noted the customers often take up an extended period of the inspector’s time arguing and asking questions.

C. OTHER NOTABLE COMMENTS

The following comments do not necessarily relate to why stations do not recoup costs; however, they do provide some additional insight into the state of the emissions inspection industry.

1. **Stations perform inspections as a service to customers.** Many respondents (30) stated that they choose to perform inspections for customer convenience and to attract new customers; however, they often noted that they do not recoup costs from the emissions inspections alone.
2. **Need to increase OBD-only limits.** A couple of respondents stated that the limits on OBD-only inspections should be removed.

CHAPTER VIII. CONCLUSIONS AND FINDINGS

In presenting conclusions, this section addresses:

- What the respondents say (Section VIII.A);
- How investors (potential station owners) view the market (Section VIII.B);
- What the cost data indicate (Section VIII.C).

Also, Sections VIII.D and E examine the additional revenue streams from repairs and supplementary analysis regarding emissions inspection throughput differences in T&R and test-only stations. Section VIII.F examines the additional costs and revenue streams associated with failed emissions inspections that were not included in the Section VI cost analyses. Section VIII.G briefly summarizes ERG’s overall assessment on the adequacy of the fee. Finally, Section VIII.H recommends possible changes to the survey for future data collection efforts.

A. ADEQUACY OF FEE: WHAT THE RESPONDENTS SAY

The final survey question asked the respondents whether the emissions inspection fee cap covered the costs of offering emissions inspections at their station. Table VIII-1 provides the responses by region, station type, and test type.

The percentages of respondents in the ARR and El Paso regions who claim the fee covers their costs were nearly identical, with 18 percent of respondents overall (16 percent for T&R and 25 percent for test-only stations) claiming the fee covers costs in El Paso, and 17 percent of respondents overall (15 percent for T&R and 27 percent for test-only stations) claiming the fee covers costs in ARR.

The percentage of respondents in the HGB/DFW region performing ASM/OBD inspections who claimed the fee covers their costs (24 percent) was slightly higher than in El Paso and ARR. Consistent with the comments that ASM inspections are a cost burden compared to OBD-only inspections, the percentage of respondents in the HGB/DFW region performing OBD-only inspections who claimed the emissions inspection fee covers cost was markedly higher (44 percent).

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

Program Area	Test Type	Test-Only	Test-and-Repair	Total
ARR	All	27%	15%	17%
El Paso	All	25%	16%	18%
HGB/DFW	ASM/OBD	24%	24%	24%
HGB/DFW	OBD-only	42%	44%	44%

B. ADEQUACY OF FEE: WHAT INVESTORS THINK

The number of stations joining or leaving the I/M program is a good indicator of the expected profitability of a station in the market. Each station owner or prospective station owner makes a business decision about whether they should enter the market (in the case of the prospective owner) or whether they should remain in or leave the market (in the case of the current owner). A net decrease in the number of stations would indicate that existing stations are finding that fees are not sufficient to cover their variable costs; thus, existing station owners would tend to leave the market and prospective owners would avoid joining the market. On the other hand, an increasing number of stations would indicate that prospective and existing owners are projecting or finding that fees cover costs; thus, the existing owners would generally stay in the market, and more prospective station owners would enter the market. Stations may also find additional benefits from performing emissions inspections (e.g., additional repair revenue and more customer volume into their shop) that offset their net losses from performing inspections. These data alone, however, do not definitively determine whether the fee is adequate: potential investors likely have imperfect information, and stations could be making decisions based on poor cost and revenue estimates or dated information. However, these data are certainly an important indicator and do provide good insight into how investors see the market. While the TCEQ does not keep historical statistics on the number of inspection stations, the counts from prior years' analyses (ERG, 2005, 2007; Pechan, 2009) and the counts made in January 2012 for this study were used to develop the following comparisons.

Figure VIII-1 summarizes the station counts for the HGB/DFW region from the TCEQ Vehicle Identification Database since 2003 (excluding 2006, 2008, and 2010). This figure shows a 19 percent increase in the number of stations since the 2009 count, which indicates that a significant number of station owners are making the business decision to remain in and enter the market based on the cost and revenue streams. This provides a good indication that the fees are probably adequate in the HGB/DFW program area.

Figure VIII-2 summarizes the station counts for the ARR and El Paso program areas for 2007, 2009, and 2011. This figure shows a modest (7 percent) increase in the number of stations in the El Paso region in the past two years, and a much larger (20 percent) increase in the number of stations in the ARR area. This trend indicates that the fees are likely adequate in these two regions as well; however, as discussed above, these data alone do not definitively determine the adequacy of the fee as investors often make decisions on imperfect information. Thus, it is important to also consider the cost models to provide a clearer picture on the adequacy of the fee.

Figure VIII-1. Historical Number of Inspection Stations in HGB/DFW Program Areas

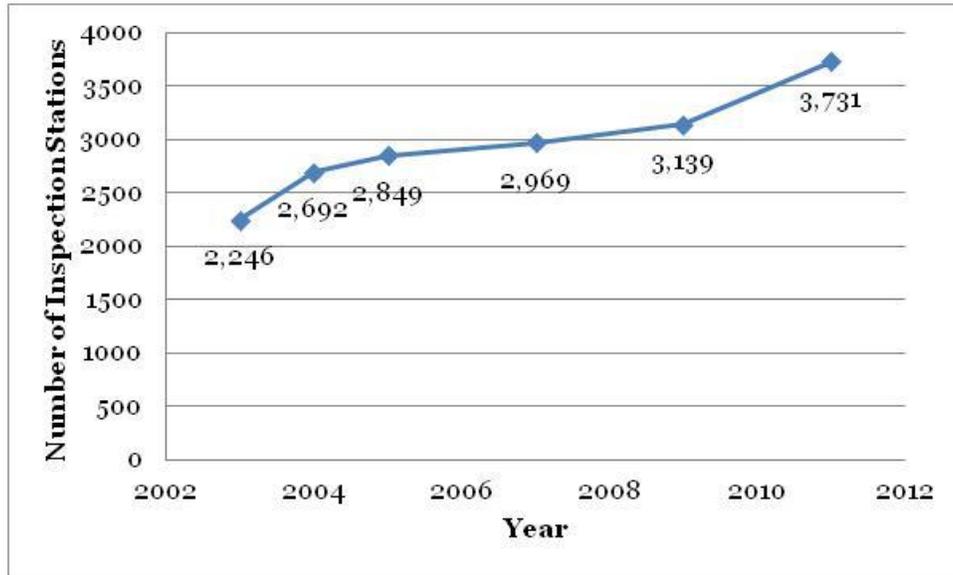
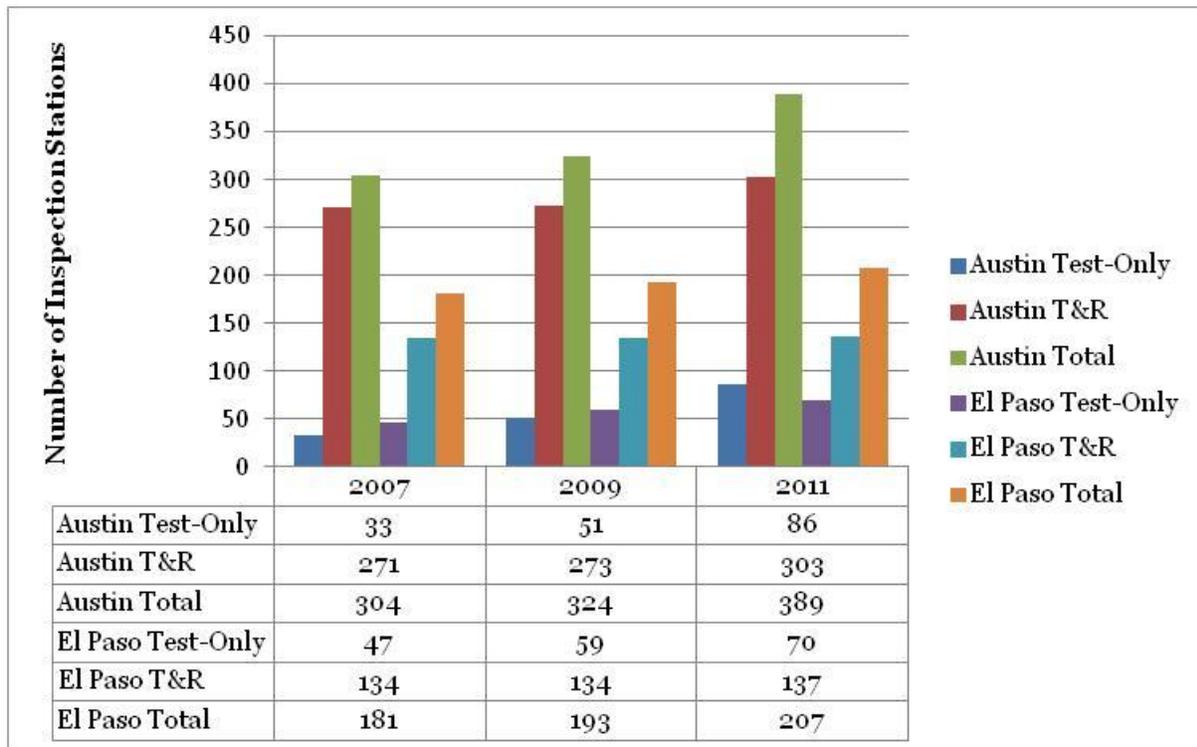


Figure VIII-2. Historical Number of Inspection Stations in ARR and El Paso Program Areas



C. ADEQUACY OF THE FEE: WHAT THE COST MODEL INDICATES

As shown in more detail above in Section VI, ERG developed both break-even and model station cost models for the ARR region, El Paso region, and HGB/DFW region (both for ASM/OBD stations and OBD-only stations).

In the break-even cost model summarized in Table VIII-2, at least 77 percent of stations in El Paso and HGB/DFW (both test types) are shown to have sufficient throughput to generate emissions inspection revenues that meet or exceed variable and fixed costs. In ARR, 58–59 percent of stations have sufficient throughput to generate emissions inspection revenues that meet or exceed variable and fixed costs.

Table VIII-2. Stations At/Above Break-Even Number of Inspections

	ARR	El Paso	HGB/DFW OBD-Only	HGB/DFW ASM/OBD
Break-Even Number of Tests (per Month)				
Including equipment costs	98	67	22	71
Including equipment and building costs	103	68	23	75
Percent of Stations Above Break-Even Number				
Including equipment costs	59%	78%	79%	86%
Including equipment and building costs	58%	77%	78%	85%

The model station analysis reveals similar findings. This analysis created region-specific representative small, medium, and large stations representative of stations in the 25th, 50th (median), and 75th percentile, respectively, based on emissions inspection throughput. As shown in Table VIII-3, small, medium, and large stations in El Paso and HGB/DFW (both testing types) all generate enough revenue from emissions inspections to recoup costs. In ARR, this is true for representative medium and large stations but not a representative small station.

Table VIII-3. Total Costs and Net Revenue at Model Stations

	ARR	El Paso	HGB/DFW OBD-Only	HGB/DFW ASM/OBD
Small station total revenue	\$736	\$851	\$500	\$2,067
Small station total costs	\$943	\$812	\$453	\$1,624
Medium station total revenue	\$1,461	\$1,530	\$1,018	\$3,698
Medium station total costs	\$1,336	\$1,095	\$633	\$2,131
Large station total revenue	\$2,806	\$2,645	\$1,647	\$5,917
Large station total costs	\$2,065	\$1,560	\$852	\$2,821

While the lower percentage of stations recouping costs in ARR may suggest the need for an increase in the fee, it seems that the substantial increase in the number of stations into the market may be more to blame. As discussed above in Section VIII.B, it appears that the market has over expanded, as about 20 percent more stations are performing emissions inspections in 2011 than in 2009. During this time, there has been only a 4

percent increase in total emissions inspection throughput in the ARR region. As shown in Table VIII-4, this results in a substantial decrease (13 percent) in the average monthly emissions inspection throughput per station from 2009 (221 per month) to 2011 (192 per month). This lower throughput has decreased the total net revenue from emissions inspections, and thus the number of stations that can cover costs over this period.

Table VIII-4. Initial Testing Throughput Comparison from 2009 to 2011 in all Program Areas

Region	2009 Average Monthly Throughput Per Station	2009 Total Annual Throughput for All Stations	2011 Average Monthly Throughput Per Station	2011 Total Annual Throughput for All Stations
HGB/DFW (overall)	190	6,912,515	160	7,144,313
HGB/DFW (ASM/OBD)	256	6,165,386	236	5,964,029
HGB/DFW (OBD-only)	61	747,129	61	1,180,284
El Paso	195	448,442	183	454,988
ARR	221	861,660	192	894,108
Grand Total	193	8,222,617	164	8,493,409

D. ADDITIONAL CONSIDERATIONS: REPAIR REVENUE FROM FAILED INSPECTIONS

As noted in the Section VI cost model analysis, there was no differentiation between T&R and test-only stations (because the incremental costs with respect to emissions inspections are the same for both station types), and repair revenue generated from failed emissions inspections was excluded from the Section VI cost analyses. The survey asked T&R stations to estimate the number of repairs from failed inspections and average repair revenue generated from failed inspections over the past month. This is summarized in Table VIII-5 along with the total monthly revenue generated from failed inspections.

Table VIII-5. Monthly Revenue Generated from Failed Inspections

	ARR	El Paso	HGB/DFW OBD-Only	HGB/DFW ASM/OBD
Number of repairs per month (median)	4	10	3	5
Repair revenue from each failed emissions inspection (median)	\$275	\$150	\$300	\$250
Estimated monthly repair revenue generated from failed inspections	\$1,100	\$1,500	\$900	\$1,250

The table shows that a typical T&R station generates approximately \$900 to \$1,500 per month in gross revenue, depending on the region, in additional station revenue from repairs associated with failed emissions inspections. Stations will have an assortment of costs associated with making these repairs (labor, parts, etc.); thus, the net revenue to

the station attributable to these repairs from failed emissions inspections will be some fraction of the total revenue generated. However, based on the comments from respondents and answers to the survey questions, repair revenue from failed emissions inspections plays an important part in the business decision to offer emissions inspections.

E. ADDITIONAL CONSIDERATIONS: HIGHER THROUGHPUT AT TEST-ONLY STATIONS

The cost model analyses in Section VI of this report use throughput figures for all stations to generate representative small, medium, and large stations. As discussed above in Section VIII.D, T&R stations have an additional revenue stream from repairs from failed inspections; accordingly, they could be expected to remain in business with a lower emissions inspection throughput than test-only stations, whose viability in the market is much more dependent (if not solely dependent) on revenue from emissions inspections. Table VIII-6 shows the 25th percentile, 50th percentile (median), and 75th percentile emissions inspection throughput by region for test-only stations, T&R stations, and both aggregated. With the exception of HGB/DFW OBD-only stations, for which T&R and test-only stations have very similar emissions inspection throughput, test-only stations typically have significantly higher emissions inspection throughput than T&R stations.

Table VIII-6. Initial Testing Throughput by Region and Station Type

Station Type	Region	25th Percentile "Small"	Median "Medium"	75th Percentile "Large"	Break-Even Tests
Test-only	HGB/DFW (OBD-only)	30	56	93	22
Test-and-repair		26	55	86	22
Both types		27	55	89	22
Test-only	HGB/DFW (ASM/OBD)	132	224	348	71
Test-and-repair		98	180	292	71
Both types		109	195	312	71
Test-only	El Paso	121	184	293	67
Test-and-repair		70	115	181	67
Both types		74	133	230	67
Test-only	ARR	85	228	379	98
Test-and-repair		61	116	197	98
Both types		64	127	244	98

Table VIII-7 also shows the break-even number of emissions inspections needed for revenue to equal costs associated with emissions inspections in each region. The only model station to fall below the break-even number of emissions inspections is a representative small station in ARR; however, representative small test-only stations are much closer to breaking even than representative small T&R stations in this region. Representative medium test-only stations in all regions uniformly perform more than

double the amount of break-even inspections, and large test-only stations in all regions uniformly perform approximately four times the number of break-even inspections.

F. ADDITIONAL CONSIDERATIONS: FAILED INSPECTIONS

The survey asked station owners if, in the previous two months, they had vehicles fail an emissions inspection and not return within 15 days for a retest. In this case, the station collected the fee but did not have to pay the \$2.50 TCEQ/DPS I/M administration fee or the LIRAP fee (\$6.00 for OBD-only inspections in HGB/DFW and \$2.00 in ARR); thus, the station gains an additional emissions-related revenue stream of between \$2.50 and \$8.50 depending on region and test type. From the survey responses, this occurs at many stations but for a relatively small number of vehicles (see Tables III-23, III-24, IV-23, IV-24, V-23, and V-24). The median number of vehicles that do not return to be retested varies by region, but the range is two to six. If anywhere from two to six vehicles do not return, the station gains between \$5.00 and \$50.00 for the two-month period (depending on region and test type). The highest reported number of non-returning vehicles is 24 (see Table V-24), but this only results in about \$102.00 in additional revenue per month.

On the other hand, a small percentage of inspections result in failed inspections, and vehicles have 15 days to repair their vehicle and receive a free retest from the same station. In this case, the station would have variable costs associated with performing the retest (as noted in Section VI) without the benefit of additional revenue. Thus, failed inspections also slightly increase the variable costs associated with an emissions inspection.

Neither the revenue stream associated with a vehicle not returning for a retest nor the costs associated with free retests were included in the Section VI analyses, because they do not appear to constitute a major cost or revenue stream for the station. Additionally, these costs and revenues largely offset each other and limit the impact that failed inspections have on the profitability of emissions inspection stations.

G. OVERALL FINDINGS ON THE ADEQUACY OF THE FEE

Based on the results of the cost model analyses that show over 75 percent of stations with net revenue covering costs and the fact that an increasing number of stations continue to enter the market, ERG recommends that the TCEQ maintain the current fee in the HGB/DFW and El Paso regions.

In the ARR region, a significantly smaller percentage of stations are shown to break even in the cost model analyses (approximately 60 percent). It appears that this is, in part, because of the recent large increase in the number of shops and resulting average decreasing throughput at the stations since the 2009 study was performed. ERG

recommends that the TCEQ maintain the current fee in the ARR region; however, if the market becomes increasingly unfavorable after having a chance to react to the recent overexpansion, this market may be a candidate for a small increase in the fee two years from now pending the results of the next survey.

H. RECOMMENDATIONS FOR FUTURE SURVEY EFFORTS

Based on the survey administration and data collection effort, ERG recommends that the TCEQ consider the following recommendations in future survey efforts.

ERG recommends sending the same survey to both T&R and test-only stations. In this survey effort, several questions specific to repair questions were not included in the test-only survey; however, in nearly 30 percent of cases, there was a station-type mismatch between the TCEQ database and the respondents' survey response. The single survey could include all the questions in the T&R survey, with appropriate language for test-only stations to skip questions related to performing repairs.

ERG recommends developing an online survey to administer alongside the mail survey. While lower response rates from online-only surveys may be a concern, there were several requests to complete the survey online, and this option could increase the response rate (e.g., a station can lose a hard copy survey and not want to go through the process of requesting another). While only 7 percent of respondents used the online survey option when it was offered for the 2007 study (ERG, 2007), the increased reliance on technology and prevalence of computers with Internet access might make this a more utilized option.

ERG recommends collecting information on the useful life of equipment in the next survey. Emissions inspections will have been performed for over 10 years in some regions at that point, and it may be insightful to see how the equipment is holding up relative to the BEA estimate of 11 years.

ERG recommends collecting information on how test-only stations deploy labor. This survey and the previous surveys have shown that inspectors at T&R stations typically do not spend the majority of their time performing inspections — they are likely being deployed to perform other tasks. At test-only stations, it is possible that labor is not or cannot be deployed as efficiently during downtime; thus, stations that are not deploying labor as efficiently during downtime may be paying higher average wages per inspection.

ERG recommends minor wording changes to a few survey questions based on respondent confusion in answering the questions.

- Modify the question “In what year did this station first offer [emissions] testing?” to include the start dates of the AirCheckTexas emissions inspections in the program regions. About 20 percent of stations put a date that was before the program start date in their region (Affects Question 3 of the ARR and El Paso T&R and test-only surveys and Question 4 of the HGB/DFW T&R and test-only surveys.)
- Modify the question “Of inspectors working full/part time, how many spend X% of the time performing inspections?” to include text explaining that the sum of their tallies should correspond to the total number of full-time and part-time inspectors asked about in the previous questions. In over 30 percent of surveys, the numbers of inspectors did not match between this question and previous questions. (Affects Questions 10 and 11 of the HGB/DFW T&R survey and Questions 9 and 10 of the El Paso and ARR T&R surveys.)
- Modify the skip logic for the questions about whether the station has a maintenance plan, the maintenance package cost, and whether costs were incurred outside those covered by the maintenance package. It was quite common for respondents to state they do not have a maintenance package but put a price for costs incurred outside the maintenance agreement. This could be remedied with automated skip logic on an online survey, but may require some clarification or re-formatting of the paper survey question. (Affects Questions 18–20 on the T&R survey and Questions 12–14 on the test-only survey for ARR and El Paso; Questions 19–21 on the T&R survey and Questions 13–15 on the test-only survey for HGB/DFW.)

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APPENDIX A. SURVEY INSTRUMENTS

This appendix includes all six survey instruments used in this study. For each region, the test-only (shorter) survey is posted first followed by the T&R survey.

The surveys in this appendix have been slightly reformatted from what was mailed to the stations to improve their accessibility.

ARR SURVEY INSTRUMENTS

The first survey instrument was sent to test-only stations. This was sent out as a three-page survey. The second survey instrument was sent out to T&R stations. This was sent out as a four-page survey.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Fee Analysis for AirCheckTexas Vehicle Emissions Inspection 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 services
- Repair services only
- Repair services and non-repair services

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. Do you have a maintenance package for your emissions testing equipment?

- Yes: *Go to Question 13.*
- No: *Skip forward to Question 15.*

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. Outside of free retests on vehicles that failed previously at your station, do you ever offer emissions tests for free or at no charge?

Yes, please describe _____

No

16. Outside of free retests on vehicles that failed previously at your station, do you ever charge less than \$16.00 for an emission test?

Yes. What is the lowest fee that you charge? \$____ ____ . ____ ____

No

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

Yes. About how many vehicles? _____

No

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

Yes

No If not, please tell us some of the reasons in the space below. If you require additional space for your comments, please include them on the back of this 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 AirCheckTexas Vehicle Emissions Inspection 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 services
- Repair services only
- Repair services and non-repair services

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)

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. Do you have a maintenance package for your emissions testing equipment?

- Yes: *Go to Question 19.*
- No: *Skip forward to Question 21.*

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. Outside of free retests on vehicles that failed previously at your station, do you ever offer emissions tests for free or at no charge?

- Yes, please describe _____
- No

22. Outside of free retests on vehicles that failed previously at your station, do you ever charge less than \$16.00 for an emission test?

Yes. What is the lowest fee that you charge? \$____ ____ . ____ ____

No

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

Yes. About how many vehicles? _____

No

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

Yes

No If not, please tell us some of the reasons in the space below. 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 SURVEY INSTRUMENTS

The first survey instrument was sent to test-only stations. This was sent out as a three-page survey. The second survey instrument was sent out to T&R stations. This was sent out as a four-page survey.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Fee Analysis for AirCheckTexas Vehicle Emissions Inspection 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 services
- Repair services only
- Repair services and non-repair services

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. Do you have a maintenance package for your emissions testing equipment?

- Yes: *Go to Question 13.*
- No: *Skip forward to Question 15.*

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. Outside of free retests on vehicles that failed previously at your station, do you ever offer emissions tests for free or at no charge?

Yes, please describe _____

No

16. Outside of free retests on vehicles that failed previously at your station, do you ever charge less than \$14.00 for an emission test?

Yes. What is the lowest fee that you charge? \$____ ____ . ____ ____

No

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

Yes. About how many vehicles? _____

No

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

Yes

No If not, please tell us some of the reasons in the space below. If you require additional space for your comments, please include them on the back of this 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 AirCheckTexas Vehicle Emissions Inspection 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 services
- Repair services only
- Repair services and non-repair services

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)

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. Do you have a maintenance package for your emissions testing equipment?

- Yes: *Go to Question 19.*
- No: *Skip forward to Question 21.*

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. Outside of free retests on vehicles that failed previously at your station, do you ever offer emissions tests for free or at no charge?

- Yes, please describe _____
- No

22. Outside of free retests on vehicles that failed previously at your station, do you ever charge less than \$14.00 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 \$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.

HGB/DFW SURVEY INSTRUMENTS

The first survey instrument was sent to test-only stations. This was sent out as a three-page survey. The second survey instrument was sent out to T&R stations. This was sent out as a four-page survey.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Fee Analysis for AirCheckTexas Vehicle Emissions Inspection 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 services

Repair services only

Repair services and non-repair services

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.

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

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. Do you have a maintenance package for your emissions testing equipment?

- Yes: *Go to Question 14.*
- No: *Skip forward to Question 16.*

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

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

15. 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?

\$____, ____ ____

16. Outside of free retests on vehicles that failed previously at your station, do you ever offer emissions tests for free or at no charge?

- Yes, please describe _____
- No

17. Outside of free retests on vehicles that failed previously at your station, do you ever charge less than \$27.00 for an emission test?

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

18. 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

19. 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 the back of this 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 AirCheckTexas Vehicle Emissions Inspection 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 services
- Repair services only
- Repair services and non-repair services

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.

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

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. Do you have a maintenance package for your emissions testing equipment?
 Yes: *Go to Question 20.*
 No: *Skip forward to Question 22.*

20. What is the maintenance package cost for the emissions testing equipment? (Circle one)
\$____, ____ ____ per month/quarter/year

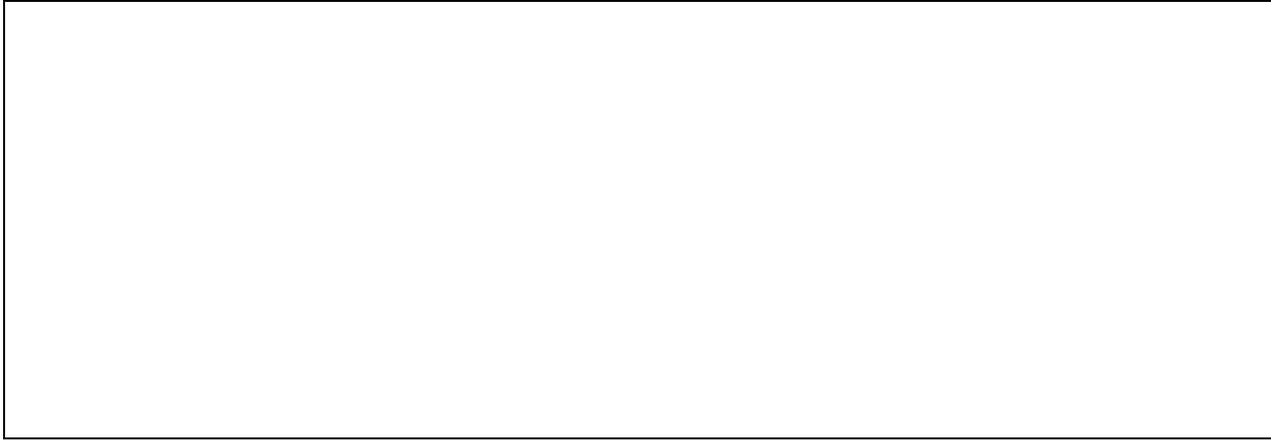
21. During the last year, what costs did you incur for normal maintenance of the emissions testing equipment that were not covered by the service contract or maintenance package?
\$____, ____ ____

22. Outside of free retests on vehicles that failed previously at your station, do you ever offer emissions tests for free or at no charge?
 Yes, please describe _____
 No

23. Outside of free retests on vehicles that failed previously at your station, do you ever charge less than \$27.00 for an emission test?
 Yes. What is the lowest fee that you charge? \$____ ____ . ____ ____
 No

24. 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

25. 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.