



**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 is 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 respondents) and investors (prospective shop owners considering entry into the emissions inspection market), and through analytical cost models developed from both survey and non-survey data.

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

- **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

All vehicle emissions inspection stations 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 inspections. 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 fees established for the motor vehicle emissions inspection program at least biennially. This review was performed by ERG in 2005 (ERG, 2005), 2007 (ERG, 2007), and 2012 (ERG, 2012) and by E.H. Pechan & Associates, Inc. in

2009 (Pechan, 2009). For consistency, the surveys for this study were very similar to those in past years, as were the structures of the cost models developed.

B. SURVEY ADMINISTRATION AND ANALYSIS METHODS

In April of 2014, a Web-based survey was made available to every vehicle emissions inspection station in the four AirCheckTexas program areas. In previous fee studies, there were six different paper survey versions to accommodate both the fee differences across regions and survey questions specific to “Test-Only” and “Test-and-Repair” (T&R) station types. This year, after a number of requests by station managers during the previous fee study to make the survey available on the Web, ERG programmed an electronic survey with conditional logic (i.e., certain questions varied or were skipped based on the region the station was located and whether or not the station performed repairs) to merge the six survey versions into one. For stations that requested paper copies, ERG also developed three hard copy variations of the survey to accommodate the differences in fees and testing types across geographic regions (see Appendix A). Only ten paper surveys were completed, whereas 698 surveys were submitted electronically—a significant difference from 2007, when the survey was administered in paper and electronic format, and fewer than 7 percent of respondents used the online format.

All communications regarding the survey were sent by the TCEQ directly to the vehicle emissions inspection stations in the form of analyzer notification bulletins. The TCEQ provided advance notice of the survey’s launch by sending an initial notification bulletin to the inspection stations on April 8, 2014, a week before the survey start date. An invitation bulletin containing the survey’s URL address (www.tceqsurvey.com) was sent on April 15, 2014. Additionally, over the duration of the survey period, the TCEQ sent four bulletins to remind stations to complete their surveys and to contact ERG’s phone or email hotline if they had questions or preferred a paper survey. Responses were accepted until May 18, 2014.

As mentioned above, ERG provided both an email and telephone hotline to survey respondents to help administer requests for paper surveys and answer other questions. ERG offered hotline support in English and Spanish; however, there were no requests for support in Spanish. ERG also accepted surveys by fax and email.

As of April 2014, the TCEQ emissions inspection database identified 4,686 active vehicle emissions inspection stations (excluding fleet and government stations) in the four program regions under study. For this survey, all communication with the stations was electronic, so ERG did not receive any returned undeliverable mail (as had happened in previous survey years). Thus no information about which stations were out of business was available and all 4,686 stations were assumed to have received the TCEQ notification bulletins.

Table ES-2 shows the distribution of the 4,686 vehicle emissions inspection stations in the TCEQ emissions inspection database by region and station type. ERG received 708 completed surveys during the survey period, of which 695 were in-scope (i.e., stations that offer motor vehicle emissions inspections), and 13 respondents stated that they did not offer vehicle emissions inspections. Table ES-3 shows the distribution of these 708 surveys by region and station type.¹

Table ES-2. Number of Texas Emissions Inspection Stations in the TCEQ Database by Area and Station Type (April 2014)

Program Area	Test-Only	Test-and-Repair	Total
ARR	85	320	405
El Paso	69	139	208
HGB/DFW	1,415	2,658	4,073
Total	1,569	3,117	4,686

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

Program Area	Test-Only	Test-and-Repair	Total Responses	Total In-scope Responses*
ARR	22	41	63	63
El Paso	12	38	50	50
HGB/DFW	138	457	595	582
Total	172	536	708	695

*In-scope responses are stations that offer motor vehicle emissions inspections.

All surveys received, either electronically or in paper format, are included in the response rate calculation, but only in-scope responses are included in the analysis and tabulations. The overall response rate was 15 percent, which is lower than in previous TCEQ Inspection and Maintenance (I/M) fee survey studies. The overall response rate may be underestimated compared to previous years however, as it was calculated using the total number of active stations. In previous years, the survey was mailed out and some surveys were returned to sender due to a bad contact address. There was no analogous way to remove such stations when sent through the analyzer bulletins in this effort because the TCEQ does not receive electronic confirmation of receipt. Inactive stations were not included in the calculation of response rates. Table ES-4 shows the response rate by region and station type.

¹ For in-scope responses, station type was determined using the response to Question 7 (“In addition to emissions and safety testing, check the box that best describes other services offered at your station.”) where “No other services” and “Non-repair services” indicate a Test-Only facility and “Repair services only” and “Repair services and non-repair services” indicate a Test-and-Repair facility. For out-of-scope responses, station type was imputed from the TCEQ emissions inspection database.

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

Program Area	Test-Only	Test-and-Repair	Total*
ARR	26%	13%	16%
El Paso	17%	27%	24%
HGB/DFW	10%	17%	15%
Total	11%	17%	15%

*Response rates were calculated as: [Surveys Received]/([Total Active Stations]).

C. FINDINGS

As shown in Table ES-5, among respondents in ARR and El Paso, only 13 percent and 22 percent, respectively, said that the emissions inspection fees covered the costs of inspections. A larger percentage of stations in the HGB/DFW region concurred with that sentiment, specifically 30 percent of stations that perform both Acceleration Simulation Mode (ASM) and On-Board Diagnostic (OBD) inspections and 44 percent of OBD-only stations.

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

Program Area	Test Type	Test-Only	Test-and-Repair	Total
ARR	TSI/OBD	14%	12%	13%
El Paso	TSI/OBD	25%	22%	22%
HGB/DFW	ASM/OBD	26%	32%	30%
HGB/DFW	OBD-only	41%	45%	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 continued to increase dramatically in the HGB/DFW area with an increase of approximately 9 percent (342 stations) in that area from the 2012 survey to the 2014 survey, compared to an increase of 4 percent (16 stations) in ARR and a one station increase in El Paso over that same period. The count of Test-Only stations decreased by one in El Paso and one in ARR. These two losses were offset by an increase of two T&R stations in El Paso and 17 T&R stations in Austin (increases of 0.4 percent and 4 percent, respectively). This may imply that stations in these regions need the additional revenue from repairs in order to break even.

The fact that the number of stations offering inspections in El Paso and ARR increased slightly suggests that the fee is just high enough to make offering the service a worthwhile business decision. The large influx of stations offering the service in HGB/DFW may indicate that offering vehicle emissions inspection testing is a beneficial business decision. However, while net entry of stations into the market is a good indicator of the fairness of the fee, 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. Inspection Stations in HGB/DFW Program Areas, 2007 to 2014

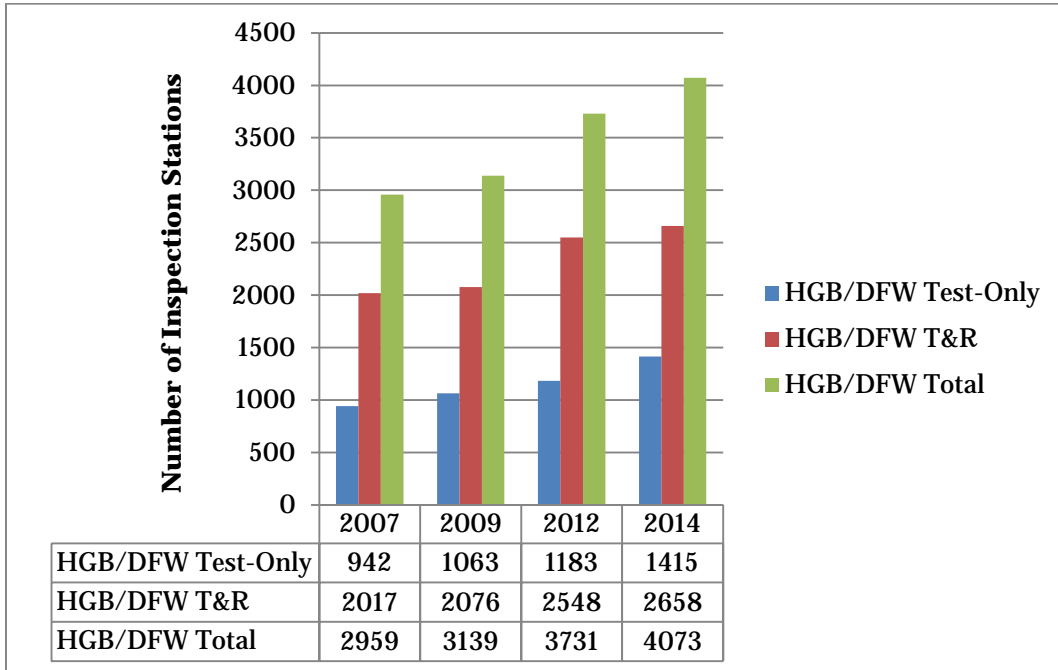
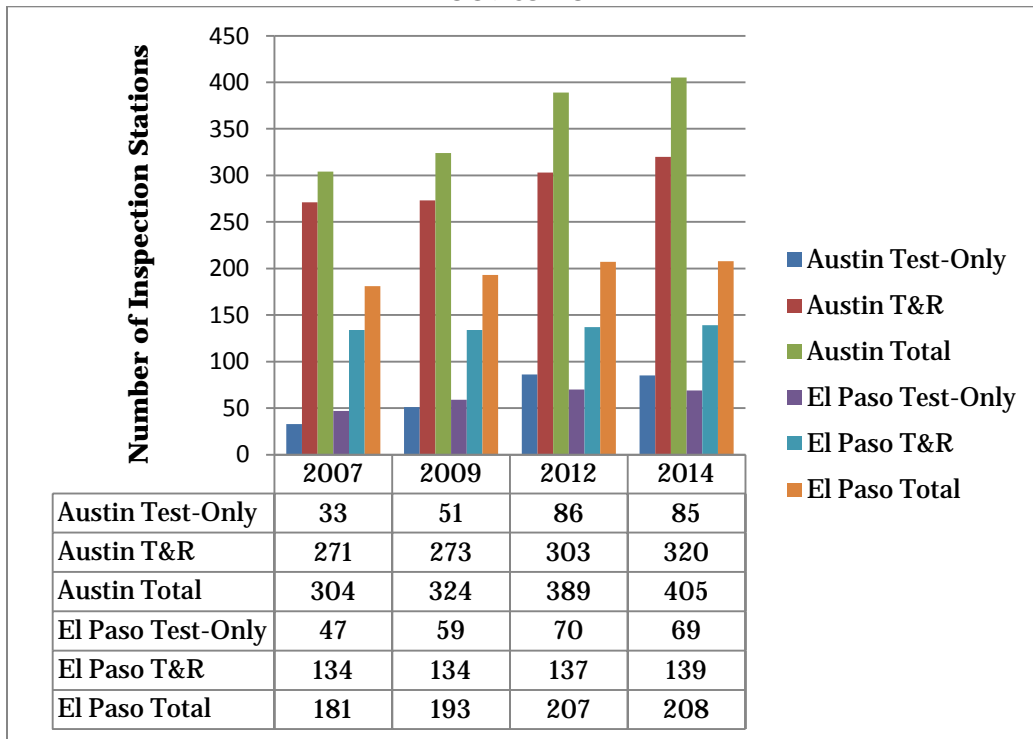


Figure ES-2. Inspection Stations in ARR and El Paso Program Areas, 2007 to 2014



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 79 percent of stations in HGB/DFW (both OBD-only and full service ASM/OBD) are shown to have sufficient throughput to generate emissions inspection revenues that meet or exceed variable and fixed costs. In ARR and El Paso, 63 and 71 percent of stations, respectively, 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 (63 to 85 percent) of stations than reflected in Table ES-5 (13 to 44 percent).

Table ES-6. Stations At or 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	78	71	23	70
Including equipment and building costs	79	74	24	71
Percent of Stations At or Above Break-Even Number				
Including equipment costs	63%	71%	80%	85%
Including equipment and building costs	63%	69%	79%	84%

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, and 75th percentiles for testing throughput out of all 4,686 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 HGB/DFW (both OBD-only stations and ASM/OBD stations) all generate enough revenue from emissions inspections to recoup costs associated with emissions inspections. In ARR and El Paso, this is true for representative medium and large stations, but not for a representative small station. Table ES-8 shows the break-even number of tests over time in each area, as well as the percentage of stations that break even for each year. The most noticeable fluctuations seem to be in the ARR region. These can be attributed to the fact that the variable costs of performing inspections increased from \$5.72 per inspection in 2009 (Pechan, 2009) to \$6.23 per inspection in 2012 (ERG, 2012). With this increase in cost, the number of inspections required to break even increased and the percent of stations meeting that number decreased. In 2014, the variable cost per inspection decreased to \$5.30, and with that decrease in cost the number of inspections needed to break even also decreased, raising the percent of stations breaking even to 63 percent.

Table ES-7. Monthly Inspection Revenues and Costs, Model Stations

	ARR	El Paso	HGB/DFW OBD-Only	HGB/DFW ASM/OBD
Small station total monthly revenue	\$598	\$518	\$685	\$1,982
Small station total monthly costs	\$754	\$697	\$520	\$1,525
Medium station total monthly revenue	\$1,277	\$1,495	\$1,166	\$3,662
Medium station total monthly costs	\$1,090	\$1,140	\$681	\$1,990
Large station total monthly revenue	\$2,645	\$2,588	\$1,739	\$5,720
Large station total monthly costs	\$1,769	\$1,635	\$872	\$2,559

Table ES-8. Number of Tests per Month Needed to Break Even, 2009 to 2014

	Number of Break-Even Tests (2009)	Percent of Stations Breaking Even (2009)	Number of Break-Even Tests (2012)	Percent of Stations Breaking Even (2012)	Number of Break-Even Tests (2014)	Percent of Stations Breaking Even (2014)
Austin	86	71%	98	59%	78	63%
El Paso	78	79%	67	78%	71	71%
HGB/DFW (OBD-only)	24	85%	22	79%	23	80%
HGB/DFW (ASM/OBD)	72	88%	71	86%	70	85%

The cost model analyses show over 80 percent of stations in the HGB/DFW regions with net revenue covering costs and an increasing number of stations entering the market, which seems to indicate that the fee is sufficient in these regions.

In the ARR region, a much smaller percentage of stations apparently break even in the cost model analyses (63 percent). It appears that this is in part because of a large increase in the number of Test-and-Repair vehicle emissions inspection stations and resulting average throughput decreasing at the stations since the 2009 study (Pechan, 2009). The average monthly throughput decreased from 221 in 2009 to 192 from January to December of 2011 to 184 from January to December of 2013, according to the 2009, 2012, and 2014 studies respectively. The number of Test-Only stations in the ARR region dropped by 1.2 percent since the 2012 study (one station). This could indicate that the fee may need to be raised in this region. If the market becomes increasingly unfavorable with a net flow of stations leaving the market and a relatively low percent of stations breaking even, it may be an even stronger candidate for an emissions inspection fee increase two years from now.

In the El Paso region, 71 percent of stations are shown to break even, a 7 percent decrease from the 2012 study. Additionally, the number of stations in El Paso was almost identical to the 2012 report with a loss of one Test-Only station and the addition of two Test-and-Repair stations. This could indicate that the fee may need to be raised

in this region. If the market becomes increasingly unfavorable in El Paso, it may also be an even stronger 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 at least biennially. Additionally, the TCEQ was authorized to implement Acceleration Simulation Mode (ASM) and On-Board Diagnostics (OBD) inspection technologies in the HGB and DFW program areas (Texas Health and Safety Code §382.202(f)(1)).

Within the HGB and DFW program areas, inspection stations choose to be a full service station, offering ASM and OBD inspections, or an OBD-only station 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. Inspection stations in ARR 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)

An I/M fee study is performed on a regular basis by the TCEQ. It was performed by ERG in 2005 (ERG, 2005), 2007 (ERG, 2007), and 2012 (ERG, 2012) and by E.H. Pechan & Associates, Inc., in 2009 (Pechan, 2009). For consistency, this year’s survey was very similar to those implemented in past years, and the structure of the cost models was also similar to that of models previously developed.

B. REPORT ORGANIZATION

Chapter II of this report provides a summary of the analytical 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.

Chapter III (ARR), Chapter IV (El Paso), and Chapter 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 Test-and-Repair (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.

Chapter 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 of representative small, medium, and large stations based on testing throughput, as well as “break-even” analyses to calculate 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 in these cost models, there is further discussion about how the business models for these station types differ.

Chapter VII summarizes the comments from the survey respondents.

Chapter VIII presents the conclusions and findings from this study.

The survey instruments are provided in Appendix A.

C. REPORT TERMINOLOGY

The analyses presented in Chapters III, IV, V, and VI of this report use the statistical terminology “median,” “average,” “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 average is the sum of the observations divided by the number of observations. In the cost models analyses, the median is typically preferred to the average because the average is often heavily influenced by a few extreme values or outliers.
- The 25th percentile (also known as the 1st quartile) is the value below which 25 percent of the observations fall.
- The 50th percentile (also known as the median or 2nd quartile) is the value below which 50 percent of the observations fall.
- The 75th percentile (also known as the 3rd quartile) is the value below which 75 percent of the observations fall.

CHAPTER II. ANALYSIS METHODS SUMMARY

In April of 2014, notice of a Web-based survey questionnaire was sent electronically to all 4,686 emissions inspection stations² in the four AirCheckTexas program areas, corresponding to emissions inspections fees of \$14.00 (El Paso), \$16.00 (ARR), and \$27.00 (HGB and DFW). In the previous four I/M fee studies performed for the TCEQ (ERG, 2005; ERG, 2007; Pechan, 2009; and ERG, 2012), there were six different paper survey versions to accommodate both the fee differences across regions and the questions specific to specific facility types, i.e., “Test-Only” and “Test-and-Repair.” Respondents performing emissions inspections and who reported providing either “no other services” or “non-repair services” were considered to be Test-Only stations. These stations do not have an additional revenue stream from repairing vehicles. Test-and-Repair (T&R) stations were defined as those that reported performing “repair services only” or “repair services and non-repair services” in addition to emissions inspections. The current survey’s online format allowed ERG to program conditional logic that merged the six survey versions and accommodated self-reporting of facility type. For stations that requested paper copies, ERG also developed three hard copy variations of the survey to accommodate the fee and testing type differences across geographic regions (see Appendix A). Only 10 surveys were completed in hard copy, while 698 were submitted electronically.

ERG reviewed the 2005, 2007, 2009, and 2012 survey instruments and developed a similar survey instrument for the TCEQ to review that would elicit data allowing comparisons with previous surveys. Changes included the addition of a question on the number of inspection bays used for emissions testing and another question on the length of use and cost of decommissioned emissions testing equipment. Other changes were minor and included slight wording clarifications to a few questions. The paper versions of the survey variants were also reformatted to highlight where responses were requested and improve question flow and readability.

The 2014 survey effort was an entirely electronic initiative. All communications regarding the survey were sent directly to the vehicle emissions inspection stations via the TCEQ as analyzer notification bulletins. These notification bulletins are transmitted to the analyzer (i.e., testing equipment) during regular electronic communications with the TCEQ Vehicle Identification Database (VID); they can be displayed onscreen and also printed and given to the station manager. The timing of their arrival at any specific inspection station depended on when the bulletin was transmitted by the TCEQ and whether the analyzer had a successful communication with the VID.

² These 4,686 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.

The TCEQ sent an initial notification bulletin to the inspection stations on April 8, 2014, (a week before the survey launch) to let station personnel know of the coming survey and explain its importance. Another TCEQ bulletin on April 15, 2014 invited the vehicle emissions inspection stations in the four program areas to visit the Web-based survey (www.TCEQsurvey.com). Additionally, over the duration of the survey period, the TCEQ sent out four reminder bulletins requesting stations complete the survey and to contact ERG's telephone or email hotline if they required a paper survey. Responses were accepted until May 18, 2014.

ERG provided a phone and email hotline to survey respondents to help field requests for paper surveys and answer other questions. ERG also accepted surveys by fax and email.

In previous years, surveys mailed to stations that were out of business or erroneous addresses would be returned by the post office as undeliverable, giving ERG a count of database deficiencies used in computing response rates (in 2012, unreachable or duplicate station listings composed approximately four percent of the survey sample). Due to the electronic nature of the communications for the current survey, ERG did not receive any information about stations that were out of business because there is no confirmation of receipt for messages sent to the stations via analyzer bulletin, so all stations are assumed to have received the notification bulletins from the TCEQ. Table II-1 shows the breakdown of the 4,686 vehicle emissions inspection stations (excluding fleet and government stations) identified in the TCEQ vehicle emissions inspection database by region and station type. ERG received 708 completed surveys during the survey period, of which 695 were in-scope (i.e., stations that offer motor vehicle emissions inspections). Table II-2 shows the breakdown of these 708 surveys by region and station type.³

Table II-1. Texas Emissions Inspection Stations in the TCEQ Database by Area/Station Type (April 2014)

Program Area	Test-Only	Test-and-Repair	Total
ARR	85	320	405
El Paso	69	139	208
HGB/DFW	1,415	2,658	4,073
Total	1,569	3,117	4,686

³ Station type for in-scope facilities was determined by responses to Question 7, which asked respondents to choose the best description of other services they offer. Stations reporting "No other services" or "Non-repair services" were classified as Test Only facilities; those reporting "Repair services only" and "Repair services and non-repair services" were classed as Test-and-Repair facilities. For out-of-scope respondents, station type was imputed from the TCEQ emissions inspection database.

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

Program Area	Test-Only	Test-and-Repair	Total Responses	Total In-scope* Responses
ARR	22	41	63	63
El Paso	12	38	50	50
HGB/DFW	138	457	595	582
Total	172	536	708	695

* In-scope responses include stations that offer motor vehicle emissions inspections.

The overall response rate was 15 percent, which is lower than the previous TCEQ I/M fee survey studies. However, the overall response rate is not directly comparable to that of previous years which accounted for inactive stations. Specifically, previous studies calculated the survey response rate by dividing the total number of surveys received by the total number of active stations in the VID minus any stations that no longer offer vehicle emissions inspection tests (i.e., those determined to be out-of-business, duplicate entries, or stations otherwise unreachable per undeliverable U.S. mail). During the previous survey, 4.2 percent of distributed surveys were undeliverable or duplicate listings. In comparison, due to the primarily electronic survey effort and subsequent lack of information regarding inactive stations, this year's response rate is calculated simply by dividing the total number of surveys received by the total number of active stations in the VID. This response rate assumes that all stations in the VID are currently operating and received the analyzer notification bulletins regarding the survey. Had information on inactive stations been available and included in the calculation, it is possible that the overall response rate would have been slightly higher. Table II-3 shows the response rate by region and station type. Although all surveys received either electronically or in paper format are included in the response rate calculation, only the 695 in-scope responses are included in the analysis and tabulations.

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

Program Area	Test-Only	Test-and-Repair	Total
ARR	26%	13%	16%
El Paso	17%	27%	24%
HGB/DFW	10%	17%	15%
Total	11%	17%	15%

* Response rates were calculated as: [Surveys Received]/[Total Active Stations].

Data in the following sections are displayed as submitted by the respondent unless a survey response was illogical (i.e., response violated appropriate skip logic or was considerably higher or lower than other observations).⁴ As a result, there are some

⁴ The raw survey data were systematically cleaned to remove outliers and illogical responses. At most, only one or two outliers were removed per question, which often did not have an impact on the median value, which was used in the cost model. For numerical responses, some zeros were converted to missing values where this interpretation could be assumed based on the response to a previous question. In addition, a small amount of missing information about the facility type was imputed from the TCEQ emissions inspection database.

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 Test-and-Repair (T&R) stations in the ARR region. The survey can be found in Appendix A of this report. Survey responses are not explained for questions that asked for basic information about the station or information that is not highly relevant to the analysis of the emissions inspection fee. The information in the tables in this section was obtained from stations that responded to the 2014 survey. Any survey fields that were left blank (either missing or not applicable) are reported as “missing.” Due to rounding, the percentages in some of the tables do not total exactly 100 percent. As noted in Chapter II, 22 Test-Only stations in ARR submitted the survey, compared to 41 T&R stations that responded, so caution should be taken in assessing these data due to the small sample size.

Table III-1 summarizes the typical hours of operation of stations in ARR, the number of hours these stations are open per day and the number of stations closed on each day of the week.

Table III-1. Hours of Operation – ARR

Day	Median Open Time	Median Close Time	Median Hours Open	Number Open	Number Closed
Test-Only					
Monday	8:00am	6:00pm	10	22	0
Tuesday	8:00am	6:00pm	10	21	1
Wednesday	8:00am	6:00pm	10	22	0
Thursday	8:00am	6:00pm	10	22	0
Friday	8:00am	6:00pm	10	22	0
Saturday	8:30am	4:00pm	8	19	3
Sunday	10:00am	3:00pm	5	5	17
Test-and-Repair					
Monday	8:00am	5:30pm	10	41	0
Tuesday	8:00am	5:30pm	10	41	0
Wednesday	8:00am	5:30pm	9.3	41	0
Thursday	8:00am	5:30pm	10	41	0
Friday	8:00am	5:30pm	10	41	0
Saturday	8:00am	4:00pm	8	28	13
Sunday	9:30am	4:45pm	7	6	35

Table III-2 summarizes responses to survey Question 13, about the items acquired in the station’s transition to offering emissions inspections. All Test-Only stations⁵ reported purchasing emissions inspection equipment, as did the majority of T&R stations. Very few stations of either type reported purchasing additional land.

⁵ Excluding respondents who left the question blank.

Table III-2. Items Added or Acquired to Initiate Emissions Testing — ARR

Item Acquired	Number of Responses			Total
	Yes	No	Missing	
Test-Only				
Emissions testing equipment	22	0	0	22
Tools and other equipment	18	3	1	22
Building space	12	8	2	22
Land	6	13	3	22
Test-and-Repair				
Emissions testing equipment	35	5	1	41
Tools and other equipment	25	13	3	41
Building space	5	29	7	41
Land	4	30	7	41

Question 13 also addressed test-related costs for purchasing or acquiring space and equipment. Table III-3 summarizes the survey findings, showing the median costs per station for emissions inspection equipment, tools, other equipment, and building space. The median values of \$18,000 and \$15,000 for emissions inspection equipment (for Test-Only and T&R stations, respectively) coincide rather well with the price of a single new certified TSI/OBD analyzer, which typically ranges from \$15,495 to \$15,995 (TCEQ, 2013). In contrast, the average values for tools and other equipment, building space, and land are much higher for Test-Only than T&R stations. This was 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., \$150,000 for building space) and low values that influence average values throughout this table, the median is probably a more useful and representative statistic for interpreting these data.

Table III-3. Costs of Added or Acquired Items — ARR

Item Acquired	Average	Median	Minimum	Maximum	Responses
Test-Only					
Emissions testing equipment	\$20,327	\$18,000	\$200	\$40,000	22
Tools and other equipment	\$2,181	\$750	\$100	\$20,000	18
Building space	\$31,729	\$6,000	\$0	\$150,000	12
Land	\$34,797	\$23,850	\$0	\$100,000	5
Test-and-Repair					
Emissions testing equipment	\$14,245	\$15,000	\$0	\$35,000	32
Tools and other equipment	\$2,127	\$900	\$0	\$10,000	22
Building space	\$500	\$0	\$0	\$2,000	4
Land	\$666.67	\$0	\$0	\$2,000	3

Tables III-4 and III-5 summarize the results from Question 4, regarding the number of emissions inspection bays at each station and the uses for those bays. Table III-4 presents how many bays in the station are used exclusively for emissions testing, while

Table III-5 counts the bays used for emissions testing in addition to other uses. The majority of stations in ARR, both Test-Only and T&R, have one bay used exclusively for emissions testing. Most Test-Only stations do not have any bays that are used for testing in addition to other uses, while the majority of T&R stations have one which is used for multiple purposes.

Table III-4. Number of Bays Used Exclusively for Testing – ARR

Number of Bays	Number of Respondents	Percent
Test-Only		
0	3	13.6%
1	13	59.1%
2	6	27.3%
Total	22	100.0%
Test-and-Repair		
0	6	14.6%
1	27	65.9%
2	2	4.9%
Missing	6	14.6%
Total	41	100.0%

Table III-5. Number of Bays Used for Testing and Other Uses – ARR

Number of Bays	Number of Respondents	Percent
Test-Only		
0	13	59.1%
1	5	22.7%
Missing	4	18.2%
Total	22	100.0%
Test-and-Repair		
0	6	14.6%
1	15	36.6%
2	5	12.2%
Missing	15	36.6%
Total	41	100.0%

Question 5 asked about the average hourly wages (unloaded) paid to emissions inspectors. Table III-6 summarizes the responses. Median wages are slightly higher at T&R stations (\$11.00) than Test-Only stations (\$10.25). The values of average wage (\$16.13 for Test-Only stations and \$12.41 for T&R stations) fall just around the \$12.44 average 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, 2014).

Table III-6. Current Wages Paid to Emissions Inspectors (\$/hr) — ARR

Station Type	Average	Median	Minimum	Maximum	Responses
Test-Only	\$16.13	\$10.25	\$8	\$112	20
Test-and-Repair	\$12.41	\$11	\$8	\$24.33	39

Tables III-7 to III-9 summarize the results of Question 6, which asked respondents how many full- and part-time inspectors were employed at their respective stations. A “full-time inspector” is a full-time employee qualified to perform inspections. He may spend all, some, or just a little of his work time doing inspections. A “part-time inspector” is a part-time employee qualified to do inspections, who likewise may spend only some of his working time doing inspections. The majority of respondents reported employing one, two, or three employee/inspectors at their station. One Test-Only station reported employing 23 inspectors, while the maximum number a T&R station reported employing was 14 inspectors.

Table III-7. Number of Emissions Inspectors Currently Working at the Station — ARR

Number of Inspectors	Number of Respondents	Percent
Test-Only		
1	6	27.3%
2	8	36.4%
3	2	9.1%
4	5	22.7%
23	1	4.5%
Total	22	100.0%
Test-and-Repair		
1	9	22%
2	11	26.8%
3	1	2.4%
4	4	9.8%
5	7	17.1%
6	4	9.8%
10	2	4.9%
11	2	4.9%
14	1	2.4%
Total	41	100.0%

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, only 19.5 percent of which reported having any part-time employees, and those that did had six or fewer. No Test-Only stations reported employing more than two part-time inspectors.

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

Number of FT Inspectors	Number of Respondents	Percent
Test-Only		
0	2	9.1%
1	10	45.5%
2	5	22.7%
3	1	4.5%
4	3	13.6%
23	1	4.5%
Total	22	100.0%
Test-and-Repair		
0	1	2.4%
1	11	26.8%
2	12	29.3%
3	2	4.9%
4	4	9.8%
5	3	7.3%
6	3	7.3%
10	2	4.9%
11	2	4.9%
14	1	2.4%
Total	41	100.0%

*Full-time employees who perform inspections as all or part of their duties.

Table III-9. Number of Part-Time Emissions Inspectors* — ARR

Number of PT Inspectors	Number of Respondents	Percent
Test-Only		
0	13	59.1%
1	5	22.7%
2	4	18.2%
Total	22	100.0%
Test-and-Repair		
0	33	80.5%
1	3	7.3%
2	2	4.9%
3	2	4.9%
6	1	2.4%
Total	41	100.0%

*Part-time employees who perform inspections as all or part of their duties.

Questions 8 through 12 were applicable only to Test-and-Repair stations. Consequently, the results in Tables III-10 to 14 represent only T&R stations.

To understand the extent to which T&R stations focus on services other than emissions inspections, Questions 8 and 9 inquired about how much time inspectors spend performing emissions inspections. Tables III-10 and III-11 show the responses for full-time inspectors and part-time inspectors, respectively.

Tables III-10 and III-11 show the total number of ARR inspectors by percent of their work time spent performing inspections. Table III-10 shows that 32 percent of full-time emissions inspectors spend the majority of their time performing inspections, and 15 percent of full-time inspectors only spend about 5 percent of their time performing inspections. Table III-11 shows that 17 percent of part-time emissions inspectors spend the majority of their time performing inspections, and 39 percent of part-time inspectors spend only about 5 or 10 percent of their time performing inspections. This shows that the majority of inspectors are not focused primarily on inspections.

Table III-10. Number of Full-time Inspectors* by Percent of Time Spent on Inspections — ARR

Percent of Time Performing Inspections	Median	Minimum	Maximum	Number of Stations	Percent of Stations
50% or more	1	0	3	32	32%
About 25%	1	0	6	22	22%
About 15%	0	0	10	15	15%
About 10%	0.5	0	14	16	16%
About 5%	2	0	10	15	15%
Total				100	100.0%

*Full-time employees who perform inspections as all or part of their duties.

Table III-11. Number of Part-time Inspectors* by Percent of Time Spent on Inspections — ARR

Percent of Time Performing Inspections	Median	Minimum	Maximum	Number of Stations	Percent of Stations
50% or more	0	0	1	9	16.7%
About 25%	0	0	3	13	24.1%
About 15%	0	0	2	11	20.4%
About 10%	0	0	1	10	18.5%
About 5%	0	0	6	11	20.4%
Total				54	100.0%

*Part-time employees who perform inspections as all or part of their duties.

Questions 10 through 12 addressed the revenue stream for T&R stations generated from repairs to vehicles that failed emissions inspections. As Table III-12 shows, over 90 percent of stations reported that less than 10 percent of their income came from repairs following failed emissions inspections. None of the stations 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 7.5 and the median value is three, 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 \$219 with a median value of \$200, 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. Percentage of Repair Revenues Resulting from Failed Emissions Inspections — ARR

Percentage	Number of Respondents	Percent
0% — perform inspections only	1	2.4%
Less than 10%	36	87.8%
About 25%	4	9.8%
Total	41	100.0%

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

Average	Median	Minimum	Maximum	Responses
7.5	3	0	40	39

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

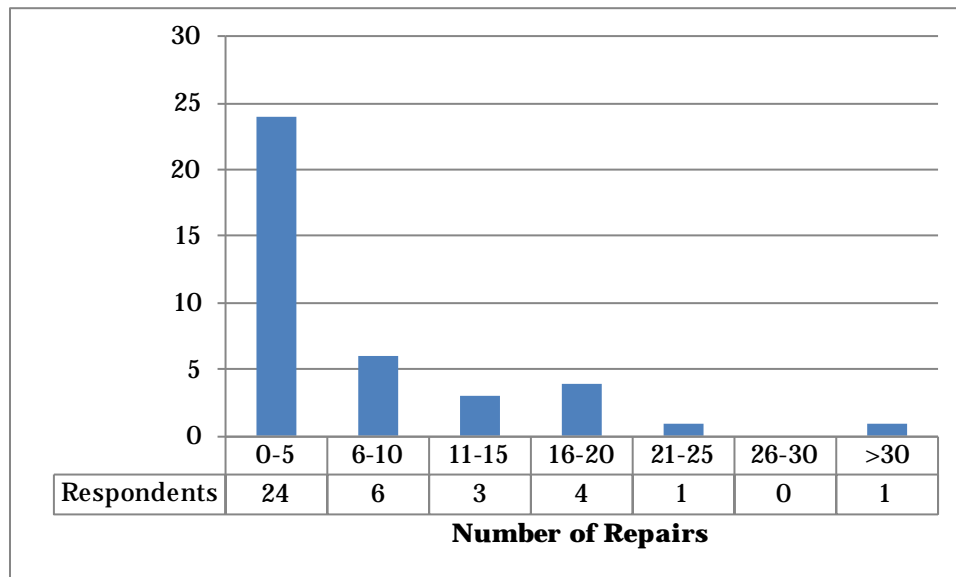
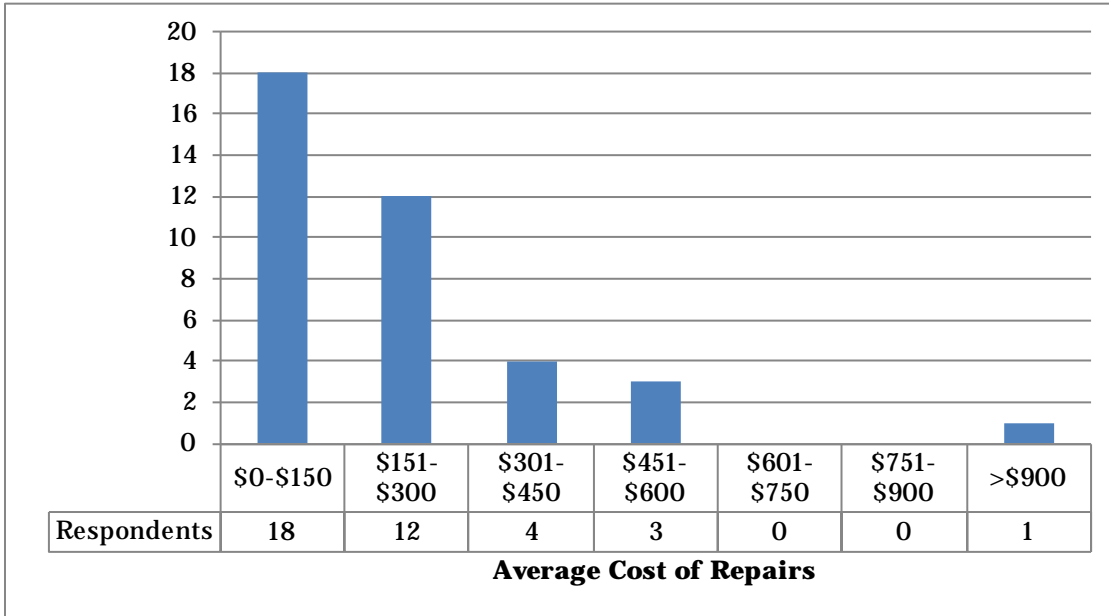


Table III-14. Typical Repair Cost for an Emissions Test Failure — ARR

Average	Median	Minimum	Maximum	Responses
\$219	\$200	\$0	\$1,100	38

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



Question 14 asked stations how they financed their purchase of emissions inspection equipment. Of the Test-Only stations that responded, 40.9 percent reported paying cash, 45.5 percent financed with lease-to-purchase agreements, and 13.6 percent took out bank loans. In contrast, 43.9 percent of T&R stations reported paying cash, 19.5 percent financed with lease-to-purchase agreements, and 34.1 percent took out loans from the bank.

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

Station and Finance Type	Number of Respondents	Percent
Test-Only		
Paid cash	9	40.9%
Lease-to-purchase agreement arranged with vendor	10	45.5%
Bank loan	3	13.6%
Total	22	100.0%
Test-and-Repair		
Paid cash	18	43.9%
Lease-to-purchase agreement arranged with vendor	8	19.5%
Bank loan	14	34.1%
Missing	1	2.4%
Total	41	100.0%

Question 15 further inquired about the financing details for those stations that did not pay with cash. Table III-16 shows that the average lease-to-purchase or bank loan term is 5.6 years with a median value of 5 years for Test-Only stations. The median value for

T&R stations was identical, at 5 years, but the T&R average was higher at 8.9 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

Station Type	Average	Median	Minimum	Maximum	Responses
Test-Only	5.6	5	2	20	12
Test-and-Repair	8.9	5	1	25	13

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

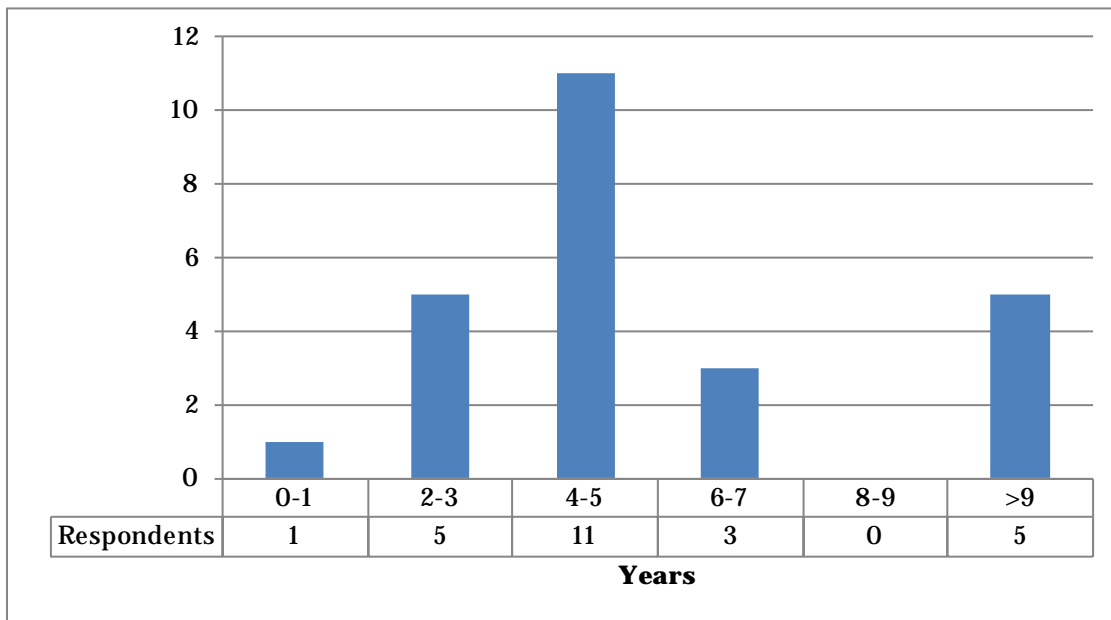
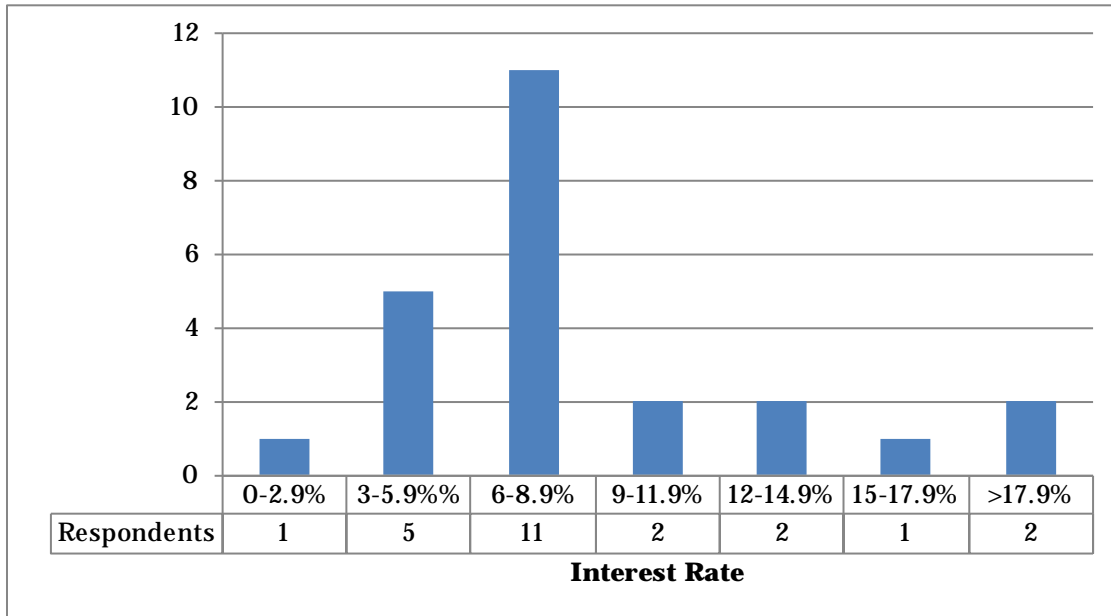


Table III-17 shows the lease-to-purchase or bank loan interest rates, asked about in Question 16. Test-Only and T&R stations reported similar median values of 6.5 percent and 7.3 percent, respectively. The reported interest rates ranged from 0 to 30 percent for T&R stations and 4 to 13.9 percent in Test-Only stations. The median shows that T&R stations reported a slightly higher median interest rate than Test-Only stations (7.3 percent and 6.5 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 Rates for Lease-to-Purchase or Bank Loan — ARR

Station Type	Average	Median	Minimum	Maximum	Responses
Test-Only	7.1%	6.5%	4%	13.9%	10
Test-and-Repair	9.8%	7.3%	0%	30%	14

Figure III-4. Distribution of Interest Rates for Lease-to-Purchase or Bank Loan — ARR



The survey also addressed the annual maintenance costs for all stations. Table III-18 summarizes the responses to Question 18, which show that Test-Only and T&R stations pay approximately the same median cost annually for a maintenance package for their emissions inspection equipment, \$1,818 and \$1824, respectively. Of the 41 T&R survey respondents, 23 (56 percent) confirmed they have a maintenance plan, and of the 22 Test-Only respondents, 18 (82 percent) confirmed they have a maintenance plan (Question 17 of the survey).

Table III-18. Annual Maintenance Package Costs — ARR

Station Type	Average	Median	Minimum	Maximum	Responses
Test-Only	\$2,590.44	\$1,818	\$200	\$6,144	18
Test-and-Repair	\$2,070.22	\$1,824	\$780	\$5,520	23

Additionally, stations that reported purchasing a maintenance agreement also reported any extra maintenance costs not covered by their maintenance agreement. The median reported value of these additional annual costs was \$500 for T&R stations and \$788.50 for Test-Only stations.

Table III-19. Extra Maintenance Costs for Stations with Maintenance Plans — ARR

Station Type	Average	Median	Minimum	Maximum	Responses
Test-Only	\$1,394.99	\$788.50	\$0	\$7,500	18
Test-and-Repair	\$1,144.90	\$500	\$100	\$6,500	23

Survey questions 21 and 22 asked stations whether they offer reduced-fee and/or free emissions inspections (other than performing free retests of vehicles that failed initial inspection at their station). The tables show that 45.5 percent of Test-Only stations reported providing free emissions inspections at some point and 4.5 percent reported having offered emissions inspections at reduced fees (under \$16). Similarly, 34.1 percent of T&R stations reported having provided free tests (other than free retests after an initial failure), and 2.4 percent reported 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. Free Emissions Tests (Except Free Retests) — ARR

Free Tests Ever Given?	Number of Respondents	Percent
Test-Only		
Yes	10	45.5%
No	12	54.5%
Total	22	100.0%
Test-and-Repair		
Yes	14	34.1%
No	27	65.9%
Total	41	100.0%

Table III-21. Reduced Fee Emissions Tests (Less Than \$16.00) — ARR

Charged Less Than \$16.00?	Number of Respondents	Percent
Test-Only		
Yes	1	4.5%
No	21	95.5%
Total	22	100.0%
Test-and-Repair		
Yes	1	2.4%
No	40	97.6%
Total	41	100.0%

As shown in Table III-22, stations that reported ever charging a reduced fee for an emissions inspection reported a median value of \$3.50 as the lowest fee they would charge.

Table III-22. Typical Reduced Fees Charged (Less Than \$16.00)— ARR

Average	Median	Minimum	Maximum	Responses
\$3.50	\$3.50	\$0	\$7	2

The survey also inquired about failed vehicles and retests. Question 23 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

Failed Vehicle Did Not Return?	Number of Respondents	Percent
Test-Only		
Yes	16	72.7%
No	6	27.3%
Total	22	100.0%
Test-and-Repair		
Yes	23	56.1%
No	17	41.5%
Missing	1	2.4%
Total	41	100.0%

Additionally, Question 23 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 three 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

Station Type	Average	Median	Minimum	Maximum	Responses
Test-Only	8	3	1	50	16
Test-and-Repair	4	3	1	20	22

Question 20 asked respondents about emissions testing equipment that they had decommissioned after owning it for its entire useful life. Table III-25 summarizes the results regarding whether stations had ever decommissioned such equipment. For both Test-Only and T&R stations, the majority of respondents had not decommissioned emissions testing equipment that they had owned for its entire useful life.

Table III-25. Stations that Decommissioned Emissions Testing Equipment – ARR

Ever Decommissioned Equipment?	Number of Respondents	Percent
Test-Only		
Yes	2	9.1%
No	19	86.4%
Missing	1	4.5%
Total	22	100.0%
Test-and-Repair		
Yes	3	7.3%
No	38	92.7%
Total	41	100.0%

Question 20 also inquired about the number of years the decommissioned equipment was owned and the cost to the station of decommissioning the equipment. The responses to these questions are summarized in Tables III-26 and III-27, respectively. It should be noted that, due to the small number of responses to these questions, these results may not be highly representative of the industry as a whole.

Table III-26. Years Decommissioned Equipment Was Owned – ARR

Station Type	Average	Median	Minimum	Maximum	Responses
Test-Only	3	3	1	5	2
Test-and-Repair	5	4	4	7	3

Table III-27. Cost to Decommission Equipment – ARR

Station Type	Average	Median	Minimum	Maximum	Responses
Test-Only	\$15,000	\$15,000	\$15,000	\$15,000	1
Test-and-Repair	\$250	\$250	\$0	\$500	2

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;” 86.4 percent of responding Test-Only stations and 87.8 percent of responding T&R stations believed that the fee does not cover costs.

Table III-28. Does Fee Cover Emissions Testing Costs? – ARR

Fee Covers Testing Costs?	Number of Respondents	Percent
Test-Only		
Yes	3	13.6%
No	19	86.4%
Total	22	100.0%
Test-and-Repair		
Yes	5	12.2%
No	36	87.8%
Total	41	100.0%

CHAPTER IV. EL PASO SURVEY RESULTS

This section of the report describes the survey responses for Test-Only and Test-and-Repair (T&R) stations in the El Paso region. The survey can be found in Appendix A of this report. Survey responses are not explained for questions that asked for basic information about the station or information that is not highly relevant to the analysis of the emissions inspection fee. The information in the tables in this section was obtained from stations that responded to the 2014 survey. Any survey fields that were left blank (either missing or not applicable) are reported as “missing.” Due to rounding, the percentages in some of the tables do not total exactly 100 percent. As noted in Chapter II, 12 Test-Only stations in El Paso submitted the survey, compared to 38 T&R stations that responded, so caution should be taken in assessing these data due to the small sample size.

Table IV-1 summarizes the typical hours of operation of stations in El Paso, the number of hours these stations are open per day and the number of stations closed on each day of the week.

Table IV-1. Hours of Operation – El Paso

Day	Median Open Time	Median Close Time	Median Hours Open	Number Open	Number Closed
Test-Only					
Monday	8:30am	6:00pm	9.3	12	0
Tuesday	8:30am	6:00pm	9.3	12	0
Wednesday	8:30am	6:00pm	9.3	12	0
Thursday	8:30am	6:00pm	9.3	12	0
Friday	8:30am	6:00pm	9.3	12	0
Saturday	8:30am	4:30pm	8.2	12	0
Sunday	.	.	.	0	12
Test-and-Repair					
Monday	8:00am	6:00pm	9.3	37	1
Tuesday	8:00am	6:00pm	9.5	38	0
Wednesday	8:00am	6:00pm	9.5	38	0
Thursday	8:00am	6:00pm	9.5	38	0
Friday	8:00am	6:00pm	9.5	38	0
Saturday	8:00am	4:00pm	7.5	36	2
Sunday	9:00am	5:00pm	7	3	35

Table IV-2 summarizes the answers to Question 13, regarding items acquired in the station’s transition to offering emissions inspections. The majority of stations that provided a response to the question reported purchasing emissions inspection equipment. Fewer among both station types reported purchasing additional land.

Table IV-2. Items Added or Acquired to Initiate Emissions Testing — El Paso

Item Acquired	Number of Responses			
	Yes	No	Missing	Total
Test-Only				
Emissions testing equipment	10	2	0	12
Tools and other equipment	10	2	0	12
Building space	5	5	2	12
Land	5	5	2	12
Test-and-Repair				
Emissions testing equipment	34	3	1	38
Tools and other equipment	28	6	4	38
Building space	16	14	8	38
Land	7	22	9	38

Question 13 also addressed emissions-related costs of purchasing or acquiring space and equipment. Table IV-3 summarizes the survey findings, showing an identical median purchase price of emissions inspection equipment between Test-Only 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, 2013). Due to some very high reported costs for the purchase of building space, the average purchase price of building space for T&R stations (\$41,800) is much greater than the median purchase price (\$5,000); thus, the median value is probably more representative of a typical station’s expenditures for building space when preparing to start inspection operations.

Table IV-3. Costs of Added or Acquired Items — El Paso

Item Acquired	Average	Median	Minimum	Maximum	Responses
Test-Only					
Emissions testing equipment	\$15,056	\$15,000	\$5,500	\$22,000	9
Tools and other equipment	\$1,344	\$1,000	\$0	\$4,000	9
Building space	\$64,500	\$52,500	\$3,000	\$150,000	4
Land	\$82,500	\$40,000	\$0	\$250,000	4
Test-and-Repair					
Emissions testing equipment	\$17,200	\$15,000	\$10	\$180,000	34
Tools and other equipment	\$8,745	\$1,500	\$10	\$120,000	26
Building space	\$41,753	\$5,000	\$0	\$270,000	15
Land	\$50,918	\$255	\$0	\$270,000	6

Tables IV-4 and IV-5 summarize the results from Question 4, which asked about the number of emissions inspection bays at each station and the uses for those bays. Table IV-4 looks at how many bays in the station are used exclusively for emissions testing, while Table IV-5 counts the bays used for emissions testing and other work. The majority of stations in El Paso, both Test-Only and T&R, have one bay used exclusively for emissions testing, and either one or two bays that are used for emissions testing and other work.

Table IV-4. Number of Bays Used Exclusively for Testing – El Paso

Number of Bays	Number of Respondents	Percent
Test-Only		
0	2	16.7%
1	8	66.7%
Missing	2	16.7%
Total	12	100.0%
Test-and-Repair		
0	2	5.3%
1	30	78.9%
2	2	5.3%
Missing	4	10.5%
Total	38	100.0%

Table IV-5. Number of Bays Used for Testing and Other Uses – El Paso

Number of Bays	Number of Respondents	Percent
Test-Only		
0	1	8.3%
1	2	16.7%
2	3	25.0%
Missing	6	50.0%
Total	12	100.0%
Test-and-Repair		
0	4	10.5%
1	13	34.2%
2	5	13.2%
6	1	2.6%
8	1	2.6%
Missing	14	36.8%
Total	38	100.0%

Question 5 asked about the average hourly wages (unloaded) paid to emissions inspectors. Table IV-6 summarizes the responses. The median hourly wage of an inspector at Test-Only stations (\$9.00) is just slightly less than that reported for T&R stations (\$10.00). These values slightly exceed the \$8.94 average hourly wage for level 1 auto service technicians and mechanics reported for the El Paso area by the Foreign Labor Center Data Center (FLC, 2014). The wage gap from the average 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.

Table IV-6. Current Wages Paid to Emissions Inspectors (\$/hr) — El Paso

Station Type	Average	Median	Minimum	Maximum	Responses
Test-Only	\$9.05	\$9	\$7.25	\$12	11
Test-and-Repair	\$10.45	\$10	\$7.25	\$22.85	37

Tables IV-7 to IV-9 are based on Question 6, which asked respondents how many full- or part-time inspectors are employed at their stations. A “full-time inspector” is a full-time employee qualified to perform inspections. He may spend all, some, or just a little of his work time doing inspections. A “part-time inspector” is a part-time employee qualified to do inspections, who likewise may spend only some of his working time doing inspections. The majority of respondents reported employing one, two, or three inspectors at their stations. The maximum number of inspectors a Test-Only station reported employing was four, while the maximum number of inspectors a T&R station reported employing was 15.

Table IV-7. Number of Emissions Inspectors Currently Working at the Station — El Paso

Number of Inspectors	Number of Respondents	Percent
Test-Only		
1	2	16.7%
2	7	58.3%
3	2	16.7%
4	1	8.3%
Total	12	100.0%
Test-and-Repair		
0	1	2.6%
1	8	21.1%
2	19	50.0%
3	5	13.2%
4	4	10.5%
15	1	2.6%
Total	38	100.0%

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-8. Number of Full-Time Emissions Inspectors* — El Paso

Number of FT Inspectors	Number of Respondents	Percent
Test-Only		
1	6	50.0%
2	5	41.7%
3	1	8.3%
Total	12	100.0%
Test-and-Repair		
0	2	5.3%
1	11	28.9%
2	18	47.4%
3	4	10.5%
4	2	5.3%
15	1	2.6%
Total	38	100.0%

*Full-time employees who perform inspections as all or part of their duties.

Table IV-9. Number of Part-time Emissions Inspectors* — El Paso

Number of PT Inspectors	Number of Respondents	Percent
Test-Only		
0	7	58.3%
1	4	33.3%
3	1	8.3%
Total	12	100.0%
Test-and-Repair		
0	32	84.2%
1	2	5.3%
2	4	10.5%
Total	38	100.0%

*Part-time employees who perform inspections as all or part of their duties.

Questions 8 through 12 were applicable only to Test-and-Repair stations. Consequently, the results in Tables IV-10 to 14 represent only T&R stations.

To understand the extent to which T&R stations perform services other than emissions inspections, Questions 8 and 9 inquired about how much time inspectors spend performing emissions inspections. Tables IV-10 and IV-11 present the responses of full-time inspectors and part-time inspectors, respectively.

Tables IV-10 and IV-11 show the total number of inspectors by percent of their work time spent performing inspections. Table IV-10 shows that 25 percent of full-time emissions inspectors spend the majority of their time performing inspections, and 29.8 percent of full-time inspectors only spend about 5 or 10 percent of their time performing inspections. Table IV-11 shows that 26 percent of part-time emissions inspectors spend the majority of their time performing inspections, and 34.5 percent of part-time

inspectors only spend about 5 or 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-10. Number of Full-time Inspectors* by Percent of Time Spent on Inspections — El Paso

Percent of Time Performing Inspections	Median	Minimum	Maximum	Number of Stations	Percent of Stations
50% or more	1	0	2	21	25.0%
About 25%	1	0	7	20	23.8%
About 15%	1	0	5	18	21.4%
About 10%	1	0	2	13	15.5%
About 5%	0.5	0	5	12	14.3%
Total				84	100.0%

*Full-time employees who perform inspections as all or part of their duties.

Table IV-11. Number of Part-time Inspectors* by Percent of Time Spent on Inspections — El Paso

Percent of Time Performing Inspections	Median	Minimum	Maximum	Number of Stations	Percent of Stations
50% or more	0	0	2	10	26.3%
About 25%	0	0	2	9	23.7%
About 15%	0	0	2	6	15.8%
About 10%	0	0	2	6	15.8%
About 5%	0	0	2	7	18.4%
Total				38	100.0%

*Part-time employees who perform inspections as all or part of their duties.

Questions 10 through 12 addressed the revenue stream of T&R stations generated by repairs they made after failed emissions inspections. As Table IV-12 shows, over half of the stations reported that less than 10 percent of their income came from failed emissions repairs; 2.6 percent of the stations reported that about 75 percent of their revenue was generated from repairs following failed emissions inspections; and no stations reported that more than 75 percent of their revenue resulted from such repairs. Table IV-13 shows that the average number of repair jobs per month is 11.6, while the median is 5 repair jobs per month. The average is influenced by few high values reported, so the median is a more realistic portrayal of a representative station. 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 \$129, with a median value of \$125, 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. Percentage of Repair Revenues Resulting from Failed Emissions Inspections — El Paso

Percentage	Number of Respondents	Percent
0% — perform inspections only	1	2.6%
Less than 10%	22	57.9%
About 25%	11	28.9%
About 50%	3	7.9%
About 75%	1	2.6%
Total	38	100.0%

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

Average	Median	Minimum	Maximum	Responses
11.6	5	0	100	38

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

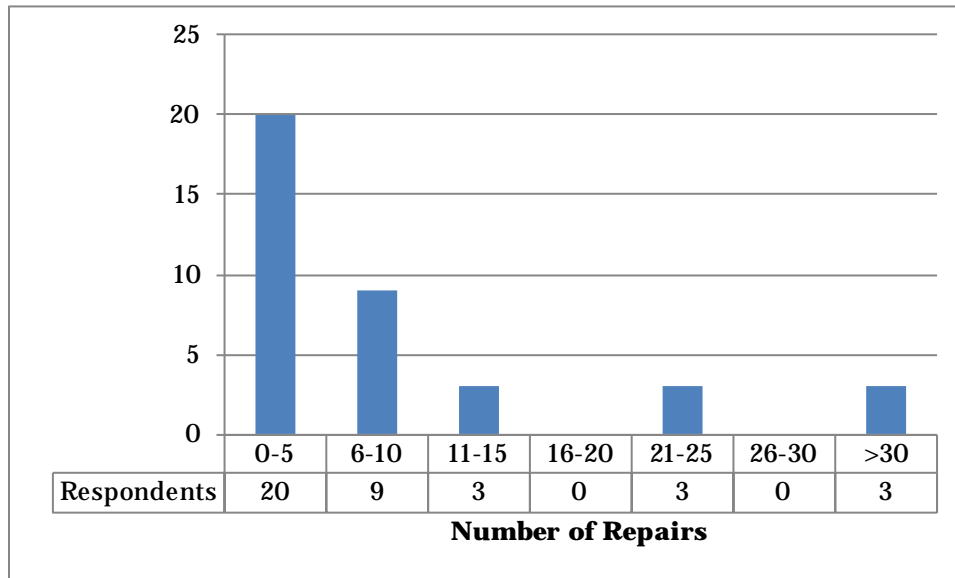
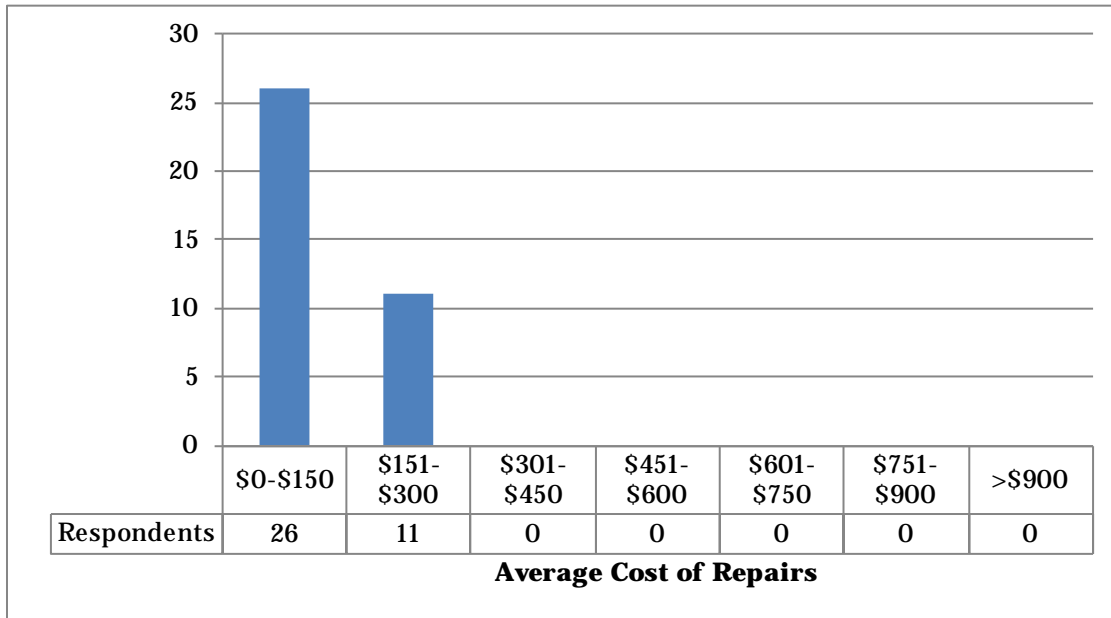


Table IV-14. Typical Repair Costs for an Emissions Test Failure — El Paso

Average	Median	Minimum	Maximum	Responses
\$129	\$125	\$0	\$300	37

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



Question 14 asked stations how they financed their purchase of emissions inspection equipment. Of the Test-Only stations that responded, 16.7 percent reported paying cash, 33.3 percent financed with lease-to-purchase agreements, and 41.7 percent took out a loan from the bank. In the case of T&R station respondents, 34.2 percent paid with cash, another 34.2 percent financed with lease-to-purchase agreements, and 31.6 percent took out a loan from the bank.

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

Station and Finance Type	Number of Respondents	Percent
Test-Only		
Paid cash	2	16.7%
Lease-to-purchase agreement arranged with vendor	4	33.3%
Loan from bank	5	41.7%
Missing	1	8.3%
Total	12	100.0%
Test-and-Repair		
Paid cash	13	34.2%
Lease-to-purchase agreement arranged with vendor	13	34.2%
Loan from bank	12	31.6%
Total	38	100.0%

Questions 15 and 16 further inquired about the financing details 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 8.3 years for Test-Only stations and 5.3 years for T&R stations, both with a median of 5 years. 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

Station Type	Average	Median	Minimum	Maximum	Responses
Test-Only	8.3	5	4	30	7
Test-and-Repair	5.3	5	1	20	24

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

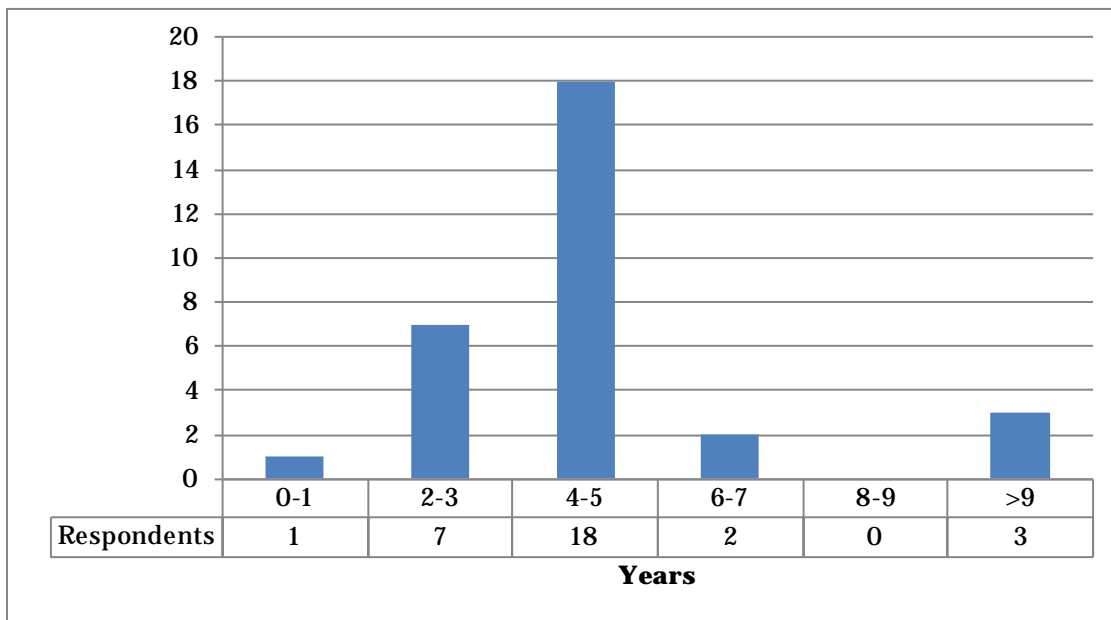
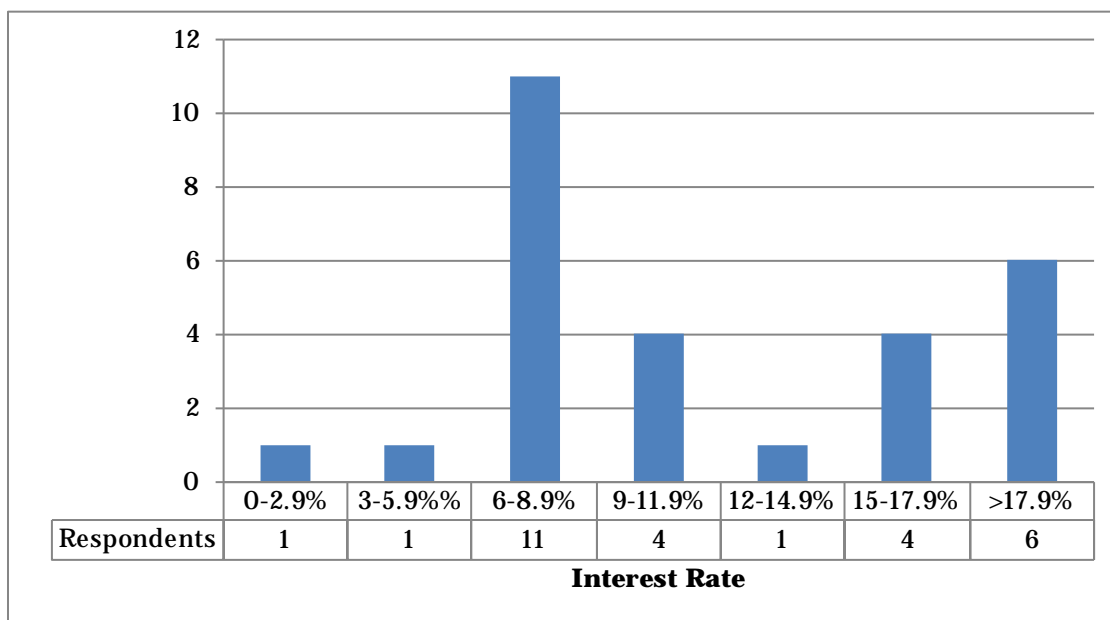


Table IV-17 shows that the lease-to-purchase or bank loan interest rates reported by respondents at Test-Only stations were on average half those which were reported by respondents at T&R stations. Test-Only stations reported a 6.4 percent and 7.8 percent average and median, respectively, while the average and median reported values for T&R stations were 13 percent and 11 percent, respectively. Figure IV-4 shows the distribution of these loan terms for Test-Only and T&R stations combined.

Table IV-17. Interest Rates for Lease-to-Purchase or Bank Loan — El Paso

Station Type	Average	Median	Minimum	Maximum	Responses
Test-Only	6.4%	7.8%	0%	10%	6
Test-and-Repair	13%	11%	7%	22%	22

**Figure IV-4. Distribution of the Interest Rates 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 18, which shows a median cost of \$2,000 annually for a maintenance package for both Test-Only and T&R stations. Of the 38 T&R survey respondents, 14 (37 percent) confirmed they have a maintenance plan, and of the 12 Test-Only respondents, five (42 percent) confirmed they have a maintenance plan.

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

Station Type	Average	Median	Minimum	Maximum	Responses
Test-Only	\$1,605	\$2,000	\$25	\$2,600	5
Test-and-Repair	\$1,864.21	\$2,000	\$300	\$3,000	14

Additionally, the survey asked stations with maintenance agreements about extra maintenance costs they incurred that were not covered by their agreement. The median reported value of these costs was \$350 annually for T&R stations and \$500 annually for Test-Only stations.

**Table IV-19. Extra Maintenance Costs for Stations with Maintenance Plans
— El Paso**

Station Type	Average	Median	Minimum	Maximum	Responses
Test-Only	\$500	\$500	\$0	\$1,200	5
Test-and-Repair	\$611	\$350	\$0	\$2,000	13

Survey Questions 21 and 22 asked stations if 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 no Test-Only stations reported ever providing free or reduced fee (under \$14) emissions inspections other than free retests after an initial failure at their station. 10.5 percent of T&R stations reported providing free emissions inspections, other than free retests, after an initial failure at their station. 2.6 percent reported having provided tests at reduced fees. Stations reported that not charging for failed emissions inspections was the primary reason for providing free emissions inspections.

Table IV-20. Free Emissions Tests (Except Free Retests) — El Paso

Free Tests Ever Given?	Number of Respondents	Percent
Test-Only		
Yes	0	0.0%
No	12	100.0%
Total	12	100.0%
Test-and-Repair		
Yes	4	10.5%
No	34	89.5%
Total	38	100.0%

Table IV-21. Reduced Fee Emissions Tests (Less Than \$14.00) — El Paso

Charged Less Than \$14.00?	Number of Respondents	Percent
Test-Only		
Yes	0	0.0%
No	12	100.0%
Total	12	100.0%
Test-and-Repair		
Yes	1	2.6%
No	37	97.4%
Total	38	100.0%

As shown in Table IV-22, stations that reported charging a reduced fee for an emissions inspection, reported a median value of \$7 as the lowest fee they would ever charge.

Table IV-22. Typical Reduced Fees Charged (Less Than \$14.00) — El Paso

Average	Median	Minimum	Maximum	Responses
\$7	\$7	\$7	\$7	1

The survey also inquired about failed vehicles and retests. Question 23 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 having failed within the previous two months.

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

Failed Vehicle Did Not Return?	Number of Respondents	Percent
Test-Only		
Yes	7	58.3%
No	5	41.7%
Total	12	100.0%
Test-and-Repair		
Yes	29	76.3%
No	9	23.7%
Total	38	100.0%

Additionally, Question 23 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 two and four 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

Station Type	Average	Median	Minimum	Maximum	Responses
Test-Only	3	2	2	5	7
Test-and-Repair	5	4	1	20	28

Question 20 asked respondents about emissions testing equipment that they had decommissioned after owning it for its entire useful life. Table IV-25 summarizes the results. For both Test-Only and T&R stations, the majority of respondents had not decommissioned emissions testing equipment that they had owned for its entire useful life.

Table IV-25. Stations that Decommissioned Emissions Testing Equipment — El Paso

Ever Decommissioned Equipment?	Number of Respondents	Percent
Test-Only		
Yes	1	8.3%
No	10	83.3%
Missing	1	8.3%
Total	12	100.0%
Test-and-Repair		
Yes	9	23.7%
No	29	76.3%
Total	38	100.0%

Question 20 also inquired about the number of years the decommissioned equipment was owned and the cost to the station of decommissioning the equipment. The responses to these questions are summarized in Tables IV-26 and IV-27, respectively. The results showed that T&R stations tended to own equipment longer than Test-Only

stations before decommissioning it, and also had a higher cost to decommission the equipment than Test-Only stations.

Table IV-26. Years Decommissioned Equipment Was Owned – El Paso

Station Type	Average	Median	Minimum	Maximum	Responses
Test-Only	6	6	6	6	1
Test-and-Repair	8.7	8	4	14	9

Table IV-27. Cost to Decommission Equipment – El Paso

Station Type	Average	Median	Minimum	Maximum	Responses
Test-Only	\$1,500	\$1,500	\$1,500	\$1,500	1
Test-and-Repair	\$9,747.50	\$14,000	\$0	\$17,000	8

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;” 75 percent of Test-Only stations and 76.3 percent of T&R stations felt that the fee does not cover costs.

Table IV-28. Does Fee Cover Emissions Testing Costs? – El Paso

Fee Covers Testing Costs?	Number of Respondents	Percent
Test-Only		
Yes	3	25.0%
No	9	75.0%
Total	12	100.0%
Test-and-Repair		
Yes	8	21.1%
No	29	76.3%
<i>Missing</i>	1	2.6%
Total	38	100.0%

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 survey can be found in Appendix A of this report. Survey responses are not explained for questions that asked for basic information about the station or information that is not highly relevant to the analysis of the emissions inspection fee. The information in the tables in this section was obtained from stations that responded to the 2014 survey. Any survey fields that were left blank (either missing or not applicable) are reported as “missing.” Due to rounding, the percentages in some of the tables do not total exactly 100 percent.

This section separately analyzes responses from stations that perform OBD inspections only and full service stations that perform both ASM and OBD inspections. OBD-only stations are limited to performing 150 emissions inspections per month.

Table V-1 summarizes the typical hours of operation of stations in the HGB/DFW regions, the number of hours these stations spend open per day, and the number of stations closed on each day of the week.

Table V-1. Hours of Operation – HGB/DFW

Day	Median Open Time	Median Close Time	Median Hours Open	Number Open	Number Closed
Test-Only					
OBD-only					
Monday	8:30am	6:00pm	9.2	27	2
Tuesday	8:30am	6:00pm	9	29	0
Wednesday	8:30am	6:00pm	9.2	29	0
Thursday	8:30am	6:00pm	9.2	29	0
Friday	8:30am	6:00pm	9	29	0
Saturday	9:00am	5:00pm	8	22	7
Sunday	9:30am	5:00pm	7.3	4	25
ASM/OBD					
Monday	8:00am	6:00pm	10	105	1
Tuesday	8:00am	6:00pm	10	106	0
Wednesday	8:00am	6:00pm	10	106	0
Thursday	8:00am	6:00pm	10	106	0
Friday	8:00am	6:00pm	10	106	0
Saturday	8:00am	5:00pm	8	100	6
Sunday	9:00am	5:00pm	8	17	89
Test-and-Repair					
OBD-only					
Monday	8:00am	6:00pm	10	241	0
Tuesday	8:00am	6:00pm	10	241	0
Wednesday	8:00am	6:00pm	10	240	1
Thursday	8:00am	6:00pm	10	241	0
Friday	8:00am	6:00pm	10	241	0
Saturday	8:00am	4:00pm	8	168	73
Sunday	9:00am	5:00pm	7.3	20	221
ASM/OBD					
Monday	8:00am	6:00pm	10	206	0
Tuesday	8:00am	6:00pm	10	206	0
Wednesday	8:00am	6:00pm	10	206	0
Thursday	8:00am	6:00pm	10	206	0
Friday	8:00am	6:00pm	10	205	1
Saturday	8:00am	5:00pm	9	175	31
Sunday	9:15am	5:00pm	7	28	178

Table V-2 summarizes responses to Question 13, regarding items acquired in the station’s transition to offering emissions inspections. Stations reported purchasing emissions inspection equipment more than anything else. Few stations of either station type reported purchasing additional land.

Table V-2. Items Added or Acquired to Initiate Emissions Testing HGB/DFW

Station and Test Type	Item Acquired	Number of Responses			
		Yes	No	Missing	Total
Test-Only					
OBD-only	Emissions testing equipment	22	7	0	29
	Tools and other equipment	16	11	2	29
	Building space	11	16	2	29
	Land	5	19	5	29
ASM/OBD	Emissions testing equipment	83	21	2	106
	Tools and other equipment	70	27	9	106
	Building space	52	41	13	106
	Land	27	62	17	106
Test-and-Repair					
OBD-only	Emissions testing equipment	193	40	8	241
	Tools and other equipment	134	73	34	241
	Building space	51	133	57	241
	Land	29	144	68	241
ASM/OBD	Emissions testing equipment	169	32	5	206
	Tools and other equipment	135	43	28	206
	Building space	68	95	43	206
	Land	49	110	47	206

Question 13 also addressed emissions-related costs of purchasing or acquiring space and equipment, summarized in Table V-3. Respondents at ASM/OBD stations reported paying median values of \$40,000 to \$43,000 for emissions inspection equipment, compared to respondents at OBD-only stations who paid a median of \$8,500 to \$10,000. A single new certified ASM/OBD analyzer ranges in price from \$25,500 to \$37,995 (TCEQ, 2013), so the reported values may be a slightly high estimate, or may indicate stations are purchasing multiple analyzers to increase their maximum throughput (e.g., 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 \$7,495, 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. This was true for both Test-Only and T&R stations. Because of the impact of some high and low values on averages throughout Table V-3 (possibly because a few stations may have misunderstood the question), the medians are likely to be more representative of a typical station's expenditures.

Table V-3. Costs of Added or Acquired Items — HGB/DFW

Station and Test Type	Item Acquired	Average	Median	Minimum	Maximum	Responses
Test-Only						
OBD-only	Emissions testing equipment	\$14,425	\$10,000	\$4	\$55,000	19
	Tools and other equipment	\$1,947	\$500	\$10	\$8,000	14
	Building space	\$18,886	\$5,000	\$250	\$86,000	11
	Land	\$18,120	\$20,000	\$0	\$45,600	5
ASM/OBD	Emissions testing equipment	\$40,972	\$43,000	\$63	\$160,000	81
	Tools and other equipment	\$5,900	\$2,000	\$100	\$100,000	67
	Building space	\$44,266	\$7,200	\$0	\$320,000	49
	Land	\$46,923	\$10,000	\$0	\$500,000	26
Test-and-Repair						
OBD-Only	Emissions testing equipment	\$12,943	\$8,500	\$2	\$99,999	172
	Tools and other equipment	\$19,741	\$1,000	\$0	\$1,500,000	122
	Building space	\$37,537	\$3,500	\$0	\$750,000	38
	Land	\$42,629	\$7,500	\$0	\$500,000	26
ASM/OBD	Emissions testing equipment	\$106,931	\$40,000	\$0	\$6,500,000	164
	Tools and other equipment	\$10,629	\$2,400	\$0	\$500,000	128
	Building space	\$137,822	\$6,700	\$0	\$2,000,000	66
	Land	\$126,211	\$10,000	\$0	\$1,800,000	45

Tables V-4 and V-5 summarize the results from Question 4, which inquired about the number of emissions inspection bays at each station and the uses for those bays. Table V-4 presents how many bays are used exclusively for emissions testing, while Table V-5 shows the number of bays used for emissions testing in addition to other uses. The majority of stations in the HGB/DFW region, both full-service and OBD-only Test-Only and T&R stations, have one bay used exclusively for emissions testing, and either zero or one bay for testing and other uses.

Table V-4. Number of Bays Used Exclusively for Testing – HGB/DFW

Station type and Test Type	Number of Bays	Number of Respondents	Percent
Test-Only			
OBD-Only	0	1	3.4%
	1	23	79.3%
	2	1	3.4%
	Missing	4	13.8%
	Total	29	100.0%
ASM/OBD	0	5	4.7%
	1	64	60.4%
	2	28	26.4%
	4	1	0.9%
	Missing	8	7.5%
	Total	106	100.0%
Test-and-Repair			
OBD-Only	0	36	14.9%
	1	175	72.6%
	2	5	2.1%
	4	1	0.4%
	10	1	0.4%
	Missing	23	9.5%
	Total	241	100.0%
ASM/OBD	0	11	5.3%
	1	150	72.8%
	2	26	12.6%
	3	3	1.5%
	Missing	16	7.8%
	Total	206	100.0%

Table V-5. Number of Bays Used for Testing and Other Uses – HGB/DFW

Station and Test Type	Number of Bays	Number of Respondents	Percent
Test-Only			
OBD-only	0	4	13.8%
	1	6	20.7%
	4	1	3.4%
	Missing	18	62.1%
	Total	29	100.0%
ASM/OBD	0	24	22.6%
	1	15	14.2%
	2	9	8.5%
	3	1	0.9%
	Missing	57	53.8%
	Total	106	100.0%
Test-and-Repair			
OBD-only	0	47	19.5%
	1	74	30.7%
	2	11	4.6%
	3	4	1.7%
	4	2	0.8%
	5	1	0.4%
	7	1	0.4%
	8	2	0.8%
	10	1	0.4%
	Missing	98	40.7%
	Total	241	100.0%
	ASM/OBD	0	43
1		50	24.3%
2		17	8.3%
3		4	1.9%
4		2	1.0%
5		1	0.5%
6		2	1.0%
7		2	1.0%
10		1	0.5%
Missing		84	40.8%
Total		206	100.0%

Question 5 asked about the average hourly wages (unloaded) paid to emissions inspectors. Table V-6 summarizes the responses. Overall, median reported hourly wages for emissions inspectors were very similar across OBD-only (\$10 to \$12) and ASM/OBD (\$10) stations. These values are consistent with the \$9.89 and \$11.18 to \$11.54 hourly wages shown for the Houston and Dallas-Fort Worth areas, respectively, for level 1 auto service technicians and mechanics, as reported by the Foreign Labor Center Data Center (FLC, 2014). Average reported inspector hourly wages were slightly higher than median values due to the impact of a few very high reported wages.

Table V-6. Current Wages Paid to Emissions Inspectors (\$/hr) – HGB/DFW

Station and Test Type	Average	Median	Minimum	Maximum	Responses
Test-Only					
OBD-only	\$13.46	\$10	\$7.25	\$39.75	22
ASM/OBD	\$11.23	\$10	\$7.25	\$39.75	89
Test-and-Repair					
OBD-only	\$14.31	\$12	\$7.25	\$104.95	211
ASM/OBD	\$12.27	\$10	\$7.25	\$40	197

Tables V-7a and V-7b, summarize the results from Question 6 of the HGB/DFW survey for Test-Only and T&R stations, respectively. Question 6 asked respondents to provide the number of full- and part-time emissions inspectors employed at their respective stations. The majority of respondents reported employing one, two, or three inspectors at their station. The maximum number of inspectors a Test-Only station reported employing was 7, while one T&R station reported employing 80 inspectors.

Table V-7a. Number of Emissions Inspectors Currently Working at the Station – HGB/DFW (Test-Only)

Station and Test Type	Number	Number of Respondents	Percent
Test-Only			
OBD-only	0	2	6.9%
	1	14	48.3%
	2	4	13.8%
	3	7	24.1%
	5	1	3.4%
	6	1	3.4%
	Total	29	100.0%
ASM/OBD	0	2	1.9%
	1	25	23.6%
	2	43	40.6%
	3	19	17.9%
	4	10	9.4%
	5	3	2.8%
	6	3	2.8%
	7	1	0.9%
Total	106	100.0%	

Table V-7b. Number of Emissions Inspectors Currently Working at the Station — HGB/DFW (Test-and-Repair)

Station and Test Type	Number of Inspectors	Number of Respondents	Percent
Test-and-Repair			
OBD-only	0	3	1.2%
	1	62	25.7%
	2	82	34.0%
	3	54	22.4%
	4	18	7.5%
	5	12	5.0%
	6	4	1.7%
	7	2	0.8%
	10	1	0.4%
	11	2	0.8%
	12	1	0.4%
	Total	241	100.0%
	ASM/OBD	0	1
1		37	18.0%
2		68	33.0%
3		45	21.8%
4		21	10.2%
5		19	9.2%
6		7	3.4%
7		5	2.4%
8		1	0.5%
20		1	0.5%
80		1	0.5%
Total		206	100.0%

Tables V-8 and V-9 provide information about the number of inspectors broken down into full-time and part-time inspectors. A “full-time inspector” means a full-time employee qualified to perform inspections. They may spend all, some, or just a little of their work time doing inspections. “Part-time inspectors” are part-time employees qualified to do inspections, who likewise may spend only some of their working time doing inspections. The tables show that 35 percent and 60 percent of OBD-only Test-Only and T&R stations, respectively, had more than one inspector working full time, and 51 percent and 62 percent of ASM/OBD Test-Only and T&R stations, respectively, had more than one inspector working full time.

Tables V-8 and V-9 also indicate that ASM/OBD stations are more likely to use part-time inspectors than OBD-only stations. This is likely attributable to the 150 per month inspection throughput cap on OBD-only stations reducing the need for additional inspectors.

Table V-8a. Number of Full-Time Emissions Inspectors* — HGB/DFW (Test-Only)

Station and Test Type	Number of FT Inspectors	Number of Respondents	Percent
Test-Only			
OBD-only	0	2	6.9%
	1	17	58.6%
	2	5	17.2%
	3	3	10.3%
	5	1	3.4%
	6	1	3.4%
	Total	29	100.0%
ASM/OBD	0	8	7.5%
	1	44	41.5%
	2	32	30.2%
	3	11	10.4%
	4	6	5.7%
	5	1	0.9%
	6	3	2.8%
	7	1	0.9%
	Total	106	100.0%

*Full-time employees who perform inspections as all or part of their duties.

Table V-8b. Number of Full-Time Emissions Inspectors* — HGB/DFW (Test-and-Repair)

Station and Test Type	Number of FT Inspectors	Number of Respondents	Percent
Test-and-Repair			
OBD-only	0	11	4.6%
	1	85	35.3%
	2	71	29.5%
	3	37	15.4%
	4	19	7.9%
	5	9	3.7%
	6	3	1.2%
	7	2	0.8%
	10	1	0.4%
	11	2	0.8%
	12	1	0.4%
	Total	241	100.0%
	ASM/OBD	0	3
1		75	36.4%
2		65	31.6%
3		24	11.7%
4		17	8.3%
5		13	6.3%
6		5	2.4%
7		2	1.0%
20		1	0.5%
80		1	0.5%
Total	206	100.0%	

*Full-time employees who perform inspections as all or part of their duties.

Table V-9. Number of Part-time Emissions Inspectors* — HGB/DFW

Station and Test Type	Number of PT Inspectors	Number of Respondents	Percent
Test-Only			
OBD-only	0	25	86.2%
	1	1	3.4%
	2	3	10.3%
	Total	29	100.0%
ASM/OBD	0	70	66.0%
	1	23	21.7%
	2	9	8.5%
	3	4	3.8%
	Total	106	100.0%
Test-and-Repair			
OBD-only	0	190	78.8%
	1	38	15.8%
	2	10	4.1%
	3	3	1.20%
	Total	241	100.0%
ASM/OBD	0	132	64.1%
	1	44	21.4%
	2	20	9.7%
	3	8	3.9%
	5	2	1.0%
	Total	206	100.0%

*Part-time employees who perform inspections as all or part of their duties.

Questions 8 through 12 were applicable only to Test-and-Repair stations. Consequently, the results in Tables V-10 to 14 represent only T&R stations.

To understand the extent to which T&R stations focus on services other than emissions inspections, Questions 8 and 9 of the survey asked how much time inspectors spend on performing emissions inspections. Tables V-10 (for full-time inspectors) and V-11 (for part-time inspectors) show the total number of inspectors summed across all respondents by the percent of time they perform inspections. Table V-10 shows that 24 percent of full-time emissions inspectors at OBD-only stations and 35 percent of full-time emissions inspectors at ASM/OBD stations spend the majority of their time performing inspections. The table also shows 36 percent of full-time inspectors at OBD-only stations and 29 percent of full-time emissions inspectors at ASM/OBD stations spend about 5 or 10 percent of their time performing inspections.

Table V-11 shows that 23 percent of full-time emissions inspectors at OBD-only stations and 27 percent of full-time emissions inspectors at ASM/OBD stations spend the majority of their time performing inspections. The table also shows 39 percent of full-time inspectors at OBD-only stations and 36 percent of full-time emissions inspectors at ASM/OBD stations spend about 5 or 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, the results show that the majority of inspectors are not primarily doing inspections.

Table V-10. Number of Full-time Inspectors* by Percent of Time Spent on Inspections — HGB/DFW

Test Type	Percent of Time			Number of Stations	Percent of Stations	
	Performing Inspections	Median	Minimum			
OBD-only	50% or more	1	0	50	131	23.6%
	About 25%	1	0	25	126	22.7%
	About 15%	1	0	8	99	17.8%
	About 10%	1	0	4	101	18.2%
	About 5%	1	0	12	98	17.7%
	Total				555	100.0%
ASM/OBD	50% or more	1	0	50	153	34.9%
	About 25%	1	0	25	94	21.5%
	About 15%	1	0	60	64	14.6%
	About 10%	1	0	7	65	14.8%
	About 5%	1	0	20	63	14.4%
	Total				439	100.0%

*Full-time employees who perform inspections as all or part of their duties.

Table V-11. Number of Part-time Inspectors* by Percent of Time Spent on Inspections — HGB/DFW

Test Type	Percent of Time			Number of Stations	Percent of Stations	
	Performing Inspections	Median	Minimum			
OBD-only	50% or more	0	0	60	77	22.6%
	About 25%	0	0	2	65	19.1%
	About 15%	0	0	8	65	19.1%
	About 10%	0	0	2	63	18.5%
	About 5%	0	0	2	70	20.6%
	Total				340	100.0%
ASM/OBD	50% or more	0.5	0	50	80	27.0%
	About 25%	0	0	3	60	20.3%
	About 15%	0	0	3	52	17.6%
	About 10%	0	0	3	55	18.6%
	About 5%	0	0	4	49	16.6%
	Total				296	100.0%

*Part-time employees who perform inspections as all or part of their duties.

Questions 10 through 12 addressed the revenue stream for T&R stations generated from repairs after failed emissions inspections. Table V-12 shows that the majority of stations reported that less than 10 percent of their income was generated from repairs following failed emissions inspections. Table V-13 shows that the number of reported repair jobs from failed emissions inspections is higher at ASM/OBD stations (median = 5) than at OBD-only stations (median = 3).

Figures V-1a and V-1b are histograms showing the distribution of repair jobs from failed inspections at ASM/OBD and OBD-only stations, respectively. Table V-14 shows that the average cost of a repair following a failed emissions inspection at OBD-only stations was \$213.48 with a median of \$200; for ASM/OBD stations, the average was \$222.84, also with a median of \$200. Figures V-2a and V-2b show these distributions in histogram graphs. This information only provides gross revenue generated from repairs from failed inspections; it does not provide any insight into the additional profit from these repairs.

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

Test Type	Percentage	Number of Respondents	Percent
OBD-only	0% — perform inspections only	19	7.9%
	Less than 10%	173	71.8%
	About 25%	37	15.4%
	About 50%	4	1.7%
	About 75%	1	0.4%
	Missing	7	2.9%
	Total		241
ASM/OBD	0% — perform inspections only	20	9.7%
	Less than 10%	139	67.5%
	About 25%	36	17.5%
	About 50%	4	1.9%
	About 75%	1	0.5%
	Between 75% and 95%	2	1.0%
	Missing	4	1.9%
	Total		206

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

Test Type	Average	Median	Minimum	Maximum	Responses
OBD-only	11	3	0	500	225
ASM/OBD	7	5	0	120	194

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

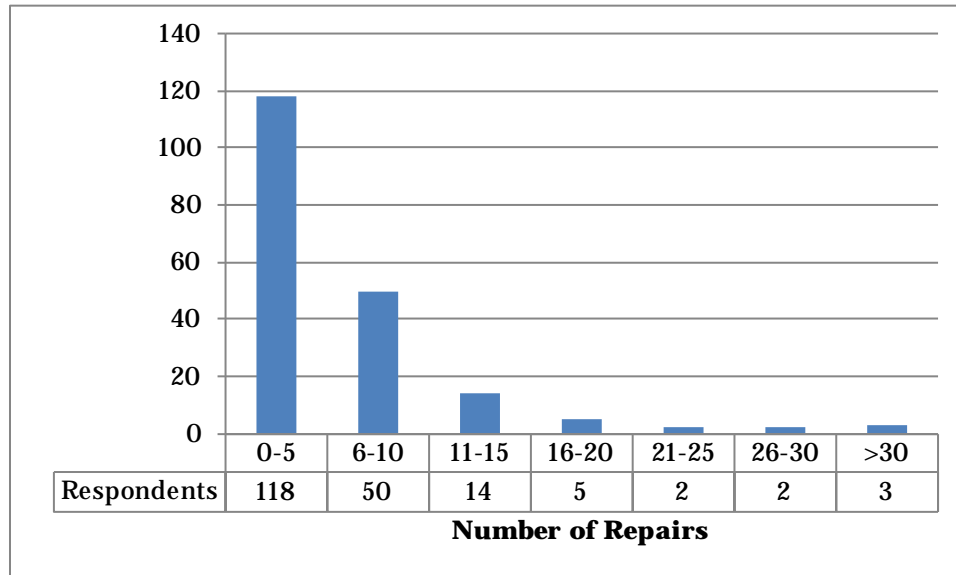


Figure V-1b. Distribution of Typical Number of Repair Jobs per Month Resulting from Failed Emissions Tests, OBD-Only – HGB/DFW

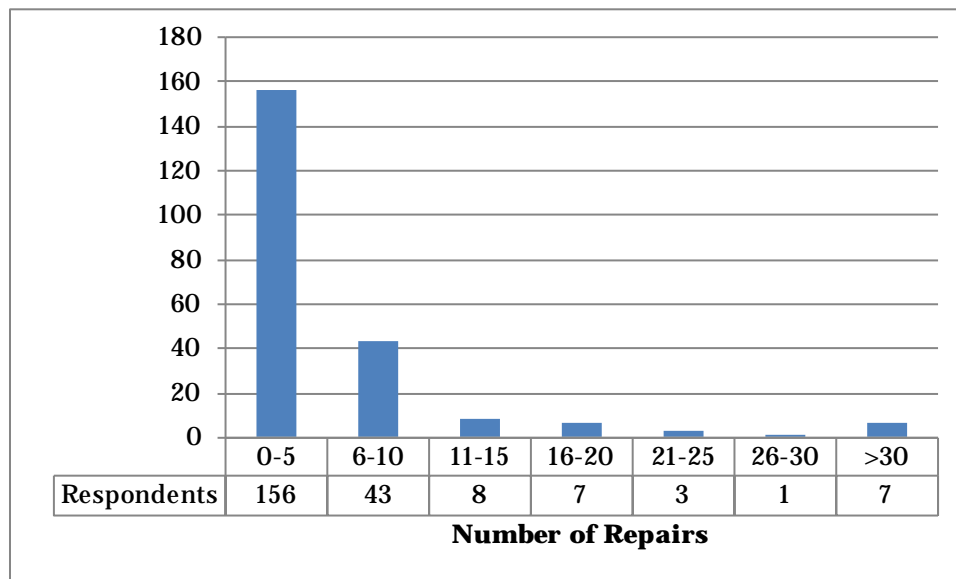


Table V-14. Typical Repair Costs for an Emissions Test Failure – HGB/DFW

Test Type	Average	Median	Minimum	Maximum	Responses
OBD-only	\$213.48	\$200	\$0	\$975	214
ASM/OBD	\$222.84	\$200	\$0	\$1,500	181

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

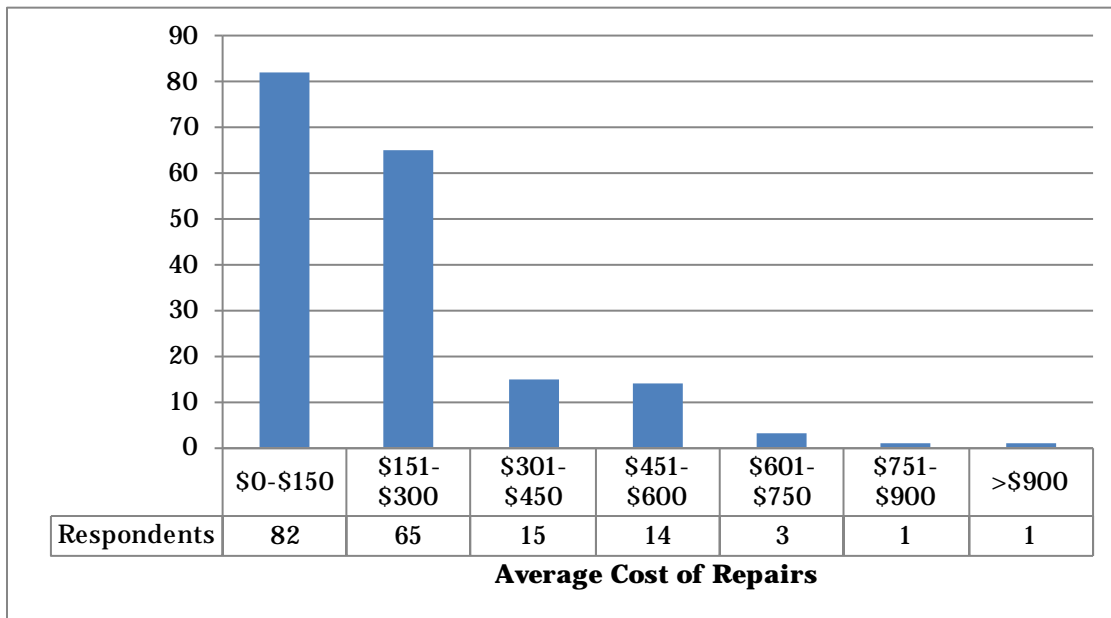
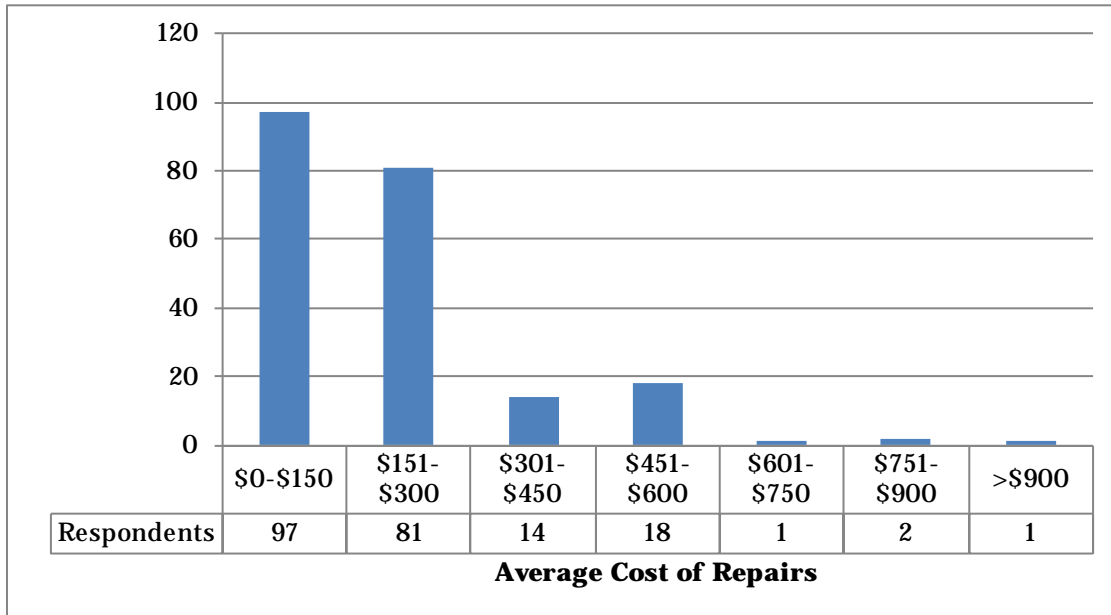


Figure V-2b. Distribution of Typical Repair Costs for an Emissions Test Failure, OBD-Only – HGB/DFW



Question 14 asked stations how they financed their purchase of emissions inspection equipment. As shown in Table V-15, OBD-only stations Test-Only more frequently paid cash than ASM/OBD stations (46.9 percent for T&R OBDs and 55.2 percent for Test-Only OBD stations vs. 29.6 percent for T&R ASMs and 38.7 percent for Test-Only ASM

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

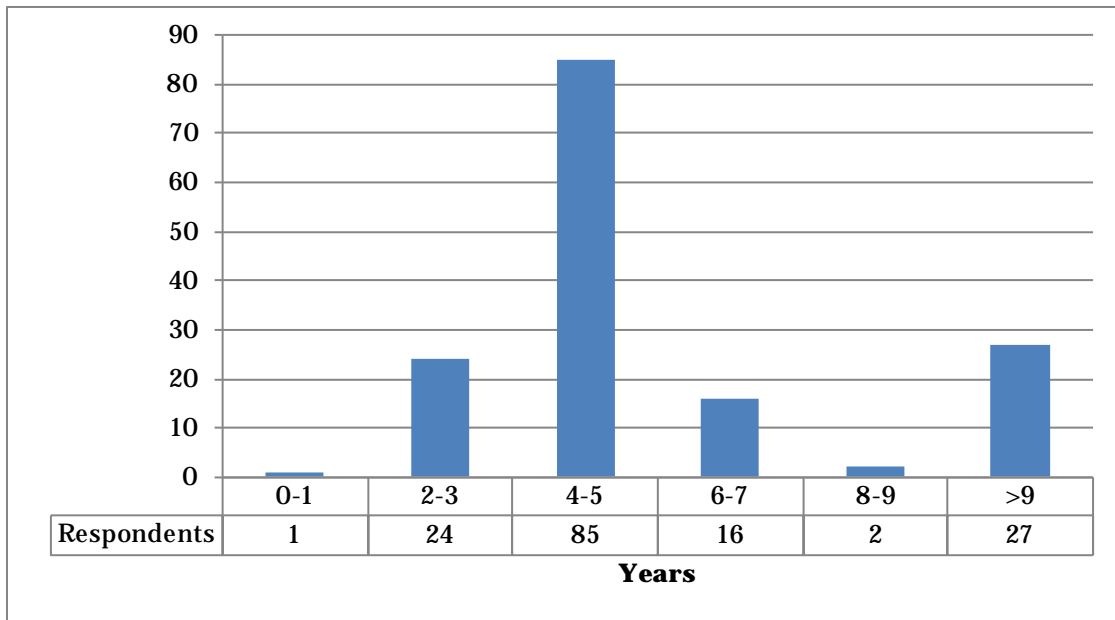
Station and Test Type	Finance Type	Number of Respondents	Percent
Test-Only OBD-only	Paid cash	16	55.2%
	Lease-to-purchase agreement arranged with vendor	7	24.1%
	Bank loan	4	13.8%
	<i>Missing</i>	2	6.9%
	Total	29	100.0%
ASM/OBD	Paid cash	41	38.7%
	Lease-to-purchase agreement arranged with vendor	27	25.5%
	Bank loan	34	32.1%
	<i>Missing</i>	4	3.8%
	Total	106	100.0%
Test-and-Repair OBD-only	Paid cash	113	46.9%
	Lease-to-purchase agreement arranged with vendor	69	28.6%
	Bank loan	49	20.3%
	<i>Missing</i>	10	4.1%
	Total	241	100.0%
ASM/OBD	Paid cash	61	29.6%
	Lease-to-purchase agreement arranged with vendor	58	28.2%
	Bank loan	79	38.3%
	<i>Missing</i>	8	3.9%
	Total	206	100.0%

Questions 15 and 16 further inquired about the financing details for those stations that did not pay with cash. Table V-16 shows that the median lease-to-purchase or bank loan term is 5 years for ASM/OBD stations and for OBD-only stations.

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

Station and Test Type	Average	Median	Minimum	Maximum	Responses
Test-Only					
OBD-only	8.1	5	3	20	8
ASM/OBD	5.6	5	2	20	48
Test-and-Repair					
OBD-Only	6.2	5	1	60	89
ASM/OBD	7.1	5	1	30	107

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



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

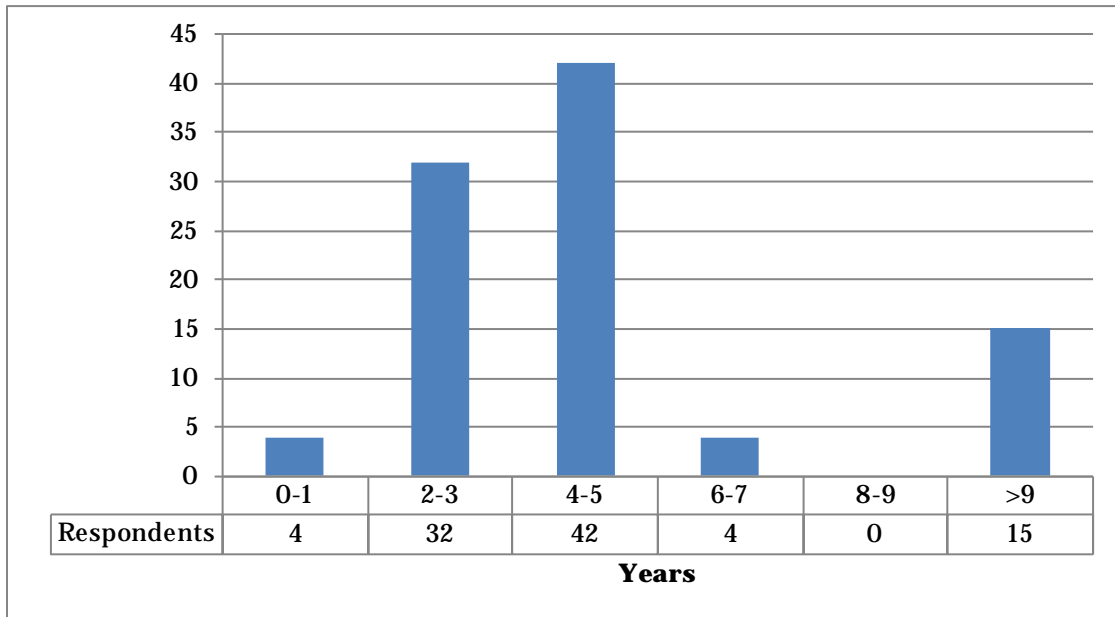


Table V-17 shows that the reported lease-to-purchase or bank loan interest rates were relatively close for ASM/OBD stations and OBD-only stations. For Test-Only stations, interest rates tended to be higher for ASM/OBD stations, and for T&R stations, interest rates for OBD-only stations tended to be higher. 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 Rates for Lease-to-Purchase or Bank Loan – HGB/DFW

Station and Test Type	Average	Median	Minimum	Maximum	Responses
Test-Only					
OBD-only	9.1%	8.0%	3.75%	13.0%	7
ASM/OBD	11.4%	9.9%	0%	40.0%	51
Test-and-Repair					
OBD-only	10.6%	9.0%	0%	30.0%	83
ASM/OBD	10.3%	8.2%	0%	100.0%	105

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

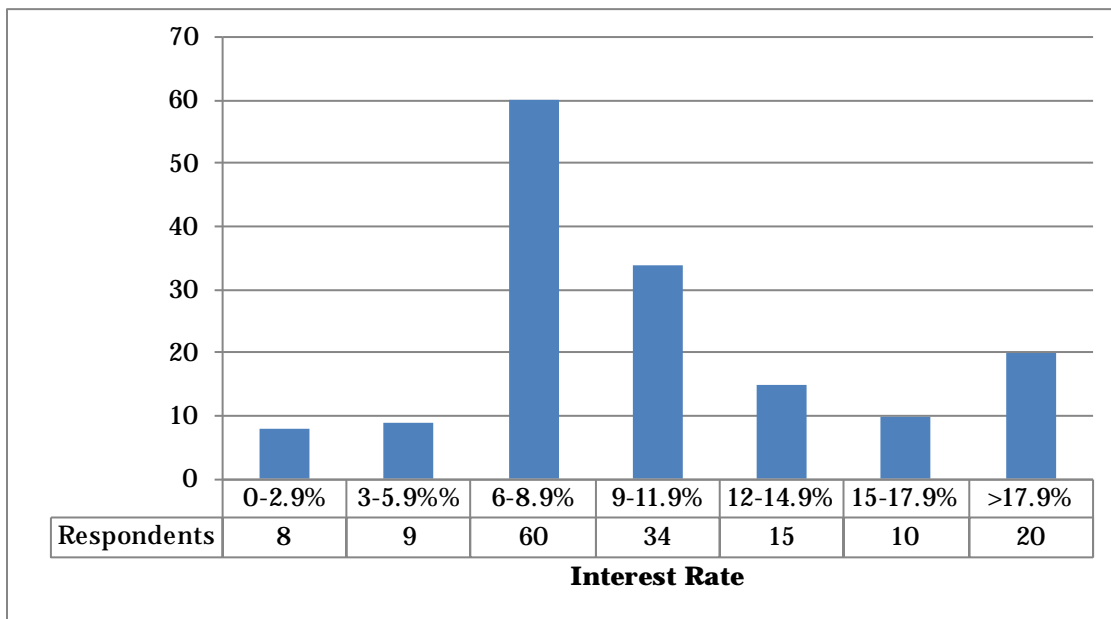
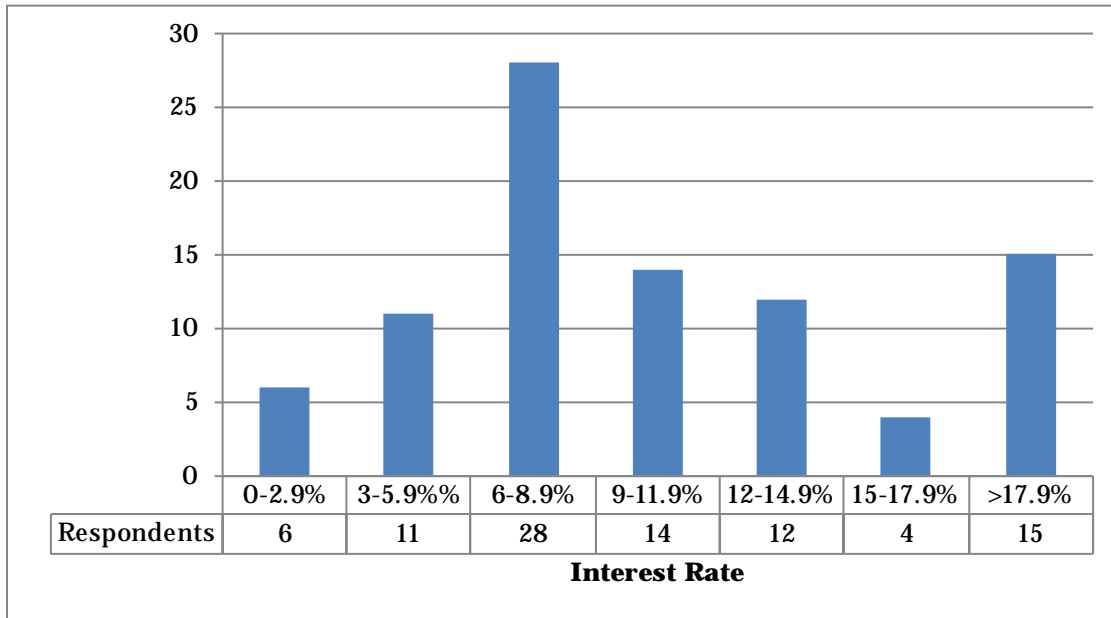


Figure V-4b. Distribution of the Interest Rates for Lease-to-Purchase or Bank Loan, OBD-Only — HGB/DFW



Question 18 addressed the annual maintenance costs for all stations. Table V-18 summarizes the responses and shows that ASM/OBD stations reported paying a much higher annual maintenance cost (\$4,400 median for Test-Only and \$4,500 median for T&R) than did OBD-only stations (\$1,000 for Test-Only and \$900 for T&R). This is consistent with the much higher purchase price and maintenance costs of the certified ASM/OBD analyzers. Results from Question 17 indicate that, of the 206 T&R survey respondents with ASM/OBD stations, 77 (37 percent) said they have a maintenance plan; of the 241 T&R survey respondents with OBD-only stations, 67 (11 percent) confirmed that they have a maintenance plan. Of the 106 Test-Only respondents with ASM/OBD stations, 57 (54 percent) confirmed that they have a maintenance plan; and of the 29 Test-Only respondents with OBD-only stations, 9 (31 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

Station and Test Type	Average	Median	Minimum	Maximum	Responses
Test-Only					
OBD-only	\$1,228	\$1,000	\$350	\$2,400	9
ASM/OBD	\$5,738.58	\$4,400	\$800	\$62,400	57
Test-and-Repair					
OBD-only	\$1,005	\$900	\$0	\$3,800	67
ASM/OBD	\$4,557.17	\$4,500	\$0	\$50,000	77

Additionally, the survey asked stations with maintenance agreements about extra maintenance costs they incurred that were not covered by their agreement. As shown in Table V-19, these additional costs were again much higher for ASM/OBD stations (medians were \$1,000 and \$1,900) than for OBD-only stations (medians of \$200 and \$500). The higher median maintenance costs for ASM/OBD stations are not surprising as they have more equipment to maintain.

Table V-19. Extra Maintenance Costs for Stations with Maintenance Plans — HGB/DFW

Station and Test Type	Average	Median	Minimum	Maximum	Responses
Test-Only					
OBD-only	\$594	\$500	\$150	\$1,500	9
ASM/OBD	\$2,469	\$1,899	\$0	\$20,000	56
Test-and-Repair					
OBD-only	\$560	\$200	\$0	\$5,000	64
ASM/OBD	\$1,469	\$1,000	\$0	\$15,000	78

Survey Questions 21 and 22 asked stations if they offer reduced-fee and/or free emissions inspections (other than performing obligatory free retests after a vehicle failed inspection at their station). ASM/OBD stations were more likely to have provided free emissions inspections at some point (24.5 percent for Test-Only stations and 22.8 percent for T&R stations) than OBD-only stations (10.3 percent for Test-Only stations and 19.1 percent for T&R stations). Common reasons for providing free retests included a “no pass-no pay” policy, providing free inspections to preferred customers, providing free inspections to low-income customers, and honoring competitor coupons.

Table V-20. Free Emissions Tests (Except Free Retests) — HGB/DFW

Station and Test Type	Free Tests Ever Given?	Number of Respondents	Percent
Test-Only			
OBD-only	Yes	3	10.3%
	No	26	89.7%
	Total	29	100.0%
ASM/OBD	Yes	26	24.5%
	No	79	74.5%
	<i>Missing</i>	1	0.9%
	Total	106	100.0%
Test-and-Repair			
OBD-only	Yes	46	19.1%
	No	189	78.4%
	<i>Missing</i>	6	2.5%
	Total	241	100.0%
ASM/OBD	Yes	47	22.8%
	No	156	75.7%
	<i>Missing</i>	3	1.5%
	Total	206	100.0%

Table V-21 shows that ASM/OBD stations reported they were more likely to have ever charged a reduced fee (less than \$27.00) (11.7 percent at T&R and 10.4 percent at Test-Only) than OBD-only stations (11.6 percent at T&R and never at Test-Only).

Table V-21. Reduced Fee Emissions Tests (less than \$27.00) – HGB/DFW

Station and Test Type	Charged Less Than \$27.00?	Number of Respondents	Percent
Test-Only			
OBD-only	Yes	0	0.0%
	No	29	100.0%
	Total	29	100.0%
ASM/OBD	Yes	11	10.4%
	No	93	87.7%
	<i>Missing</i>	2	1.9%
	Total	106	100.0%
Test-and-Repair			
OBD-only	Yes	28	11.6%
	No	205	85.1%
	<i>Missing</i>	8	3.3%
	Total	241	100.0%
ASM/OBD	Yes	24	11.7%
	No	180	87.4%
	<i>Missing</i>	2	1.0%
	Total	206	100.0%

As shown in Table V-22, among stations that reported ever charging a reduced fee for an emissions inspection, the median reduced fee charged was higher among T&R stations (\$22.00 for OBD-only and \$20.00 for ASM/OBD) than among Test-Only stations (not offered at OBD-only and \$18.50 for ASM/OBD).

Table V-22. Typical Reduced Fees Charged (less Than \$27.00) — HGB/DFW

Average	Median	Minimum	Maximum	Responses
\$16.43	\$20	\$0	\$25.50	63
Station and Test Type	Fee		Number of Respondents	Percent
Test-Only				
OBD-only			0	
ASM/OBD	\$0		2	18.2%
	\$15		2	18.2%
	\$17		1	9.1%
	\$20		2	18.2%
	\$22		1	9.1%
	\$22.25		1	9.1%
	\$24		1	9.1%
	\$25		1	9.1%
	Total		11	100.0%
Test-and-Repair				
OBD-only	\$0		5	17.9%
	\$10		1	3.6%
	\$14		2	7.1%
	\$18		1	3.6%
	\$19.99		1	3.6%
	\$22		7	25.0%
	\$22.25		1	3.6%
	\$23		1	3.6%
	\$24		1	3.6%
	\$25		4	14.3%
	\$25.25		1	3.6%
	\$25.5		1	3.6%
	<i>Missing</i>		2	7.1%
	Total		28	100.0%
ASM/OBD	\$0		5	20.8%
	\$10		1	4.2%
	\$14		1	4.2%
	\$14.5		1	4.2%
	\$15		1	4.2%
	\$17		1	4.2%
	\$20		7	29.2%
	\$20.5		1	4.2%
	\$22		2	8.3%
	\$22.25		1	4.2%
	\$25		3	12.5%
	Total		24	100.0%

The survey also inquired about failed vehicles and retests. Question 23 asked the stations whether any vehicles had failed an emissions inspection during 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 previous two months, except for OBD-only T&R stations (46.9 percent).

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

Station and Test Type	Failed Vehicles Did Not Return?	Number of Respondents	Percent
Test-Only			
OBD-only	Yes	15	51.7%
	No	14	48.3%
	Total	29	100.0%
ASM/OBD	Yes	56	52.8%
	No	48	45.3%
	<i>Missing</i>	2	1.9%
	Total	106	100.0%
Test-and-Repair			
OBD-only	Yes	113	46.9%
	No	120	49.8%
	<i>Missing</i>	8	3.3%
	Total	241	100.0%
ASM/OBD	Yes	116	56.3%
	No	84	40.8%
	<i>Missing</i>	6	2.9%
	Total	206	100.0%

Additionally, Question 23 asked stations answering “yes” to the first part to specify how many failed vehicles had not returned for a retest. Table V-24 shows that the median number of failed vehicles not returning for a retest is higher for Test-Only stations (4 for ASM/OBD and 2.5 for OBD-only) than for T&R stations (2 for both ASM/OBD and OBD-only). ASM/OBD stations would be expected to have more failed vehicles not returning due to their higher throughput and the correspondingly higher number of failed inspections.

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

Station and Test Type	Average	Median	Minimum	Maximum	Responses
Test-Only					
OBD-only	7.2	2.5	1	50	14
ASM/OBD	6.1	4	1	90	54
Test-and-Repair					
OBD-only	3.1	2	1	14	106
ASM/OBD	5.0	2	1	50	111

Question 20 asked respondents about emissions testing equipment that they had decommissioned after owning it for its entire useful life. Table V-25 summarizes the results regarding whether the stations had ever decommissioned such equipment. For both Test-Only and T&R stations, the majority of respondents had not decommissioned emissions testing equipment that they had owned for its entire useful life.

Table V-25. Stations That Decommissioned Emissions Testing Equipment – HGB/DFW

Station and Test Type	Ever Decommissioned Equipment?	Number of Respondents	Percent
Test-Only			
OBD-only	Yes	3	10.3%
	No	25	86.2%
	Missing	1	3.4%
	Total	29	100.0%
ASM/OBD	Yes	13	12.3%
	No	90	84.9%
	Missing	3	2.8%
	Total	106	100.0%
Test-and-Repair			
OBD-only	Yes	36	14.9%
	No	192	79.7%
	Missing	13	5.4%
	Total	241	100.0%
ASM/OBD	Yes	25	12.1%
	No	175	85.0%
	Missing	6	2.9%
	Total	206	100.0%

Question 20 also inquired about the number of years the decommissioned equipment was owned and the cost to the station of decommissioning the equipment. The responses to these questions are summarized in Tables V-26 and V-27, respectively. The results show that T&R stations tend to own equipment longer before decommissioning than Test-Only stations, with OBD-only stations owning equipment longer than full-service stations. Test-Only stations had higher decommissioning costs, with OBD-only stations being the highest, based on averages.

Table V-26. Years Decommissioned Equipment was Owned – HGB/DFW

Station and Test Type	Average	Median	Minimum	Maximum	Responses
Test-Only					
OBD-only	6.7	8	3	9	3
ASM/OBD	6.3	5	0	12	13
Test-and-Repair					
OBD-only	9.3	10	2	19	34
ASM/OBD	8.0	6.5	2	25	24

Table V-27. Cost to Decommission Equipment – HGB/DFW

Station and Test Type	Average	Median	Minimum	Maximum	Responses
Test-Only					
OBD-only	\$8,167	\$5,000	\$4,500	\$15,000	3
ASM/OBD	\$7,553	\$4,000	\$0	\$35,000	11
Test-and-Repair					
OBD-only	\$4,7423	\$3,000	\$0	\$40,000	27
ASM/OBD	\$6,691	\$5,000	\$0	\$24,000	22

The final question of the survey asked respondents whether the fee for emissions inspections covered their costs associated with emissions inspections. The majority of respondents answered “no,” with ASM/OBD responding “no” more often than OBD-only stations. This is expected, as costs tend to be higher for ASM/OBD stations than OBD-only stations.

Table V-28. Does Fee Cover Emissions Testing Costs?— HGB/DFW

Station and Test Type	Fee Covers Testing Costs?	Number of Respondents	Percent
Test-Only			
OBD-only	Yes	12	41.4%
	No	17	58.6%
	Total	29	100.0%
ASM/OBD	Yes	27	25.5%
	No	78	73.6%
	<i>Missing</i>	1	0.9%
	Total	106	100.0%
Test-and-Repair			
OBD-only	Yes	104	43.2%
	No	129	53.5%
	<i>Missing</i>	8	3.3%
	Total	241	100.0%
ASM/OBD	Yes	65	31.6%
	No	138	67.0%
	<i>Missing</i>	3	1.5%
	Total	206	100.0%

CHAPTER VI. COST MODEL ANALYSES

This 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, more than 80 percent of stations in each region answered that they had incurred costs for purchasing equipment, but less than 55 percent in each region had incurred building and equipment costs due to emissions inspections; thus, the equipment-only scenario is more representative of the industry. Additionally, bay space is already required for safety tests and is thus not an incremental cost of performing vehicle emissions inspection testing. Table VI-1 summarizes the results of the break-even analyses. The proportion of stations that break even according to the model ranges from 63 to 71 percent in the ARR and El Paso areas. The HGB/DFW area is much higher, at 79 to 85 percent.

The model station analyses include representative small, medium, and large stations based on actual emissions inspection throughput from January to December of 2013 for the 4,686 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 representative small stations in the ARR and El Paso areas. 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	78	71	23	70
Including equipment and building costs	79	74	24	71
Percent of Stations Above Break-Even Number				
Including equipment costs	63%	71%	80%	85%
Including equipment and building costs	63%	69%	79%	84%

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

	ARR	El Paso	HGB/DFW OBD-Only	HGB/DFW ASM/OBD
Small station net revenue	\$598.00	\$517.50	\$518.00	\$1,982.09
Small station total costs	\$753.94	\$696.83	\$464.71	\$1,524.68
Small stations net revenue – total cost	-\$155.94	-\$179.33	\$53.29	\$457.41
Medium station net revenue	\$1,276.50	\$1,495.00	\$1,165.50	\$3,662.15
Medium station total costs	\$1,090.28	\$1,139.95	\$680.87	\$1,989.72
Medium station net revenue – total cost	\$186.22	\$355.05	\$484.63	\$1,672.44
Large station net revenue	\$2,645.00	\$2,587.50	\$1,665.00	\$5,719.75
Large station total costs	\$1,768.65	\$1,635.21	\$847.63	\$2,559.25
Large station net revenue – total cost	\$876.35	\$952.29	\$817.37	\$3,160.50

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

Types of Costs Ever Incurred*	ARR	El Paso	HGB/DFW, OBD-Only	HGB/DFW, ASM/OBD
Equipment costs	92%	90%	82%	83%
Building costs	31%	53%	29%	47%

*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 provided by respondents from the given geographic areas and emissions inspection types. Table VI-4 presents 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 VI-5.

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

Variable	Source	Value
All equipment: useful life	BEA, 2004; Cusick, 2012	11 years (from BEA service life estimate for “Service industry machinery, other than wholesale and retail trade”)
Building life: useful life	BEA, 2004; 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 2014)
Electricity: monthly cost (\$)	ERG, 2007	\$40 (the TCEQ reconfirmed value in May 2014)
Communication with VID (vehicle inspection database): number of transactions per inspection	Hoffman, 2009	2 (the TCEQ reconfirmed value in May 2014)
Communication with VID (vehicle inspection database): cost per call (\$)	Hoffman, 2009	\$0.21 per call (the TCEQ reconfirmed value in May 2014)
Labor: number of minutes per inspection	ERG, 2007	20 minutes (the TCEQ reconfirmed value in May 2014)
Fringe benefits: % of total compensation	BLS, 2014	Total benefits make up 29.9% of total compensation
Computer ink and paper: cost per inspection (\$)	ERG, 2007	\$0.05 per inspection (the TCEQ reconfirmed value in May 2014)

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	\$1,850	\$5,000	\$4,000	\$7,200
Testing equipment — median purchase price	\$17,000	\$15,000	\$9,000	\$41,000
Tools and other equipment — median purchase price	\$900	\$1,000	\$1,000	\$2,000
Maintenance agreement — median annual cost	\$1,824	\$2,000	\$900	\$4,450
Extra maintenance — median annual cost	\$600	\$425	\$250	\$1,050
Inspector wage — median hourly salary	\$11	\$9.97	\$12	\$10
Loan term — median length (years)	5	5	5	5
Loan rate — median amount (percent)	6.75%	10%	8.75%	9%

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

ERG cross-checked the survey data in Table VI-5 with publicly available information. According to the Foreign Labor Center Data Center (FLC, 2014), the average hourly wage for a level 1 auto service technician and mechanic is \$12.44 in ARR, \$8.94 in El Paso, \$9.89 in Houston, \$11.18 in Dallas, and \$11.54 in Fort Worth. These values are all

consistent with the median inspector wages reported by survey respondents (shown in Table VI-5).

The costs of the certified analyzers and their maintenance agreements are also consistent with publicly available information (TCEQ, 2013). The cost for a new certified OBD-only analyzer ranges between \$7,195 and \$7,495; a new certified ASM/OBD analyzer ranges between \$25,500 and \$37,995. 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 for an OBD-only analyzer is listed to cost between \$786 and \$1,131 annually depending on the agreement (survey median value of \$900), and that for an ASM/OBD analyzer ranges from \$3,998 to \$4,861 annually (survey median value of \$4,450) (TCEQ, 2013). For both the ARR and El Paso regions, the new certified TSI analyzer is listed to cost between \$15,495 and \$15,995 (TCEQ, 2013), which is consistent with the survey median values of \$17,000 (ARR) and \$15,000 (El Paso). The annual maintenance agreement for these certified analyzers ranges from \$2,230 to \$2,447 annually, which also is reasonably close to the median survey values of \$1,824 (ARR) and \$2,000 (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 equals the total fee to the customer (which excludes the \$12.75 safety fee) minus the administration fee paid to the DPS/TCEQ and minus the fee to support the LIRAP. The net fees (in bold) are the values used in the cost model to calculate revenues from emissions inspections.

Table VI-6. Net Fees from an Emissions Inspection

	ARR	El Paso	HGB/DFW OBD-Only	HGB/DFW ASM/OBD
Fee to customer (excluding safety fee)	\$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 52 (small station), 111 (medium station), and 230 (large station). These emissions

inspection throughputs correspond to the 25th percentile, 50th percentile, and 75th percentile of monthly emissions inspections per station in the ARR area. As shown in the table, for large and medium stations, the monthly revenues exceed monthly costs by approximately \$876 and \$186, respectively; for a small station, costs exceed revenue by approximately \$156 monthly. As discussed in more detail in Chapter VIII, this may be the result of lower throughput numbers over the past few years, possibly 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 63 percent of stations perform enough inspections to cover costs that include equipment (all costs in Table VI-7 except building costs) as well as 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*		
			52	111	230
Net Revenue		\$11.50	\$598.00	\$1,276.50	\$2,645.00
Variable Costs		Amount			
Communication with VID (cost per call)	\$0.21	\$0.42			
Communication with VID (calls per test)	2				
Labor (wage per hour)	\$11.00	\$3.67			
Labor (minutes per test)	20				
Fringe benefits (% of total compensation) [†]	29.9%	\$1.56			
Computer ink and paper (cost per test)	\$0.05	\$0.05			
<i>Total Variable Costs per Month</i>		\$5.70	\$296.43	\$632.77	\$1,311.14
Fixed Costs		Amount	Monthly		
Equipment and tools (purchase price) [‡]	\$17,900	\$160.15			
Maintenance agreement (annual cost)	\$1,824	\$152.00			
Additional maintenance cost (annual cost)	\$600	\$50.00			
Building space (purchase price) [§]	\$1,850	\$5.36			
Loan period (years)	5				
Loan interest rate (percent)	6.8%				
Dedicated telephone line (monthly cost)		\$50.00			
Electricity (monthly cost)		\$40.00			
<i>Total Fixed Costs</i>			\$457.51	\$457.51	\$457.51
Total Cost			\$753.94	\$1,090.28	\$1,768.65
Net Revenue – Total Cost			-\$155.94	\$186.22	\$876.35

* Values represent number of emissions inspections for 25th percentile, median, and 75th percentile stations, of all stations doing inspections 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	\$452.15	\$457.51
Variable cost per inspection	\$5.70	\$5.70
Net fee per inspection	\$11.50	\$11.50
Break-Even Number of Inspections (Monthly)	78	79
Station At/Above Break-Even Number of Inspections	63%	63%

C. EL PASO COST MODELS

Table VI-9 presents the El Paso-area model station analysis, which includes the total costs and total revenue for model stations that have a monthly emissions inspection volume of 45 (small station), 130 (medium station), and 225 (large station). These emissions inspection throughputs correspond to the 25th percentile, 50th percentile, and 75th percentile of monthly emissions inspections for El Paso area stations. As shown in the table, for representative medium and large stations, the monthly revenues exceed monthly costs by approximately \$355 and \$952 respectively. For a representative small station, the monthly costs exceed monthly revenues by approximately \$179.

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 71 percent of shops perform enough inspections to cover costs that include equipment (all costs in Table VI-9 except building costs) and 69 percent of shops cover both equipment and building costs (all costs in Table VI-9).

Table VI-9. Model Station Analysis — El Paso

Revenues and Costs	Per Test	Number of Inspections per Month*		
		45	130	225
Net Revenue	\$11.50	\$517.50	\$1,495.00	\$2,587.50
Variable Costs	Amount			
Communication with VID (cost per call)	\$0.21	\$0.42		
Communication with VID (calls per test)	2			
Labor (wage per hour)	\$9.97	\$3.32		
Labor (minutes per test)	20			
Fringe benefits (% of total compensation) [†]	29.9%	\$1.42		
Computer ink and paper (cost per test)	\$0.05	\$0.05		
<i>Total Variable Costs per Month</i>		\$5.21	\$234.60	\$677.72
				\$1,172.98
Fixed Costs	Amount	Monthly		
Equipment and tools (purchase price) [‡]	\$16,000	\$154.52		
Maintenance agreement (annual cost)	\$2,000	\$166.67		
Additional maintenance cost (annual cost)	\$425	\$35.42		
Building space (purchase price) [§]	\$5,000	\$15.62		
Loan period (years)	5			
Loan interest rate (percent)	10.0%			
Dedicated telephone line (monthly cost)		\$50.00		
Electricity (monthly cost)		\$40.00		
<i>Total Fixed Costs</i>			\$462.23	\$462.23
				\$462.23
Total Cost			\$696.83	\$1,139.95
				\$1,635.21
Net Revenue – Total Cost			-\$179.33	\$355.05
				\$952.29

* Values represent number of emissions inspections for 25th percentile, median, and 75th percentile stations 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 are spread over useful life of 11 years.

§ Assumes total principal and interest paid over life of loan are 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	\$446.61	\$462.23
Variable cost per inspection	\$5.21	\$5.21
Net fee per inspection	\$11.50	\$11.50
Break-even Number of Inspections (Monthly)	71	74
Stations At/Above Break-Even Number of Inspections	71%	69%

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 monthly emissions inspections volumes of 28 (small station), 63 (medium station), and 90 (large station). These emissions inspection throughputs correspond to the 25th percentile, 50th percentile, and 75th percentile of monthly emissions inspections for OBD-only stations in the HGB/DFW–area. As shown in the table, for representative small, medium, and large stations, the monthly revenues exceed monthly costs by approximately \$53, \$485, and \$817, respectively.

Table VI-12 presents the HGB/DFW, OBD-only break-even model analysis, including 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 80 percent of stations perform enough inspections to cover costs, including equipment (i.e., all costs in Table VI-11 except building costs) and 79 percent of stations cover both equipment and building costs (i.e., all costs in Table VI-11).⁶

Compared to ARR and El Paso, the HGB/DFW model shows a much lower break-even number (the number of monthly emissions inspections required to offset costs of inspection). This is partially due to lower costs of equipment, maintenance agreements, and lower additional maintenance costs 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. Despite the lower throughput, the percentage of stations in the HGB/DFW area that perform enough inspections to cover costs is greater than that found in ARR or El Paso.

⁶ This calculation is based on average monthly throughput over the course the entire 2013 calendar year. The number of OBD-only stations increased from approximately 1,600 to 2,200 from the beginning of 2012 to beginning of 2014, and there were several new OBD-only stations that entered in 2013; thus, their average monthly throughput over the course of the year would be understated. Over a three month period, October to December, 2013, approximately 84 percent of OBD-only stations broke even.

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

Revenues and Costs		Per Test	Number of Inspections per Month*		
			28	63	90
Net Fee		\$18.50	\$518.00	\$1,165.50	\$1,665.00
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) [†]	29.9%	\$1.71			
Computer ink and paper (cost per test)	\$0.05	\$0.05			
<i>Total Variable Costs per Month</i>		\$6.18	\$172.93	\$389.10	\$555.85
Fixed Costs	Amount	Monthly			
Equipment and tools (purchase price) [‡]	\$10,000	\$93.81			
Maintenance agreement (annual cost)	\$900	\$75.00			
Additional maintenance cost (annual cost)	\$250	\$20.83			
Building space (purchase price) [§]	\$4,000	\$12.14			
Loan period (years)	5				
Loan interest rate (percent)	8.8%				
Dedicated telephone line (monthly cost)		\$50.00			
Electricity (monthly cost)		\$40.00			
<i>Total Fixed Costs</i>			\$291.78	\$291.78	\$291.78
Total Cost			\$464.71	\$680.87	\$847.63
Net Revenue – Total Cost			\$53.29	\$484.63	\$817.37

* Values represent number of emissions inspections for 25th percentile, median, and 75th percentile of inspections by 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 are spread over useful life of 11 years.

§ Assumes total principal and interest paid over life of loan are 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	\$279.64	\$291.78
Variable cost per inspection	\$6.18	\$6.18
Net fee per inspection	\$18.50	\$18.50
Break-Even Number of Inspections (monthly)	23	24
Station At/Above Break-Even Number of Inspections	80%	79%

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 105 (small station), 194 (medium station), and 303 (large station). These emissions inspection throughputs correspond to the 25th percentile, 50th percentile, and 75th percentile of 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 \$457, \$1,672, and \$3,160, 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 85 percent of shops perform enough inspections to cover costs that include equipment (all costs in Table VI-13 except building costs) and 84 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 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.

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

Revenues and Costs	Per Test	Number of Inspections per Month*		
		105	194	303
Net Revenue	\$18.88†	\$1,982.09	\$3,662.15	\$5,719.75
Variable Costs	Amount			
Communication with VID (cost per call)	\$0.21	\$0.42		
Communication with VID (calls per test)	2			
Labor (wage per hour)	\$10.00	\$3.33		
Labor (minutes per test)	20			
Fringe benefits (% of total compensation)‡	29.9%	\$1.42		
Computer ink and paper (cost per test)	\$0.05	\$0.05		
<i>Total Variable Costs per Month</i>		\$5.23	\$548.64	\$1,013.67
Fixed Costs	Amount	Monthly		
Equipment and tools (purchase price)§	\$43,000	\$405.73		
Maintenance agreement (annual cost)	\$4,450	\$370.83		
Additional maintenance cost (annual cost)	\$1,050	\$87.50		
Building space (purchase price)	\$7,200	\$21.98		
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>			\$976.04	\$976.04
Total Cost			\$1,524.68	\$1,989.72
Net Revenue – Total Costs			\$457.41	\$3,160.50

* Values represent number of emissions inspections for 25th percentile, median, and 75th percentile stations of all stations doing inspections 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: $0.94 \times \$18.50 + 0.06 \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 are spread over useful life of 11 years.

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

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

Item	Equipment Only	Equipment and Building Costs
Fixed cost per month	\$954.06	\$976.04
Variable cost per inspection	\$5.23	\$5.23
Net fee per inspection	\$18.88	\$18.88
Break-Even Number of Inspections (monthly)	70	71
Stations At/Above Break-Even Number of Inspections	85%	84%

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, to provide explanation. This section summarizes the respondents' comments. There were 440 respondents who provided reasons for why the fee did not cover their costs. Many of these respondents gave multiple reasons; each reason was counted independently.

A. COST FACTORS PREVENTING STATIONS FROM RECOUPING COSTS

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

- High equipment-related costs (purchase/maintenance/service agreement) (220).
- The high and increasing cost of labor (171).
- General costs increasing with inflation and the increasing cost of living (134).

The high equipment-related costs were cited most commonly by both T&R and Test-Only stations in the Austin region, as well as by T&R stations in the El Paso region (50 percent or more of responding stations in these regions). The high and increasing cost of labor was also a particularly common comment, especially by Test-Only stations in the Austin area (50 percent of respondents). References to the general increase in costs were spread relatively evenly across areas, though somewhat more common—by an average of 9.5 percent—in Test-Only stations than in T&R stations.

Another notable factor, cited by 47 respondents, is the fact that the maximum fee associated with the inspections has not increased in many years, despite the rising costs of completing inspections and maintaining the business.

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. Twenty-one percent of ASM/OBD stations and 16 percent of OBD-only stations cited this. Station owners cited frequent breakdowns of the equipment, slow response times to service calls, the high cost of service calls, and the cost of replacement parts as reasons they cannot recoup costs.⁷ Several respondents noted that the lack of service providers of certified analyzers gives the one or two service providers a near-monopoly on the market, driving up profits for the manufacturers and giving them less incentive to be responsive to service calls. As discussed in Chapter VI, all of these costs were considered in the cost model.

⁷ Any unsatisfactory response to a service call by a 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. **High rent or building costs.** Over 15 percent of respondents (68) referenced high rent or building costs as a main factor in their inability to cover costs; over 40 percent of Test-Only stations in the Austin area reported this as a concern.
2. **High phone or internet costs and the need for a second line.** Respondents (66) often felt that the required phone or internet costs made it difficult to cover costs because many inspections require calls as part of their processes.
3. **Down time, extra time required, or wasted time due to volume of inspections.** Many stations (56) reported issues of down time being a major concern. The respondents stated that downtime of the equipment was a particular issue because, in many cases, inspectors cannot be given other tasks when there are no inspection customers. Inspectors are also often tasked to explain inspection issues with vehicle owners, which takes away from the time that they can be performing inspections. These concerns are most concentrated in the Austin and El Paso areas.
4. **High sticker costs and administrative fees.** Forty-three respondents (43) cited the cost of stickers and administrative fees (funding toward LIRAP and the TCEQ/DPS) as reasons for not being able to recoup costs. A few also noted that sticker deliveries were not timely, and this could hold up business.
5. **The fee is adequate for OBD-only inspections, but not ASM inspections.** Thirty respondents cited both higher equipment-related costs and a decreasing number of vehicles subject to ASM inspections as reasons why ASM inspections are 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. This number may seem low due to the fact that the Houston-Galveston-Brazoria/Dallas-Fort Worth area is the only one of the three to perform ASM/OBD tests, and thus is the only area where this issue is relevant.

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. **Need a more responsive and efficient system for maintenance.** Sixteen respondents (16) referenced issues regarding the maintenance services they received and the efficiency, responsiveness, and overall demeanor of those sent to repair their

equipment. Many found issues with the near-monopoly held by the maintenance industry; prices for maintenance are high while the quality of service often falls short of what is expected.

2. **Stations performing illegal tests.** A few respondents commented on other stations offering inspection stickers illegally to vehicles. Stations worry that this takes away from their legal business and allows vehicles that have not been properly inspected to be on the road. The greatest level of concern for this issue comes from T&R stations in the El Paso area.

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).

Sections VIII.D and VIII.E examine the additional revenue streams from repairs and supplementary analysis regarding emissions inspection throughput differences between T&R and Test-Only stations. Section VIII.F examines the additional costs and revenue streams associated with failed emissions inspections and retests that were not included in the Chapter VI cost analyses. Section VIII.G comprises ERG’s overall assessment of 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 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 percentage of respondents who say the fee covers their costs was lowest in the ARR region at 13 percent (14 percent of Test-Only stations and 12 percent of T&R stations). In the El Paso region, 22 percent of respondents said that the fee covers their costs (25 percent of Test-Only stations and 22 percent of T&R stations). In both of these areas, Test-Only stations were more likely than T&R stations to claim that the fee covers their costs (2 percent higher in the ARR area and 3 percent higher in the El Paso area).

The 30 percent of respondents in the HGB/DFW region performing ASM/OBD inspections who reported that the fee covers their costs was 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, at 44 percent.

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

Program Area	Test Type	Test-Only	Test-and-Repair	Total
ARR	All	14%	12%	13%
El Paso	All	25%	22%	22%
HGB/DFW	ASM/OBD	26%	32%	30%
HGB/DFW	OBD-only	41%	45%	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.

An increasing number of inspection 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: some potential investors likely have imperfect information, and some 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, 2012; Pechan, 2009) and the counts made in January 2014 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 2007 (excluding 2008, 2010, and 2011). This figure shows a 19 percent increase in the number of stations between the 2009 and 2012 counts, and another 9 percent increase since the 2012 count. This indicates that a fair number of station owners are making the business decision to remain in and enter the market, presumably 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, 2012, and 2014. This figure shows relative consistency in the number of stations in the El Paso region in the past two years. The count of Test-Only stations decreased by one in El Paso and one in ARR. These two losses were offset by an increase of two T&R stations in El Paso and 17 T&R stations in Austin (increases of 0.4 percent and 4 percent, respectively). It is interesting to speculate whether the additional income from repairs on failed vehicles is related to the increase in T&R stations and the decline of Test-Only stations. Because the total number of stations did not decrease in either

area, the public did not see a reduction in supply for their emission inspections. These data alone do not definitively determine the adequacy of the fee, as investors often make decisions on imperfect information. Thus, it is also important to consider whether the cost models provide a clearer picture on the adequacy of the fee.

Figure VIII-1. Number of Inspection Stations in HGB/DFW Program Areas, 2007 to 2014.

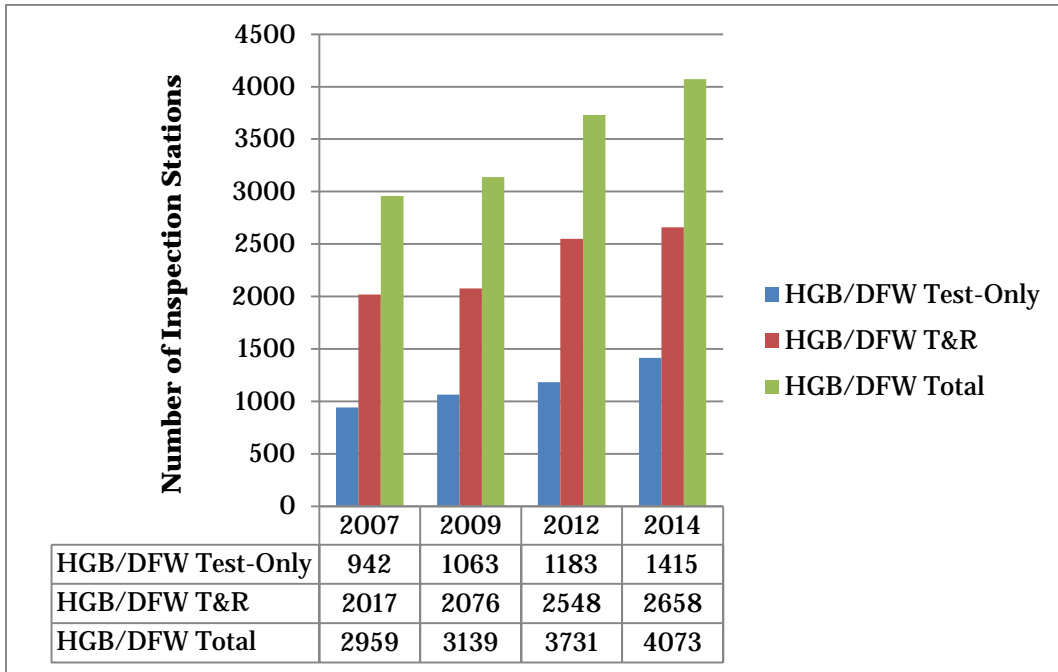
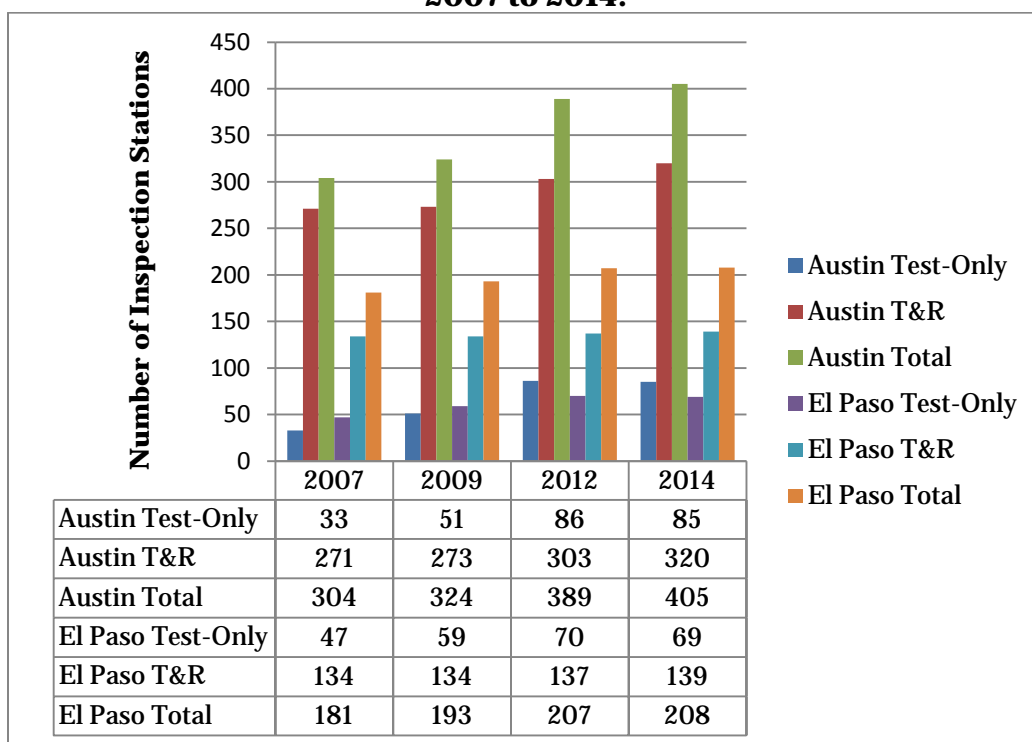


Figure VIII-2. Number of Inspection Stations in ARR and El Paso Program Areas, 2007 to 2014.



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

As shown in more detail above in Chapter 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 79 percent of stations in 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 and El Paso, 63 to 71 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	78	71	23	70
Including equipment and building costs	79	74	24	71
Percent of Stations At or Above Break-Even Number				
Including equipment costs	63%	71%	80%	85%
Including equipment and building costs	63%	69%	79%	84%

The summary of the number of stations breaking even since 2009, shown below in Table VIII-3, compares this year's percentages to those of the past. In the 2012 survey, ARR was the only region to fall below 60 percent of stations breaking even. According to the recent survey, ARR has now slightly increased to 63 percent of stations breaking even.

Table VIII-3. Summary of Break-Even Number of Inspections from 2009 to 2014 in all Program Areas

	Break-Even Tests (2009)	Percent of Stations Breaking Even (2009)	Break-Even Tests (2012)	Percent of Stations Breaking Even (2012)	Break-Even Tests (2014)	Percent of Stations Breaking Even (2014)
ARR	86	71%	98	59%	78	63%
El Paso	78	79%	67	78%	71	71%
HGB/DFW (OBD-only)	24	85%	22	79%	23	80%
HGB/DFW (ASM/OBD)	72	88%	71	86%	70	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 percentiles, respectively, based on emissions inspection throughput. As shown in Table VIII-4, small, medium, and large stations in HGB/DFW (both testing types) all generate enough revenue from emissions inspections to recoup costs. In ARR and El Paso, this is true for representative medium and large stations, but not a representative small station.

Table VIII-4. Total Costs and Net Revenue at Model Stations

	ARR	El Paso	HGB/DFW OBD-Only	HGB/DFW ASM/OBD
Small station net revenue	\$598.00	\$517.50	\$518.00	\$1,982.09
Small station total costs	\$753.94	\$696.83	\$464.71	\$1,524.68
Small stations net revenue – total cost	-\$155.94	-\$179.33	\$53.29	\$457.41
Medium station net revenue	\$1,276.50	\$1,495	\$1,165.50	\$3,662.15
Medium station total costs	\$1,090.28	\$1,139.95	\$680.87	\$1,989.72
Medium station net revenue – total cost	\$186.22	\$355.05	\$484.63	\$1,672.44
Large station net revenue	\$2,645.00	\$2,587.50	\$1,665.00	\$5,719.75
Large station total costs	\$1,768.65	\$1,635.21	\$847.63	\$2,559.25
Large station net revenue – total cost	\$876.35	\$952.29	\$817.37	\$3,160.50

While the lower percentage of stations recouping costs in ARR may suggest the need for an increase in the fee, it seems that the increase in the number of stations in the market may be more to blame. As discussed above in Section VIII.B, it appears that the market has expanded, as about 4 percent more stations in ARR are performing emissions inspections in 2014 than in 2012. During this time, there has been no significant increase in the number of inspections completed in the ARR region.

In El Paso, as shown in Table VIII-5, the number of stations performing inspections has remained relatively consistent (207 in 2012 and 208 in 2014), but the total annual throughput for the region has decreased by 2 percent. This means that the throughput per station decreased as well, and the stations receive less revenue.

Table VIII-5. Initial Testing Throughput Comparison from 2009 to 2014 in all Program Areas

Region	2009 Average Monthly Throughput Per Station	2009 Total Annual Throughput for All Stations	2012 Average Monthly Throughput Per Station	2012 Total Annual Throughput for All Stations	2014 Average Monthly Throughput Per Station	2014 Total Annual Throughput for All Stations
HGB/DFW (overall)	190	6,912,515	160	7,144,313	148	7,240,815
HGB/DFW (ASM/OBD)	256	6,165,386	236	5,964,029	246	5,476,258
HGB/DFW (OBD-only)	61	747,129	61	1,180,284	66	1,764,557
El Paso	195	448,442	183	454,988	179	446,991
ARR	221	861,660	192	894,108	184	894,648
Grand Total	193	8,222,617	164	8,493,409	153	8,582,454

D. ADDITIONAL CONSIDERATIONS: REPAIR REVENUE FROM FAILED INSPECTIONS

As noted in the Chapter VI cost model analysis, there was no differentiation between T&R and Test-Only stations (because the incremental costs of emissions inspections are the same for both station types), and repair revenue generated from failed emissions inspections was excluded from the Chapter 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-6 along with the total monthly revenue generated from failed inspections.

Table VIII-6. Monthly Revenue Generated from Failed Inspections

	ARR	El Paso	HGB/DFW OBD-Only	HGB/DFW ASM/OBD
Number of repairs per month (median)	3	5	3	5
Repair revenue from each failed emissions inspection (median)	\$200	\$125	\$200	\$200
Estimated monthly repair revenue generated from failed inspections	\$600	\$625	\$600	\$1,000

The table shows that a typical T&R station generates approximately \$600 to \$1,000 per month in additional gross revenue, depending on the region, 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 Chapter 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-7 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 relatively similar emissions inspection throughput, Test-Only stations typically have significantly higher emissions inspection throughput than T&R stations.

Table VIII-7. Initial Testing Throughput by Region and Station Type

Region	Station Type	25th Percentile "Small"	Median "Medium"	75th Percentile "Large"	Break-Even Tests
HGB/DFW (OBD-only)	Test-Only	26	58	96	23
	Test-and-Repair	31	58	89	23
	Both types	37	63	94	23
HGB/DFW (ASM/OBD)	Test-Only	110	214	332	70
	Test-and-Repair	107	191	293	70
	Both types	105	194	303	70
El Paso	Test-Only	116	208	329	71
	Test-and-Repair	49	111	177	71
	Both types	45	130	225	71
ARR	Test-Only	85	203	337	78
	Test-and-Repair	51	104	191	78
	Both types	52	111	230	78

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 stations to fall below the break-even number of emissions inspections are representative small stations in ARR and El Paso; however, representative small Test-Only stations are much closer to breaking even than representative small T&R stations in these regions. 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 AND RETESTS

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. This is often referred to as the sticker cost. 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 four. If anywhere from two to four vehicles do not return, the station gains between \$5.00 and \$34.00 for the two-month period (depending on region and test type). The highest reported number of non-returning vehicles is 90 for a two-month period (see Table V-24), but this only results in about \$112.00 in additional revenue per

month.⁸ ERG further examined this small stream of revenue by analyzing pass-fail results for all test types at the vehicle level. ERG found that 2.1 percent of OBD tests and 5.8 percent of ASM tests in the HGB/DFW region, 2.2 percent of tests in El Paso, and 3.6 percent of tests in ARR failed inspection without the vehicle ever returning for a free retest.

A small percentage of vehicles fail inspection, and owners have 15 days to repair their vehicle and receive a free retest from the same station. These free retests make up a small percentage of the station’s total through put (7 percent of tests in ARR, 4.3 percent of tests in El Paso, 4.4 percent of tests in HGB/DFW OBD-only stations, and 4.7 percent of tests in HGB/DFW full service stations—a weighted average of 4.4 percent of OBD tests and 9.6 percent of ASM tests). In the case of retests, the station would have variable costs associated with performing the retest (as noted in Chapter 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 Chapter 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.

Table VIII-8 below summarizes the difference in increased revenue and increased costs from failed inspections and retests per inspection for each region. The increase in cost per test shown below is a result of the retest rate for the area multiplied by the variable cost per inspection, addressed in Chapter VI. To calculate the increased revenue from failed inspections that do not result in retests, the percent of failed tests without successive passed tests are multiplied by the sticker cost in that area (mentioned above), because the sticker cost is not required on failed inspections. This is this increase in revenue per failed inspection. As shown in the table, the net increase in per-test cost ranged from \$0.07 to \$0.24 per test.

Table VIII-8. Increased Revenue from Failed Inspections and Increased Cost from Retests

Region and Station Type	Increased Per-Test Revenue from Failed Inspections	Increased Per-Test Cost from Retests	Net Increase in Per-Test Cost
ARR	\$0.16	\$0.40	\$0.24
El Paso	\$0.10	\$0.22	\$0.12
HGB/DFW OBD-only	\$0.18	\$0.27	\$0.09
HGB/DFW ASM/OBD	\$0.18	\$0.25	\$0.07

⁸ The station is in the HGB/DFW area, so the additional revenue equals 45 vehicles times \$2.50 per inspection.

Table VIII-9 outlines the impact on the break-even number of inspections in the cost model when taking into account failed inspections and retests. The increase in the break-even number of inspections ranges from zero to three tests depending on region and station type, and based on the amount of increased cost due to the failed inspections and retests. The increase in break-even number of inspections is greatest in ARR (increase of three inspections or six percent of throughput for a representative small station), which is also the region where increased cost surpasses increased revenue by the most (\$0.24 per inspection); however, even when considering this small increase in per-test cost, this only decreases the number of stations in the region that break even by 1 percent—a drop from 63 to 62 percent compared to the Chapter VI cost model.

Table VIII-9. Break-even Number of Inspections, Considering Failed Inspections and Retests

Region and Station Type		Original Break-even Number of Tests	Break-even Number of Tests with Failed Inspections and Retests
ARR	Equipment Only	78	81
	Equipment and Building Costs	79	82
El Paso	Equipment Only	71	72
	Equipment and Building Costs	74	75
HGB/DFW	Equipment Only	23	23
	OBD-Only Equipment and Building Costs	24	24
HGB/DFW	Equipment Only	70	70
	ASM/OBD Equipment and Building Costs	71	72

G. OVERALL FINDINGS ON THE ADEQUACY OF THE FEE

The cost model analyses show over 80 percent of stations in the HGB/DFW regions with net revenue covering costs and an increasing number of stations entering the market, which seems to indicate that the fee is sufficient in these regions.

In the ARR region, a much smaller percentage of stations apparently break even in the cost model analyses (63 percent). It appears that this is in part because of a large increase in the number of Test-and-Repair vehicle emissions inspection stations and resulting average throughput decreasing at the stations since the 2009 study (Pechan, 2009). The average monthly throughput decreased from 221 in 2009 to 192 from January to December of 2011 to 184 in from January to December of 2013, according to the 2009, 2012, and 2014 studies respectively. The number of Test-Only stations in the ARR region dropped by 1.2 percent since the 2012 study (one station). This could indicate that the fee may need to be raised in this region. If the market becomes increasingly unfavorable with a net flow of stations leaving the market and a relatively low percent of stations breaking even, it may be an even stronger candidate for an emissions inspection fee increase two years from now.

In the El Paso region, 71 percent of stations are shown to break even, a 7 percent decrease from the 2012 study. Additionally, the number of stations in El Paso was almost identical to the 2012 report with a loss of one Test-Only station and the addition of two Test-and-Repair stations. This could indicate that the fee may need to be raised in this region. If the market becomes increasingly unfavorable in El Paso, it may also be an even stronger candidate for a small emissions inspection fee increase 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.

- **Implement the following minor changes to the survey:**
 - In Questions 4, 6, 20, 22, and 23, consider including a “not applicable” response option to avoid respondents inappropriately entering “0.” Alternatively, build in additional skip logic so that value questions are not prompted for respondents whose earlier response make other parts of the question inapplicable.
 - In Question 6, emphasize clearly that hours/week refers to part time inspectors.
 - In Question 5, allow respondents to enter technician costs on a per-test basis. A few station owners noted they do not pay their technicians hourly and would prefer an option to enter their technician costs on a per-test basis.
 - Add additional validation checks. One of the most common mismatches by respondents was between the number of full-time workers entered in Question 6 and the number of full-time workers tallied in Question 8. This would also be applicable to part-time workers in Questions 6 and 9.
- **Increase Survey Participation:** Increase coordination between the TCEQ and DPS field personnel. El Paso had the highest response rate, possibly because the TCEQ had spoke with DPS staff about reminding station owners to take the survey in that region. The TCEQ could coordinate with DPS staff in the field in advance to make station owners aware of the upcoming survey.

CHAPTER IX. REFERENCES

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APPENDIX A. SURVEY INSTRUMENTS

This appendix includes the three region-specific survey instruments that were sent to stations. The electronic survey was a single survey using the same questions, and it was programmed to ask the corresponding region-specific questions based on the location of the station (e.g., if a station was from the El Paso region, a value of \$14 would appear for questions 22 and 24). Additionally, ERG programmed skip logic into the survey so stations would not see questions that were not applicable to them (e.g., if a respondent replied “no other services” [Test-Only] in Question 7, the electronic survey would automatically skip them to Question 13 as outlined in the paper survey). This skip logic used in the electronic survey can be seen in Questions 1, 4, 7, 14, and 17 in the surveys in this appendix.

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

ARR SURVEY INSTRUMENT

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Fee Analysis for AirCheckTexas Vehicle Emissions Inspection Program Survey

Conducted by Eastern Research Group, Inc.

The Texas Commission on Environmental Quality (TCEQ) is required by state statute to review the fee established for inspecting motor vehicle emissions every two years. The TCEQ has contracted with Eastern Research Group, Inc. (ERG) to conduct a survey to evaluate the costs associated with vehicle emissions inspections.

The purpose of this survey is to collect data regarding costs and revenues in the Texas inspection and maintenance (I/M) program. The information collected will be used to make improvements to the I/M program and establish a fee that provides a reasonable rate of return on an investment for inspection station owners and the lowest necessary costs of inspection for motorists.

You can help improve Texas air quality and support testing stations like yours by sharing your experiences with the AirCheckTexas Vehicle Emissions Inspection Program. Your participation is crucial to the success of this survey. The more surveys returned, the more information that will be available for ERG to develop an accurate assessment. Please do your part and complete and return the survey in the enclosed stamped envelope as soon as possible.

- This survey is voluntary. It should take about 10 to 15 minutes to complete.
- Please do not write your name on the survey. Responses will be compiled by Eastern Research Group, Inc. (ERG), a TCEQ contractor. Any published results of this survey will be summarized in a manner that does not allow identification of individual stations, such as a percentage or an average.
- If you own or operate more than one emissions testing station, please answer the questions only for the station to which the survey was sent.
- If you have any questions or comments about this study, we would be happy to talk with you. You can email ERG at fee-survey@erg.com or call us toll free at 1-844-811-2113.
- Please return your completed survey in the postage-paid envelope provided. If the envelope has been misplaced, please mail the form to:

Eastern Research Group, Inc.
Attn: TCEQ Fee Survey
110 Hartwell Avenue
Lexington, MA 02421

You can also complete the survey online at: www.tceqsurvey.com

Need help or have questions about completing this survey?

→ Please email ERG at fee-survey@erg.com or call 1-844-811-2113.

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SURVEY INSTRUCTIONS

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.

If you do not know the answer to a particular question, please consult with other members of your organization.

If you have any questions while completing the survey, please contact the survey helpline at fee-survey@erg.com or 844-811-2113.

In answering the questions:

- Please use blue or black ink.
- Place an **X** inside the box.
- Please do not put slashes through 0 or 7.

PART I – STATION INFORMATION

1 Does this station offer motor vehicle emissions inspections? Mark **ONE box only.**

Yes - Go to **2**

No - You have completed the survey. Please mail the questionnaire to us in the enclosed pre-paid envelope. Thank you.

2 In what year did this station first offer OBD and TSI emissions testing?

3 What are the typical operating hours for performing emissions inspections at this station? Circle AM or PM. Please indicate any days that the station is closed.

Day	Time Open		Time Closed	Circle if Closed
Monday	<input type="text"/> am/pm	to	<input type="text"/> am/pm	Closed
Tuesday	<input type="text"/> am/pm		<input type="text"/> am/pm	Closed
Wednesday	<input type="text"/> am/pm		<input type="text"/> am/pm	Closed
Thursday	<input type="text"/> am/pm		<input type="text"/> am/pm	Closed
Friday	<input type="text"/> am/pm		<input type="text"/> am/pm	Closed
Saturday	<input type="text"/> am/pm		<input type="text"/> am/pm	Closed
Sunday	<input type="text"/> am/pm		<input type="text"/> am/pm	Closed

4 How many emissions inspection bays do you currently have at this station? If zero, please enter 0.

Emissions inspection bays used **EXCLUSIVELY** for emissions testing

Emissions inspection bays used for emissions testing **AND OTHER USES** (If > 0, please answer 4b)

4b For the emissions inspection bays that are also used for other purposes, what percent of their use is for emissions testing?

percent (%) of time that emissions bays with other uses are used for emissions testing

5 What is the current **average hourly wage** paid at this station for emissions inspectors?

\$. per hour

6 How many emissions inspectors currently work at this station?

Full-time emissions inspectors

Part-time emissions inspectors (about hours/week per inspector)

PLEASE CONTINUE ON NEXT PAGE →

Page 1 of 3

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

- No other services - Go to **13**
- Non-repair services - Go to **13**
- Repair services only - Go to **8**
- Repair services and non-repair services - Go to **8**

PART II - STATIONS OFFERING REPAIR SERVICES

[If this station does not offer repair services, please go to Part III, beginning at Question 13.]

8 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

9 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

10 What proportion of the repair revenues for this station result directly from failed emission inspections? **Mark ONE box only.**

0%, perform inspections only about 75%

less than 10% between 75% and 95%

about 25% more than 95%

about 50%

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

12 What is a typical repair cost for an emission test failure?
 \$, .00 per repair for a failed emission test

PART III – EMISSIONS TESTING EQUIPMENT AND ADDITIONAL COSTS

13 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="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00
	<input type="checkbox"/> No
b. Tools and other equipment	<input type="checkbox"/> Yes How much? \$ <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00
	<input type="checkbox"/> No
c. Building space	<input type="checkbox"/> Yes How much? \$ <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00
	<input type="checkbox"/> No
d. Land	<input type="checkbox"/> Yes How much? \$ <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00
	<input type="checkbox"/> No

PLEASE CONTINUE ON NEXT PAGE →
 Page 2 of 3

- 14** Identify the option that best describes how you financed the purchase of emissions testing equipment. **Mark ONE box only.**
- Paid cash - Go to **17**
- Lease-to-purchase agreement arranged with vendor - Go to **15**
- Loan from bank - Go to **15**
- 15** What is the lease-to-purchase or loan term?
 years
- 16** What is the interest rate for the lease-to-purchase agreement or loan?
 percent (%)
- 17** Do you have a maintenance package for your emissions testing equipment?
- Yes. - Go to **18**
- No. - Go to **20**
- 18** What is the maintenance package cost for the emissions testing equipment? Please circle the time frame.
 \$, .00 per month/quarter/year
- 19** During the last year, what costs did you incur for normal maintenance of the emissions testing equipment that were not covered by the service contract or maintenance package?
 \$, .00
- 20** Have you ever decommissioned emissions testing equipment that you owned for its entire useful life?
- Yes, we owned the equipment for years, and the cost to decommission was \$, .00
- No.
- 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 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 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 page.
-

END

Thank you for completing this survey.

We are interested in your feedback! If you have suggestions for improving this survey, please include them on the back.

Please return the completed original questionnaire in the postage-paid envelope provided. Please make a photocopy of this form for your records. If the envelope has been misplaced, please mail the form to: Eastern Research Group, Inc., Attn: TCEQ Fee Survey, 110 Hartwell Avenue, Lexington, MA 02421.

EL PASO SURVEY INSTRUMENTS

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Fee Analysis for AirCheckTexas Vehicle Emissions Inspection Program Survey

Conducted by Eastern Research Group, Inc.

The Texas Commission on Environmental Quality (TCEQ) is required by state statute to review the fee established for inspecting motor vehicle emissions every two years. The TCEQ has contracted with Eastern Research Group, Inc. (ERG) to conduct a survey to evaluate the costs associated with vehicle emissions inspections.

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- Please do not write your name on the survey. Responses will be compiled by Eastern Research Group, Inc. (ERG), a TCEQ contractor. Any published results of this survey will be summarized in a manner that does not allow identification of individual stations, such as a percentage or an average.
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- Please use blue or black ink.
- Place an **X** inside the box.
- Please do not put slashes through 0 or 7.

PART I – STATION INFORMATION

1 Does this station offer motor vehicle emissions inspections? Mark **ONE box only.**

Yes - Go to **2**

No - You have completed the survey. Please mail the questionnaire to us in the enclosed pre-paid envelope. Thank you.

2 In what year did this station first offer OBD and TSI emissions testing?

3 What are the typical operating hours for performing emissions inspections at this station? Circle AM or PM. Please indicate any days that the station is closed.

Day	Time Open		Time Closed	Circle if Closed
Monday	<input type="text"/> am/pm	to	<input type="text"/> am/pm	Closed
Tuesday	<input type="text"/> am/pm		<input type="text"/> am/pm	Closed
Wednesday	<input type="text"/> am/pm		<input type="text"/> am/pm	Closed
Thursday	<input type="text"/> am/pm		<input type="text"/> am/pm	Closed
Friday	<input type="text"/> am/pm		<input type="text"/> am/pm	Closed
Saturday	<input type="text"/> am/pm		<input type="text"/> am/pm	Closed
Sunday	<input type="text"/> am/pm		<input type="text"/> am/pm	Closed

4 How many emissions inspection bays do you currently have at this station? If zero, please enter 0.

Emissions inspection bays used **EXCLUSIVELY** for emissions testing

Emissions inspection bays used for emissions testing **AND OTHER USES** (If > 0, please answer 4b)

4b For the emissions inspection bays that are also used for other purposes, what percent of their use is for emissions testing?

percent (%) of time that emissions bays with other uses are used for emissions testing

5 What is the current **average hourly wage** paid at this station for emissions inspectors?

\$. per hour

6 How many emissions inspectors currently work at this station?

Full-time emissions inspectors

Part-time emissions inspectors (about hours/week per inspector)

PLEASE CONTINUE ON NEXT PAGE →

Page 1 of 3

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

- No other services - Go to **13**
- Non-repair services - Go to **13**
- Repair services only - Go to **8**
- Repair services and non-repair services - Go to **8**

PART II - STATIONS OFFERING REPAIR SERVICES

[If this station does not offer repair services, please go to Part III, beginning at Question 13.]

8 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

9 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

10 What proportion of the repair revenues for this station result directly from failed emission inspections? **Mark ONE box only.**

0%, perform inspections only about 75%

less than 10% between 75% and 95%

about 25% more than 95%

about 50%

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

12 What is a typical repair cost for an emission test failure?
 \$, .00 per repair for a failed emission test

PART III – EMISSIONS TESTING EQUIPMENT AND ADDITIONAL COSTS

13 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="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00
	<input type="checkbox"/> No
b. Tools and other equipment	<input type="checkbox"/> Yes How much? \$ <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00
	<input type="checkbox"/> No
c. Building space	<input type="checkbox"/> Yes How much? \$ <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00
	<input type="checkbox"/> No
d. Land	<input type="checkbox"/> Yes How much? \$ <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00
	<input type="checkbox"/> No

PLEASE CONTINUE ON NEXT PAGE →
 Page 2 of 3

- 14** Identify the option that best describes how you financed the purchase of emissions testing equipment. **Mark ONE box only.**
- Paid cash - Go to **17**
- Lease-to-purchase agreement arranged with vendor - Go to **15**
- Loan from bank - Go to **15**
- 15** What is the lease-to-purchase or loan term?
 years
- 16** What is the interest rate for the lease-to-purchase agreement or loan?
 percent (%)
- 17** Do you have a maintenance package for your emissions testing equipment?
- Yes. - Go to **18**
- No. - Go to **20**
- 18** What is the maintenance package cost for the emissions testing equipment? Please circle the time frame.
 \$, .00 per month/quarter/year
- 19** During the last year, what costs did you incur for normal maintenance of the emissions testing equipment that were not covered by the service contract or maintenance package?
 \$, .00
- 20** Have you ever decommissioned emissions testing equipment that you owned for its entire useful life?
- Yes, we owned the equipment for years, and the cost to decommission was \$, .00
- No.
- 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 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 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 page.
-

END

Thank you for completing this survey.

We are interested in your feedback! If you have suggestions for improving this survey, please include them on the back.

Please return the completed original questionnaire in the postage-paid envelope provided. Please make a photocopy of this form for your records. If the envelope has been misplaced, please mail the form to: Eastern Research Group, Inc., Attn: TCEQ Fee Survey, 110 Hartwell Avenue, Lexington, MA 02421.

HGB/DFW SURVEY INSTRUMENT

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Fee Analysis for AirCheckTexas Vehicle Emissions Inspection Program Survey

Conducted by Eastern Research Group, Inc.

The Texas Commission on Environmental Quality (TCEQ) is required by state statute to review the fee established for inspecting motor vehicle emissions every two years. The TCEQ has contracted with Eastern Research Group, Inc. (ERG) to conduct a survey to evaluate the costs associated with vehicle emissions inspections.

The purpose of this survey is to collect data regarding costs and revenues in the Texas inspection and maintenance (I/M) program. The information collected will be used to make improvements to the I/M program and establish a fee that provides a reasonable rate of return on an investment for inspection station owners and the lowest necessary costs of inspection for motorists.

You can help improve Texas air quality and support testing stations like yours by sharing your experiences with the AirCheckTexas Vehicle Emissions Inspection Program. Your participation is crucial to the success of this survey. The more surveys returned, the more information that will be available for ERG to develop an accurate assessment. Please do your part and complete and return the survey in the enclosed stamped envelope as soon as possible.

- This survey is voluntary. It should take about 10 to 15 minutes to complete.
- Please do not write your name on the survey. Responses will be compiled by Eastern Research Group, Inc. (ERG), a TCEQ contractor. Any published results of this survey will be summarized in a manner that does not allow identification of individual stations, such as a percentage or an average.
- If you own or operate more than one emissions testing station, please answer the questions only for the station to which the survey was sent.
- If you have any questions or comments about this study, we would be happy to talk with you. You can email ERG at fee-survey@erg.com or call us toll free at 1-844-811-2113.
- Please return your completed survey in the postage-paid envelope provided. If the envelope has been misplaced, please mail the form to:

Eastern Research Group, Inc.
Attn: TCEQ Fee Survey
110 Hartwell Avenue
Lexington, MA 02421

You can also complete the survey online at: www.tceqsurvey.com

Need help or have questions about completing this survey?

→ Please email ERG at fee-survey@erg.com or call 1-844-811-2113.

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SURVEY INSTRUCTIONS

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.

If you do not know the answer to a particular question, please consult with other members of your organization.

If you have any questions while completing the survey, please contact the survey helpline at fee-survey@erg.com or 844-811-2113.

In answering the questions:

- Please use blue or black ink.
- Place an **X** inside the box.
- Please do not put slashes through 0 or 7.

PART I – STATION INFORMATION

- 1** Does this station offer motor vehicle emissions inspections? **Mark ONE box only.**
- Yes - Go to **1b**
- No - You have completed the survey. Please mail the questionnaire to us in the enclosed pre-paid envelope. Thank you.

- 1b** [HGBDFW survey only] Identify the type of air emissions testing offered at your station. **Mark ONE box only.**
- Full service – ASM (Acceleration Simulation Mode) and OBD (On-Board Diagnostics)
- OBD only

- 2** In what year did this station first offer OBD only, or ASM and OBD testing?

- 3** What are the typical operating hours for performing emissions inspections at this station? Circle AM or PM. Please indicate any days that the station is closed.

Day	Time Open		Time Closed	Circle if Closed
Monday	<input style="width: 40px;" type="text"/> am/pm	to	<input style="width: 40px;" type="text"/> am/pm	Closed
Tuesday	<input style="width: 40px;" type="text"/> am/pm		<input style="width: 40px;" type="text"/> am/pm	Closed
Wednesday	<input style="width: 40px;" type="text"/> am/pm		<input style="width: 40px;" type="text"/> am/pm	Closed
Thursday	<input style="width: 40px;" type="text"/> am/pm		<input style="width: 40px;" type="text"/> am/pm	Closed
Friday	<input style="width: 40px;" type="text"/> am/pm		<input style="width: 40px;" type="text"/> am/pm	Closed
Saturday	<input style="width: 40px;" type="text"/> am/pm		<input style="width: 40px;" type="text"/> am/pm	Closed
Sunday	<input style="width: 40px;" type="text"/> am/pm		<input style="width: 40px;" type="text"/> am/pm	Closed

- 4** How many emissions inspection bays do you currently have at this station? If zero, please enter 0.
- Emissions inspection bays used **EXCLUSIVELY** for emissions testing
- Emissions inspection bays used for emissions testing **AND OTHER USES** (If > 0, please answer 4b)

- 4b** For the emissions inspection bays that are also used for other purposes, what percent of their use is for emissions testing?
- percent (%) of time that emissions bays with other uses are used for emissions testing

- 5** What is the current **average hourly wage** paid at this station for emissions inspectors?
- \$. per hour

- 6** How many emissions inspectors currently work at this station?
- Full-time emissions inspectors
- Part-time emissions inspectors (about hours/week per inspector)

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

- No other services - Go to **13**
- Non-repair services - Go to **13**
- Repair services only - Go to **8**
- Repair services and non-repair services - Go to **8**

PART II - STATIONS OFFERING REPAIR SERVICES

[If this station does not offer repair services, please go to Part III, beginning at Question 13.]

8 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

9 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

10 What proportion of the repair revenues for this station result directly from failed emission inspections? **Mark ONE box only.**

0%, perform inspections only about 75%

less than 10% between 75% and 95%

about 25% more than 95%

about 50%

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

12 What is a typical repair cost for an emission test failure?
 \$, .00 per repair for a failed emission test

PART III – EMISSIONS TESTING EQUIPMENT AND ADDITIONAL COSTS

13 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="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00
	<input type="checkbox"/> No
b. Tools and other equipment	<input type="checkbox"/> Yes How much? \$ <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00
	<input type="checkbox"/> No
c. Building space	<input type="checkbox"/> Yes How much? \$ <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00
	<input type="checkbox"/> No
d. Land	<input type="checkbox"/> Yes How much? \$ <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00
	<input type="checkbox"/> No

PLEASE CONTINUE ON NEXT PAGE →
 Page 2 of 3

14 Identify the option that best describes how you financed the purchase of emissions testing equipment. **Mark ONE box only.**

- Paid cash - Go to **17**
- Lease-to-purchase agreement arranged with vendor - Go to **15**
- Loan from bank - Go to **15**

15 What is the lease-to-purchase or loan term?

years

16 What is the interest rate for the lease-to-purchase agreement or loan?

percent (%)

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

- Yes. - Go to **18**
- No. - Go to **20**

18 What is the maintenance package cost for the emissions testing equipment? Please circle the time frame.

\$, .00 per month/quarter/year

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

\$, .00

20 Have you ever decommissioned emissions testing equipment that you owned for its entire useful life?

- Yes, we owned the equipment for years, and the cost to decommission was \$, .00
- No.

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 \$27 for an emission test?

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

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

- Yes. About how many vehicles?
- No.

24 In your opinion, does the \$27 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 page.

END

Thank you for completing this survey.

We are interested in your feedback! If you have suggestions for improving this survey, please include them on the back.

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