



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

Prepared for:  
Texas Commission on Environmental Quality  
Air Quality Division

Prepared by:  
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## EXECUTIVE SUMMARY

### A. BACKGROUND

This study assesses the adequacy of the vehicle emissions inspection fee in the AirCheckTexas program areas: i.e., whether revenue from emissions inspections covers the associated costs. It 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 inspections 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 charged by inspection stations is capped at \$18.50 and \$24.50 for on-board diagnostic (OBD) and accelerated simulation mode (ASM) inspections respectively in the HGB and DFW program areas, \$11.50 in the El Paso program area, and \$11.50 in the ARR program area. Table ES-1 shows the total inspection-related fees charged to customers, broken down into the safety inspection cost (\$7.00) and emissions inspection costs.

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

Program Area	Safety Inspection Test Fee	Emissions Inspection Test Fee (Maximum)	Total Inspection Fee (Paid by Customer to Inspection Station) (Maximum)	Emissions Inspection Administration Fee (Paid by Customer to State at Registration Renewal)
HGB/DFW (OBD test)	\$7.00	\$18.50	<b>\$25.50</b>	\$8.50
HGB/DFW (ASM test)	\$7.00	\$24.50	<b>\$31.50</b>	\$2.50
El Paso	\$7.00	\$11.50	<b>\$18.50</b>	\$2.50
Austin	\$7.00	\$11.50	<b>\$18.50</b>	\$4.50

In 2001, the 77<sup>th</sup> 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 Eastern Research Group, Inc. (ERG) in 2005, 2007, 2012, 2014, and 2016 (ERG, 2005, 2007, 2012, 2014, 2016) 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 March 2018, a web-based survey was made available to every vehicle emissions inspection station in the four AirCheckTexas program areas. This survey was electronic, with branching and conditional logic (i.e., certain questions differed or were skipped based on program area and whether the station performed repairs); in content, it was similar to the 2016 survey. For stations that requested paper copies, ERG also developed two hard copy variations of the survey to accommodate the differences in fees and testing types across program areas (see Appendix A). ERG received 789 electronic survey responses and five paper survey responses.

Most communications about 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 February 28, 2018, a week before the survey start date. An invitation bulletin containing the survey's URL ([www.tceqsurvey.com](http://www.tceqsurvey.com)) was sent on March 7, 2018. Additionally, over the duration of the survey period, the TCEQ sent three 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. One reminder email was sent to any station with an email address if they did not complete a response by March 26, 2018. Survey responses were accepted until April 6, 2018.

As mentioned above, ERG provided 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, though no requests were made.

As of March 1, 2018, the TCEQ emissions inspection database identified 5,257 active vehicle emissions inspection stations<sup>1</sup> (excluding fleet and government stations) in the four program areas under study. Table ES-2 shows the distribution of the 5,257 vehicle emissions inspection stations in the TCEQ emissions inspection database by program area and station type. ERG received 794 total survey responses during the survey period, of which 787 were in-scope (i.e., public stations that indicated they offer motor vehicle emissions inspections); 7 respondents stated that they did not offer vehicle emissions inspections. Table ES-3 shows the distribution of these 787 surveys by program area and station type.<sup>2</sup>

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<sup>1</sup> The list provided by the TCEQ to ERG on March 1, 2018, contained 5,257 active stations. One of the 5,257 active stations (with an enrollment date of 3/8/2018) was added to ERG's working list after the survey officially launched.

<sup>2</sup> For in-scope responses, ERG determined station type using the response to question 8 ("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, ERG imputed station type from the TCEQ emissions inspection database.

**Table ES-2. Number of Texas Emissions Inspection Stations in the TCEQ Database by Area and Station Type (March 2018)**

Program Area	Test-Only	Test-and-Repair	Total Stations
HGB/DFW	1,823	2,814	<b>4,637</b>
El Paso	73	135	<b>208</b>
Austin	124	288	<b>412</b>
<b>Total</b>	<b>2,020</b>	<b>3,237</b>	<b>5,257</b>

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

Program Area	Test-Only*	Test-and-Repair*	All Responses	In-Scope* Responses
HGB/DFW	147	510	663	657
El Paso	12	27	40	39
ARR	17	74	91	91
<b>Total</b>	<b>176</b>	<b>611</b>	<b>794</b>	<b>787</b>

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

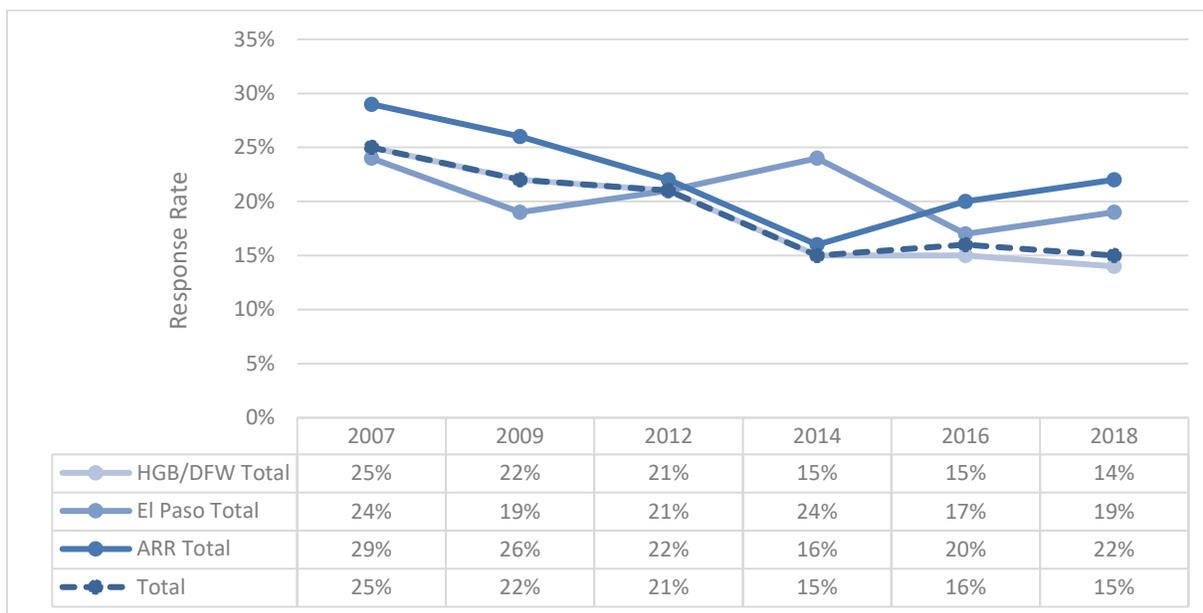
ERG included all surveys received—either electronically or in paper format—in the response rate calculation, but only in-scope responses are included in the analysis and tabulations. Table ES-4 shows the response rate by program area and station type, and Figure ES-1 shows the historical response rate by program area. The overall response rate was 15%, compared to 16% in the 2016 TCEQ inspection and maintenance fee analysis.

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

Program Area	Test-Only	Test-and-Repair	Total*
HGB/DFW	8%	18%	14%
El Paso	16%	20%	19%
ARR	14%	26%	22%
<b>Total</b>	<b>9%</b>	<b>19%</b>	<b>15%</b>

\* Response rates were calculated as: (surveys received) ÷ (total active stations).

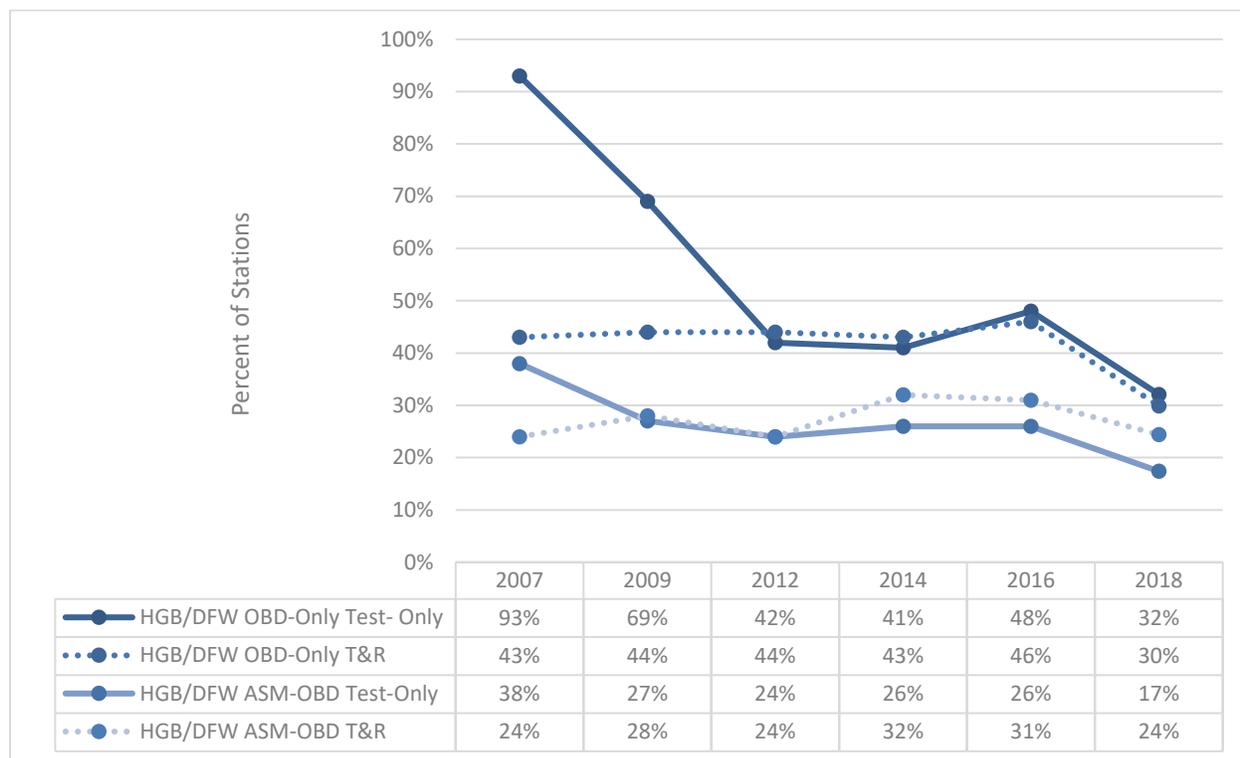
**Figure ES-1. Historical Response Rates by Area**



### C. FINDINGS

As shown in Figure ES-2, in the HGB/DFW program areas, 32% of OBD-only test-only stations and 30% of OBD-only test-and-repair (T&R) stations reported the emissions inspection fee covered their costs. In the HGB/DFW program areas, 17% of ASM-OBD test-only stations and 24% of ASM-OBD T&R stations reported the emissions inspection fee covered their costs. As shown in Figure ES-3, among test-only and T&R respondents in El Paso and ARR, between 11% and 33% of stations reported the fee covers their costs. These figures represent a small increase in El Paso test-only stations, and moderate to significant decreases for El Paso T&R stations (9%) and both ARR test-only (10%) and T&R stations (16%) from 2016 to 2018.

**Figure ES-2. Respondents Reporting Test Fees Cover Their Costs: HGB/DFW**



**Figure ES-3. Respondents Reporting Test Fees Cover Their Costs: El Paso and ARR**

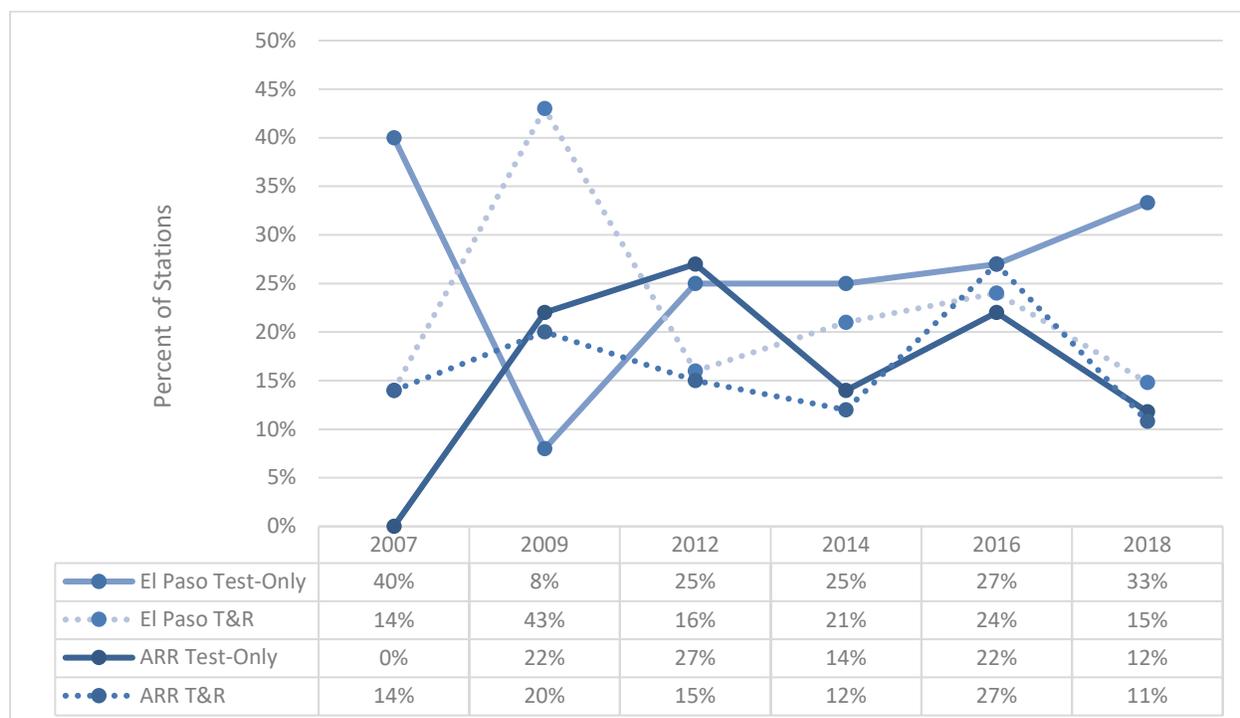
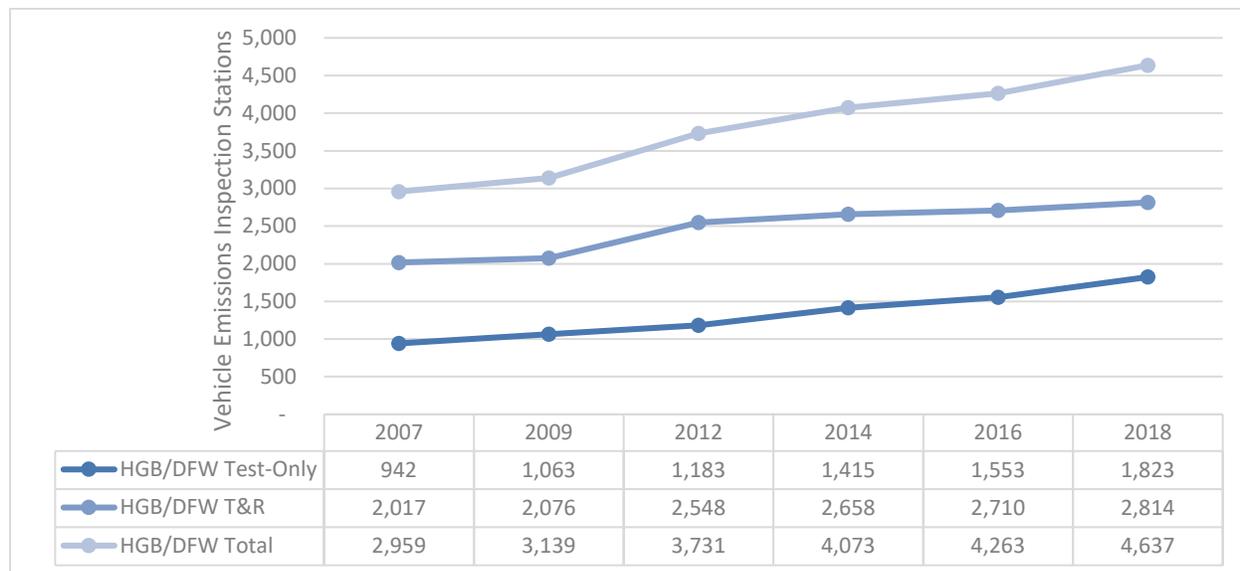
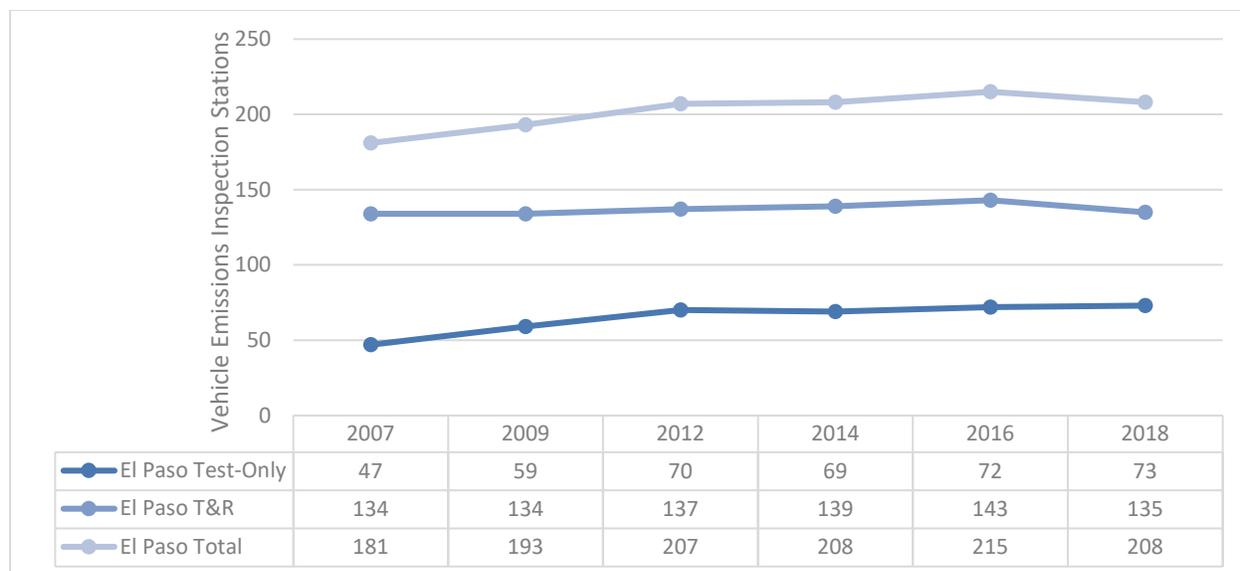


Figure ES-4, Figure ES-5, and Figure ES-6 summarize the station counts for HGB/DFW, El Paso, and ARR, respectively, based on data from the TCEQ Vehicle Identification Database for 2007, 2009, 2012, 2014, 2016, and 2018. The number of stations increased by 374 (9%) in HGB/DFW, and by 2 (0.5%) in ARR from 2016 to 2018. In El Paso, the number of stations decreased by 7 (3%) from 2016 to 2018. An increase in station count is typically one indicator that investors are making the conscious decision to stay in or enter the market based on a fee they consider adequate.

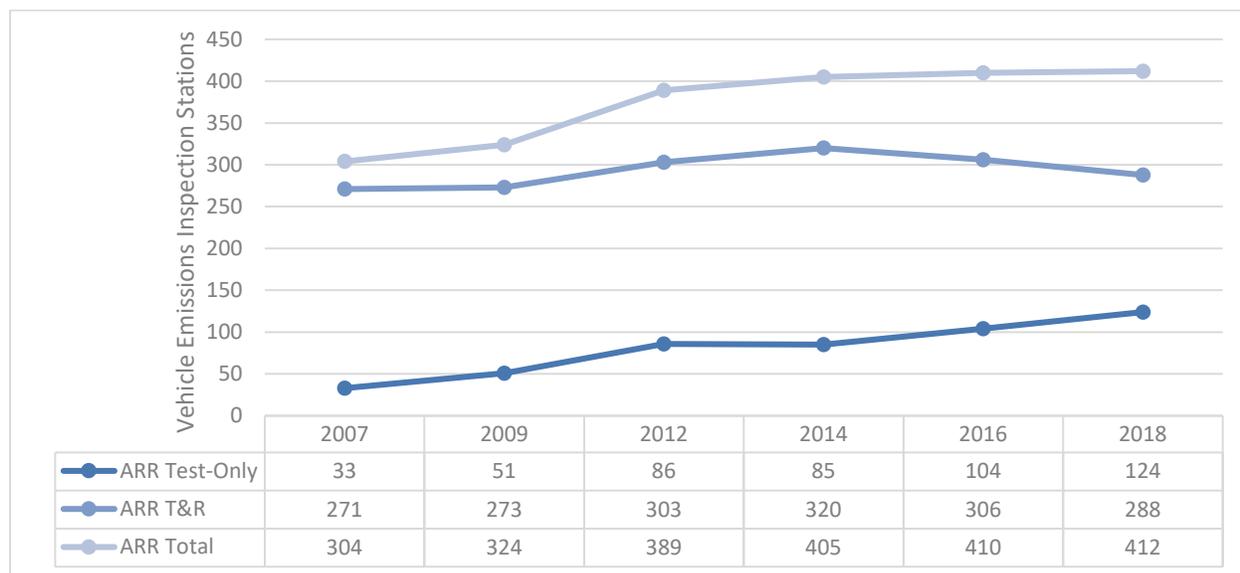
**Figure ES-4. Number of Inspection Stations in HGB/DFW Program Areas, 2007 to 2018**



**Figure ES-5. Number of Inspection Stations in El Paso Program Area, 2007 to 2018**



**Figure ES-6. Number of Inspection Stations in ARR Program Area, 2007 to 2018**



In the break-even cost model summarized in Table ES-5, 89% to 93% of stations (excluding building costs) 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 El Paso and ARR, 77% to 84% of stations (excluding building costs) have sufficient throughput to generate emissions inspection revenues that meet or exceed variable and fixed costs. Some stations did not incur incremental building costs in order to offer testing, such as adding or purchasing additional building space, so the analyses are done with and without building costs included.

**Table ES-5. Stations At/Above Break-Even Number of Inspections**

	HGB/DFW, OBD-Only	HGB/DFW, ASM-OBD	El Paso	ARR
<b>Break-Even Number of Tests (per Month)</b>				
Including equipment costs	26	97	70	82
Including equipment and building costs	53	145	123	153
<b>Percent of Stations Above Break-Even Number</b>				
Including equipment costs	89%	93%	84%	77%
Including equipment and building costs	71%	84%	61%	50%

The summary of the percent of stations breaking even since 2012, shown below in Table ES-6, compares 2018 percentages of stations breaking even to those of the past. The HGB/DFW program areas have had a consistent number of break-even tests for both OBD-only stations (26 to 27) and ASM-OBD stations (89 to 97), with between 84% to 93% of stations across both models breaking even. Likewise, the El Paso program area has had a consistent number of break-even tests (70 to 73) and a consistent percent of stations (80% to 84%) breaking even from

2012 to 2018. The ARR program area has had a consistent number of break-even tests (76 to 82) and a consistent percent of stations (73% to 77%) breaking even from 2012 to 2018.<sup>3</sup>

**Table ES-6. Summary of Break-Even Number of Inspections from 2012 to 2018 in All Program Areas, Excluding Building Costs**

	Break-Even Tests (2012)	Percent of Stations Breaking Even (2012)	Break-Even Tests (2014)	Percent of Stations Breaking Even (2014)	Break-Even Tests (2016)	Percent of Stations Breaking Even (2016)	Break-Even Tests (2018)	Percent of Stations Breaking Even (2018)
HGB/DFW (OBD-only)	27	86%	26	87%	26	87%	26	89%
HGB/DFW (ASM-OBD)	94	84%	89	85%	89	87%	97	93%
El Paso	70	80%	73	81%	70	80%	70	84%
ARR	80	74%	76	73%	79	74%	82	77%

The model station analysis reveals similar findings. This analysis created area-specific small-, medium-, and large-throughput stations representative of stations in the 25<sup>th</sup>, 50<sup>th</sup> (median), and 75<sup>th</sup> percentiles, respectively, based on emissions inspection throughput. Table ES-7 shows the monthly costs and net revenues at three model stations: small, medium, and large. Unlike in 2016, a few station types have revenues that do not exceed total costs. These cases occur in small model stations in HGB/DFW program areas conducting OBD-only inspections, small model stations in the El Paso program area, and small model stations in the ARR program area. All other model station types across the four program areas had net revenues that exceeded costs.

**Table ES-7. Monthly Costs and Net Revenues at Model Stations**

	HGB/DFW OBD-Only	HGB/DFW ASM-OBD	El Paso	ARR
Small station net revenue	\$888	\$3,268	\$1,104	\$1,012
Small station total costs	\$953	\$2,897	\$1,317	\$1,419
<b>Small stations net revenue – total cost</b>	<b>(\$65)</b>	<b>\$371</b>	<b>(\$213)</b>	<b>(\$407)</b>
Medium station net revenue	\$1,536	\$5,125	\$2,001	\$1,771
Medium station total costs	\$1,183	\$3,560	\$1,590	\$1,766
<b>Medium station net revenue – total cost</b>	<b>\$353</b>	<b>\$1,565</b>	<b>\$411</b>	<b>\$5</b>
Large station net revenue	\$2,257	\$7,669	\$3,588	\$3,416
Large station total costs	\$1,440	\$4,469	\$2,072	\$2,516
<b>Large station net revenue – total cost</b>	<b>\$817</b>	<b>\$3,199</b>	<b>\$1,516</b>	<b>\$900</b>

<sup>3</sup> A few small improvements were made in the 2018 model. We used improved data collected from the 2018 model to re-run the 2012 to 2016 cost models for more meaningful year-to-year comparability.

## I. INTRODUCTION

### A. BACKGROUND

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

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

Originally, the State of Texas issued inspection stickers to vehicles that successfully passed inspection. However, in accordance with House Bill (HB) 2305, passed by the 83rd Texas legislative session in 2013, the state stopped issuing inspection stickers on March 1, 2015, and implemented a new system, known as the “Two Steps, One Sticker” program, to only issue vehicles a single registration sticker once they have passed their emissions inspection and have been permitted to renew registration. As part of this change, inspection stations no longer collect the state’s portion of the fee and remit it to the Texas Department of Public Safety; however, the net emissions inspection fees kept by the stations have not changed. The state’s portion, i.e., the emission inspection administration fee, is now paid to the state at registration renewal.

Inspection stations in these program areas must offer both safety-only inspections 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 inspections. Currently, under 30 TAC §114.53 and §114.87, the motor vehicle emissions inspection fee charged by inspection stations is capped at \$18.50 per OBD inspection and \$24.50 per ASM inspection in both the HGB and DFW program areas, \$11.50 in the El Paso program area, and \$11.50 in the ARR program area. Table I-1 shows the total inspection-related fees charged to customers, broken down into the safety inspection cost (\$7.00) and the emissions inspection costs.

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

Program Area	Safety Inspection Test Fee	Emissions Inspection Test Fee (Maximum)	Total Inspection Fee (Paid by Customer to Inspection Station) (Maximum)	Emissions Inspection Administration Fee (Paid by Customer to State at Registration Renewal)
HGB/DFW (OBD test)	\$7.00	\$18.50	<b>\$25.50</b>	\$8.50
HGB/DFW (ASM test)	\$7.00	\$24.50	<b>\$31.50</b>	\$2.50
El Paso	\$7.00	\$11.50	<b>\$18.50</b>	\$2.50
Austin	\$7.00	\$11.50	<b>\$18.50</b>	\$4.50

In 2001, the 77<sup>th</sup> 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 ASM and 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 OBD-only (offering only OBD inspections) or full-service (offering ASM and OBD inspections). OBD-only stations are limited to 1,800 inspections per year (150 per month). This study aggregates the data collected from the HGB and DFW program areas 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, OBD-only and ASM-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 El Paso area on January 1, 2007, using two-speed idle (TSI) and OBD inspection technologies. Inspection 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.

Vehicle emissions inspections began in the ARR area on September 1, 2005, using TSI and OBD inspection technologies. Inspection stations in ARR must offer both 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.

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

Program Area	Tests Performed	I/M Program Start Date
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)
El Paso	OBD and TSI	January 1, 2007
ARR	OBD and TSI	September 1, 2005

The TCEQ regularly performs a vehicle emissions inspection program test fee analysis every two years. The analysis was carried out by ERG in 2005, 2007, 2012, 2014, and 2016 (ERG, 2005, 2007, 2012, 2014, 2016) 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 previous models.

## **B. REPORT ORGANIZATION**

Chapter II of this report summarizes the analytical methods used in this project. It introduces the business models used to evaluate the revenue and cost streams for stations that are AirCheckTexas I/M program participants. It also explains the sample survey design and implementation.

Chapter III (HGB/DFW), Chapter IV (El Paso), and Chapter V (ARR) present the survey findings by program area. The HGB and DFW program areas are analyzed together because they have the same emissions inspection fee cap and have similar cost and revenue structures. Within each

program area, findings are broken down by test-only and T&R stations. Within the HGB/DFW program areas, 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 program areas and test type groupings:

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

This section includes “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 a station must perform per month for revenue to equal costs. While these cost models aggregate data from test-only and T&R stations to better represent the whole industry, the report includes 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 model's analyses, the median is typically preferred to the average because the average is often heavily influenced by a few extreme values or outliers.
- The 25<sup>th</sup> percentile (also known as the 1<sup>st</sup> quartile) is the value below which 25% of the observations fall (i.e., 25% of values are below this value).
- The 50<sup>th</sup> percentile (also known as the median [see above] or 2<sup>nd</sup> quartile) is the value below which 50% of the observations fall.
- The 75<sup>th</sup> percentile (also known as the 3<sup>rd</sup> quartile) is the value below which 75% of the observations fall (i.e., 25% of values are above this value).
- The interquartile range is the 25<sup>th</sup> percentile value to 75<sup>th</sup> percentile value. In short, it is the range of the middle half (50%) of the data where 25% of data is higher than the upper end of the range and 25% of the data is lower than the lower end of the range.

In some cases, the average in a given table may be greater than the median. This is due to one or a few very large values significantly affecting the average. For this analysis, the median values were used in the cost models to avoid those few very large values from affecting the data.

## II. ANALYSIS METHODS SUMMARY

Beginning in March 2018, ERG conducted a four-week survey of motor vehicle emissions inspection stations in the four AirCheckTexas program areas (HGB, DFW, El Paso, and ARR). As in previous years, the primary goal of the survey was to inform analytical cost models that assess the adequacy of the vehicle emissions inspection fee in these areas. The data collection was implemented as a web-based survey fielded to all active inspection stations in the four program areas. The survey development, sample design, data collection methods, and response rate are detailed below.

### A. SURVEY DEVELOPMENT

To allow for time-trend comparisons, ERG developed a draft questionnaire designed to elicit data largely analogous to those from previous survey years. This year, however, saw considerable revisions to questions on emissions testing equipment, building, and other costs. For example, to better calculate building costs, the 2018 survey asked for the approximate square footage of each station and either a purchase price or monthly rent for building space. It also allowed stations to provide an itemized list of their existing certified emissions testing analyzers to collect cost information and financing mechanisms on a per-unit basis. The survey similarly requested per-unit details for any analyzers that stations had gotten rid of. Applicable costs for other tools, equipment, and related supplies were also collected using a more detailed approach; stations were asked to provide costs for a dedicated phone line or internet, calibration gases, wands/probes, printer paper and ink/toner, and other supplies or replacement parts. Three questions were conceptually new to the 2018 survey: two about emissions inspector benefits (one on health care and paid leave, the other on inspector training costs) and one about the average number of additional minutes spent with an emissions inspection customer beyond the actual testing time. Other changes included slight wording modifications and some reordering to improve survey flow. Finally, a few open-ended question types were converted to multiple choice to facilitate analysis.

As in previous years, the survey asked a few questions specifically aimed at categorizing stations by the type of services offered. More specifically, respondents whose stations perform 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. In contrast, 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. This distinction is used throughout the analysis to make comparisons between station types.

The survey instrument was coded as a Web-based survey using Qualtrics survey software, as well as a paper survey<sup>4</sup> for stations requesting one. The instrument’s design relied on conditional branching, or skip logic, to alter respondents’ pathways based on their program area or answers to particular questions. This allowed stations from all four program areas to access the same survey interface and made the online experience straightforward and seamless.

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<sup>4</sup> Two versions of the paper survey were designed (one covering the HGB and DFW program areas and one covering El Paso and ARR) in order to accommodate differences between program areas in the types of emissions tests offered and fee amounts charged for those tests.

For example, only stations in HGB/DFW were asked if they offer OBD-only or full service (ASM and OBD testing). Data validation checks (such as range limits and number-only fields) were also coded into the electronic survey where applicable to help ensure that responses were formatted appropriately.

## B. SAMPLE DESIGN

The universe for this survey was active vehicle emissions inspection stations in the four AirCheckTexas program areas. The TCEQ provided ERG with the database of all 5,257 of these stations;<sup>5</sup> all of them were invited to participate in the survey.

## C. DATA COLLECTION METHODS

Like the 2016 survey, the 2018 initiative was electronic, with paper surveys mailed to respondents by request only. Most communications about the survey were sent directly to the vehicle emissions inspection stations via the TCEQ as analyzer notification bulletins. These bulletins are transmitted to the station analyzer (i.e., testing equipment) during regular electronic communications with the TCEQ Vehicle Identification Database (VID); they can be displayed onscreen and printed and given to the station manager. The timing of a notification's arrival at any specific inspection station was dependent on when the TCEQ transmitted its bulletin and whether the analyzer had a successful communication with the VID.

The TCEQ provided advance notice of the survey's launch with a pre-notification bulletin to inform station personnel of the coming survey and explain its importance. This bulletin was sent on February 28, 2018, one week before the survey launch. A formal invitation containing the survey's URL ([www.tceqsurvey.com](http://www.tceqsurvey.com)) was sent also via TCEQ analyzer bulletin on March 7, 2018. The TCEQ sent three reminder bulletins over the survey period, requesting that stations complete the survey online or contact ERG's telephone or email hotline to get a paper survey.

Like the 2016 survey efforts, the TCEQ sent a single email reminder on March 27, 2018 (in the third week of the survey) to stations that had not yet submitted a response. While survey responses were requested by April 4, 2018, they were accepted until April 6, 2018, to accommodate any surveys postmarked by the survey deadline.

Before implementation, ERG established an email address and toll-free hotline to field technical questions, concerns, and requests for paper surveys from survey respondents. While the survey was active, ERG fielded 40 calls and 20 emails. Among these hotline inquiries, nine requested paper versions of the survey and 14 expressed difficulties accessing the survey such as typing its URL into a search engine. ERG also accepted surveys by fax and email, though none were submitted this way. ERG administered one survey over the phone.

Online survey responses, captured directly in a database, eliminate the need for additional coding and data entry. ERG staff manually entered data from completed paper surveys

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<sup>5</sup> These 5,257 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. These facilities test emissions 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.

(returned via fax or U.S. mail) into the online survey. This database of responses was later exported as a comma-separated values (.csv) file for import and analysis in MS Excel and Stata.<sup>®</sup>

#### D. RESPONSE RATE

The first completed surveys were received on March 7, 2018, and the final response was recorded on April 6, 2018. During this period, 794 responses were received, only five of which were submitted as paper surveys. Of the 794 responses, seven were deemed ineligible (i.e., out of scope) for not offering motor vehicle emissions inspections. The remaining 787 responses were in-scope (i.e., public stations that offer vehicle emissions inspections).

Table II-1 shows the breakdown of the 5,257 vehicle emissions inspection stations (excluding fleet and government stations) identified in the TCEQ vehicle emissions inspection database by program area and station type. Table II-2 shows the breakdown of the 787 survey responses by program area and station type.<sup>6</sup>

**Table II-1. Texas Emissions Inspection Stations in the TCEQ Database by Area/Station Type (March 1, 2018)**

Program Area	Test-Only	Test-and-Repair	Total
HGB/DFW	1,823	2,814	<b>4,637</b>
El Paso	73	135	<b>208</b>
ARR	124	288	<b>412</b>
<b>Total</b>	<b>2,020</b>	<b>3,237</b>	<b>5,257</b>

**Table II-2. Survey Responses by Area and Station Type**

Program Area	Test-Only	Test-and-Repair	All Responses	In-Scope* Responses
HGB/DFW	147	510	663	657
El Paso	12	27	40	39
ARR	17	74	91	91
<b>Total</b>	<b>176</b>	<b>611</b>	<b>794</b>	<b>787</b>

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

The overall response rate of 15% is similar to the previous TCEQ I/M fee survey studies. This response rate assumes that all stations in the VID are currently operating and received the analyzer notification bulletins regarding the survey. Table II-3 shows the response rate by program area and station type. 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.

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<sup>6</sup> Station type for in-scope facilities was determined by responses to question 8, 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 T&R facilities. For out-of-scope responses, station type was imputed from the TCEQ emissions inspection database.

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

Program Area	Test-Only	Test-and-Repair	Total
HGB/DFW	8%	18%	14%
El Paso	16%	20%	19%
ARR	14%	26%	22%
<b>Total</b>	9%	19%	15%

\* Response rates were calculated as: (Surveys Received) ÷ (Total Active Stations).

We did not follow up with individual stations to discuss any inconsistent or unreasonable responses, nor did we remove any extreme values. Such outliers do not often affect the median, which is used in the cost model. We did perform some data cleaning to change blank or “missing” survey fields to zero and change illogical zeros to missing values when we interpreted responses to indicate that the latter would be more correct. Other data changes were minor.<sup>7</sup>

Except as described above and in footnote 7, data in the following sections are displayed as submitted by the respondent. Sometimes, very high or very low data points heavily influence the “average” (i.e., mean) value shown in the tables. Therefore, the median values are likely most representative of a typical station: as mentioned above, one or two extreme values in a large data set typically have little to no impact on the median.

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<sup>7</sup> For example, four nonzero wage values below \$7.25 were recoded to \$7.25 for consistency with Texas’ minimum wage. Eleven units were imputed for maintenance costs based on best professional judgement using other stations’ reported cost per unit. Finally, missing information about the facility type was imputed from the TCEQ emissions inspection database.

### III. HGB/DFW SURVEY RESULTS

This section describes the survey responses for test-only and T&R stations in the HGB/DFW program areas (the survey instrument itself can be found in Appendix A). Any survey fields that were left blank are reported as “missing.” Due to rounding, the percentages in some of the tables do not total exactly 100%. Results are not provided for some basic questions that are not highly relevant to the analysis of the emissions inspection fee.

In some instances, 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 150 emissions inspections per month (1,800 per year) in the HGB/DFW program areas.

#### A. GENERAL STATION INFORMATION

Table III-1 summarizes the typical hours of operation of stations in the HGB/DFW program areas, the number of hours these stations spend open per day, and the number of stations closed on each day of the week. This information is not directly input into the cost model, but it does provide some insight into labor usage between station types, as test-only stations are required to pay inspectors for their entire shifts regardless of whether they are conducting inspections and they may not be able to deploy the labor elsewhere. Overall, test-only and T&R stations have similar operating hours, although a higher percentage of T&R stations are closed on the weekends.

**Table III-1. Hours of Operation—HGB/DFW**

Day	Median Open Time	Median Close Time	Median Hours Open	Number Open	Number Closed
<b>Test-Only</b>					
<b>OBD-Only</b>					
Monday	8:30am	6:00pm	9	75	3
Tuesday	8:30am	6:00pm	9	78	0
Wednesday	8:30am	6:00pm	9	78	0
Thursday	8:30am	6:00pm	9	76	2
Friday	8:30am	6:00pm	9	78	0
Saturday	9:00am	5:00pm	8	69	9
Sunday	9:00am	5:00pm	8	16	62
<b>ASM-OBD</b>					
Monday	8:00am	6:00pm	10	69	0
Tuesday	8:00am	6:00pm	10	69	0
Wednesday	8:00am	6:00pm	10	69	0
Thursday	8:00am	6:00pm	10	69	0
Friday	8:00am	6:00pm	10	69	0
Saturday	8:00am	5:00pm	8.75	65	4
Sunday	10:00am	5:00pm	7	13	56
<b>Test-and-Repair</b>					
<b>OBD-Only</b>					
Monday	8:00am	6:00pm	10	375	0
Tuesday	8:00am	6:00pm	10	375	0
Wednesday	8:00am	6:00pm	10	373	2
Thursday	8:00am	6:00pm	10	374	1
Friday	8:00am	6:00pm	10	375	0
Saturday	8:00am	5:00pm	8.5	264	111
Sunday	10:00am	5:00pm	7	31	344
<b>ASM-OBD</b>					
Monday	8:00am	6:00pm	10	135	0
Tuesday	8:00am	6:00pm	10	135	0
Wednesday	8:00am	6:00pm	10	135	0
Thursday	8:00am	6:00pm	10	135	0
Friday	8:00am	6:00pm	10	135	0
Saturday	8:00am	5:00pm	9	125	10
Sunday	9:00am	5:00pm	7	30	105

Table III-2 and Table III-3 summarize the number of emissions inspection bays at each station and the uses for those bays. Table III-2 shows how many bays are used exclusively for emissions testing, while Table III-3 shows the number of bays used for emissions testing in addition to other uses. The majority of stations in the HGB/DFW program areas, both OBD-only and ASM-OBD (full-service) stations, have one bay used exclusively for emissions testing and either zero, one, or two bays for testing and other uses.

**Table III-2. Number of Bays Used Exclusively for Testing—HGB/DFW**

Station Type and Test Type	Number of Bays	Number of Respondents	Percent
<b>Test-Only</b>			
OBD-only	0	9	11.5%
	1	60	76.9%
	2	4	5.1%
	3	4	5.1%
	10	1	1.3%
	<b>Total</b>	<b>78</b>	<b>100.0%</b>
ASM/OBD	0	4	5.8%
	1	39	56.5%
	2	20	29.0%
	3	5	7.2%
	4	1	1.4%
	<b>Total</b>	<b>69</b>	<b>100.0%</b>
<b>Test-and-Repair</b>			
OBD-only	0	68	18.1%
	1	283	75.5%
	2	21	5.6%
	3	1	0.3%
	5	1	0.3%
	6	1	0.3%
	<b>Total</b>	<b>375</b>	<b>100.0%</b>
ASM/OBD	0	12	8.9%
	1	96	71.1%
	2	25	18.5%
	3	1	0.7%
	10	1	0.7%
	<b>Total</b>	<b>135</b>	<b>100.0%</b>

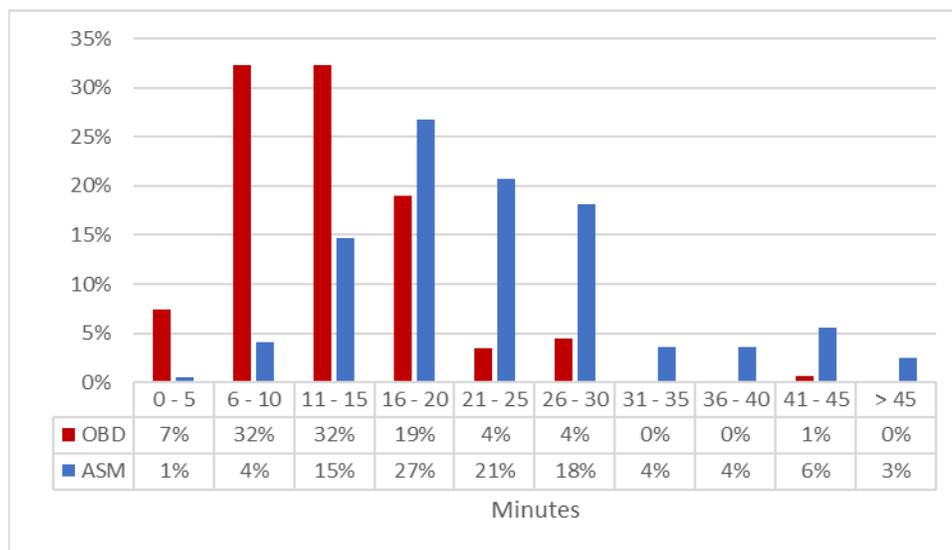
**Table III-3. Number of Bays Used for Testing and Other Uses—HGB/DFW**

Station and Test Type	Number of Bays	Number of Respondents	Percent
<b>Test-Only</b>			
OBD-only	0	55	70.5%
	1	17	21.8%
	2	6	7.7%
	<b>Total</b>	<b>78</b>	<b>100.0%</b>
ASM/OBD	0	54	78.3%
	1	11	15.9%
	2	3	4.3%
	3	1	1.4%
	<b>Total</b>	<b>69</b>	<b>100.0%</b>
<b>Test-and-Repair</b>			
OBD-only	0	242	64.5%
	1	81	21.6%
	2	27	7.2%
	3	6	1.6%
	4	5	1.3%
	5	5	1.3%
	6	2	0.5%
	8	4	1.1%
	9	1	0.3%
	12	1	0.3%
	20	1	0.3%
	<b>Total</b>	<b>375</b>	<b>100.0%</b>
	ASM/OBD	0	84
1		32	23.7%
2		8	5.9%
3		4	3.0%
4		2	1.5%
5		2	1.5%
6		1	0.7%
7		1	0.7%
12		1	0.7%
<b>Total</b>		<b>135</b>	<b>100.0%</b>

## B. THE EMISSIONS INSPECTION PROCESS

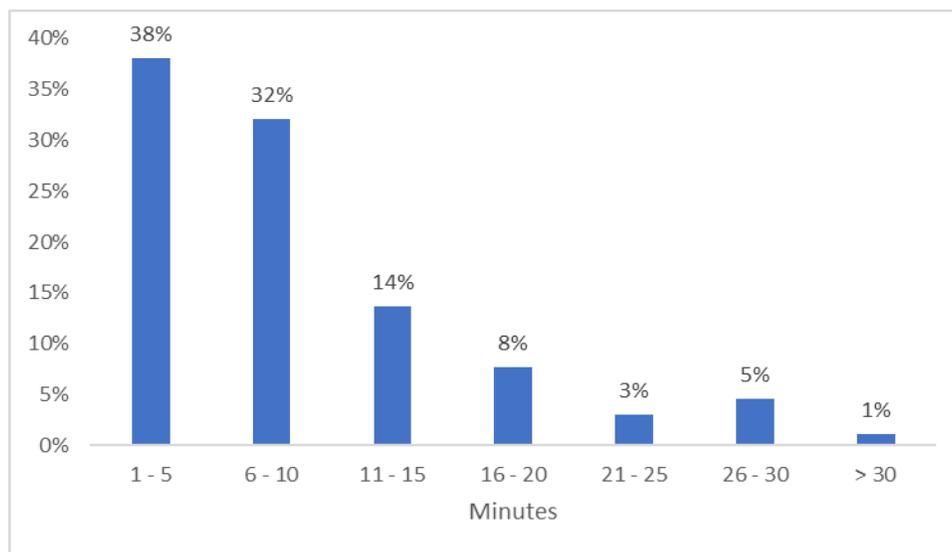
Figure III-1 shows the distribution of survey responses regarding the average time (in minutes) to conduct emissions testing, for OBD tests and ASM tests. The median length of an OBD test in the HGB/DFW program areas is 15 minutes. Most respondents indicated that OBD tests take somewhere between 6 and 20 minutes. The median length of an ASM test is 25 minutes and most respondents indicated that ASM tests take somewhere between 11 and 30 minutes.

**Figure III-1. Average Time in Minutes to Conduct OBD and ASM Emissions Tests—HGB/DFW**



New to this year’s survey, respondents were also asked how much additional time, on average, is spent with each emissions inspection customer to explain either the emissions inspection process or reasons for failure and recommended repairs. ERG added this question because past survey respondents had identified additional time spent with customers as a hidden cost of the emissions inspection process. The median additional time spent with inspection customers is 10 minutes in the HGB/DFW program areas. Figure III-2 shows the distribution of survey responses for this question. Nearly three quarters of respondents spend, on average, between 1 and 10 additional minutes with emissions inspector customers; about 6% of respondents spend more than 25 extra minutes with these customers.

**Figure III-2. Average Additional Time in Minutes Spent with Emissions Inspection Customers—HGB/DFW**



### C. REPAIR SERVICE REVENUE

Stations offering repair services in addition to emissions testing provided information about the revenue from repairing vehicles that failed emissions inspections. Since the relevant questions applied only to T&R stations, the results shown below in Table III-4, Table III-5, and Table III-6 represent only T&R stations. Table III-4 shows that the majority of stations reported between 1 and 20% of their repair revenue was generated from repairs following failed emissions inspections.

**Table III-4. Percentage of Repair Revenues Resulting from Failed Emissions Inspections—HGB/DFW**

Test Type	Percentage	Number of Respondents	Percent
OBD-only	0%	45	12.0%
	1–20%	304	81.1%
	21–40%	19	5.1%
	41–60%	6	1.6%
	61–80%	0	0.0%
	81–100%	0	0.0%
	Missing	1	0.3%
	<b>Total</b>		<b>375</b>
ASM-OBD	0%	23	17.0%
	1–20%	92	68.1%
	21–40%	12	8.9%
	41–60%	3	2.2%
	61–80%	3	2.2%
	81–100%	2	1.5%
	Missing	0	0.0%
	<b>Total</b>		<b>135</b>

Table III-5 shows that the average number of repair jobs from failed emissions inspections is similar between OBD-only stations (median = 3.5) and ASM-OBD stations (median = 5). However, the higher average for ASM-OBD stations suggests that there may be more ASM failures than OBD failures. Figure III-3 is a histogram showing the distribution of repair jobs from failed inspections at OBD-only and ASM-OBD stations, respectively.

**Table III-5. Typical Number of Repair Jobs per Month Resulting from Failed Emissions Tests—HGB/DFW**

Test Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
OBD-only	2	3.5	6	7.3	322
ASM-OBD	2	5	10	10.8	110

**Figure III-3. Distribution of Typical Number of Repair Jobs per Month Resulting from Failed Emissions Tests— HGB/DFW**

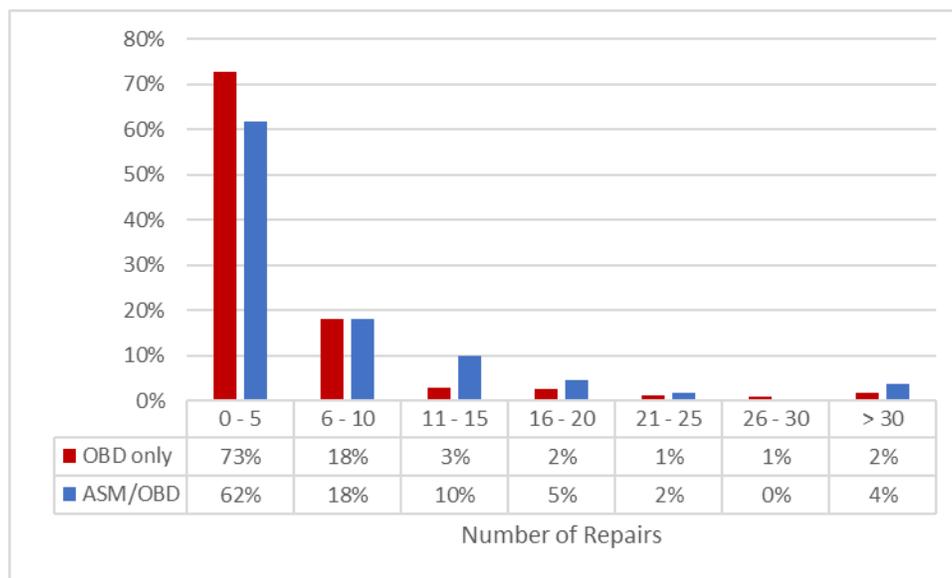
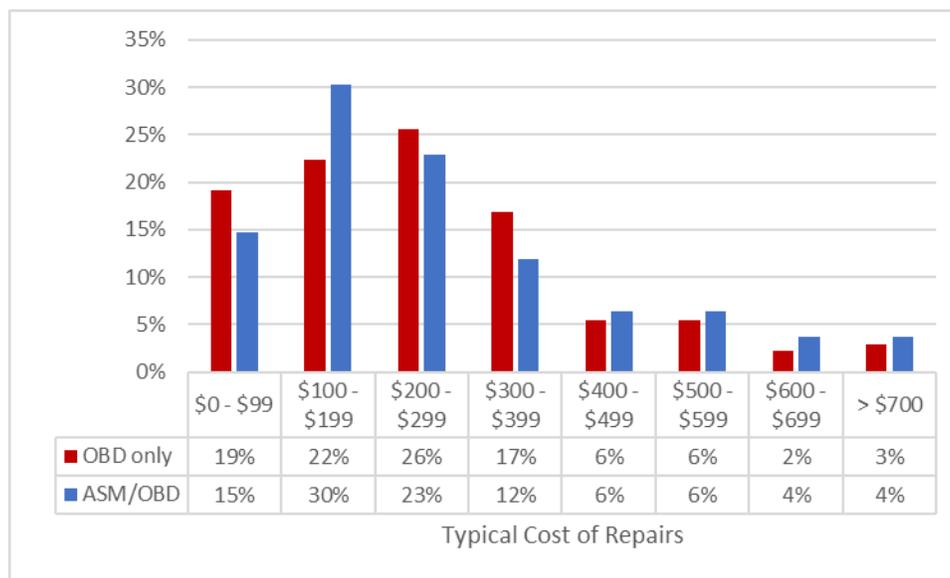


Table III-6 shows that the average cost of a repair following a failed emissions inspection at OBD-only stations was \$241 with a median of \$200; for ASM-OBD stations, the average was \$258, also with a median of \$200. Figure III-4 illustrates the distribution of responses regarding average cost of repairs following a failed inspection. 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. This information does not feed directly into the cost model, but rather informs supplemental discussion about additional revenue from repairs.

**Table III-6. Typical Repair Costs for an Emissions Test Failure—HGB/DFW**

Test Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
OBD-only	\$100	\$200	\$300	\$241	309
ASM-OBD	\$100	\$200	\$300	\$258	109

**Figure III-4. Distribution of Typical Repair Costs for an Emissions Test Failure—  
 HGB/DFW**



#### D. EMISSIONS INSPECTORS

Table III-7 and Table III-8 summarize the total number of vehicle emissions inspectors employed per station, by station type, for HGB/DFW. Most stations in this program area employ one, two, or three inspectors. The largest number of inspectors employed by a test-only station in HGB/DFW is 20, while two T&R stations employ over 65 inspectors (one reported employing 85 inspectors). Stations in HGB/DFW employ a median of two inspectors.

**Table III-7. Number of Emissions Inspectors Currently Working at the Station—  
 HGB/DFW (Test-Only)**

Station and Test Type	Number	Number of Respondents	Percent
<b>Test-Only</b>			
OBD-only	1	27	34.6%
	2	26	33.3%
	3	22	28.2%
	4	1	1.3%
	5	2	2.6%
	<b>Total</b>	<b>78</b>	<b>100.0%</b>
ASM-OBD	1	15	21.7%
	2	26	37.7%
	3	12	17.4%
	4	7	10.1%
	5	3	4.3%
	6	4	5.8%
	7	1	1.4%
	20	1	1.4%
	<b>Total</b>	<b>69</b>	<b>100.0%</b>

**Table III-8. 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
<b>Test-and-Repair</b>			
OBD-only	1	108	28.8%
	2	128	34.1%
	3	67	17.9%
	4	25	6.7%
	5	23	6.1%
	6	8	2.1%
	7	4	1.1%
	8	3	0.8%
	9	1	0.3%
	11	1	0.3%
	12	1	0.3%
	13	1	0.3%
	14	2	0.5%
	15	1	0.3%
	27	1	0.3%
68	1	0.3%	
<b>Total</b>	<b>375</b>	<b>100.0%</b>	
ASM-OBD	1	19	14.1%
	2	45	33.3%
	3	23	17.0%
	4	17	12.6%
	5	12	8.9%
	6	6	4.4%
	7	2	1.5%
	8	2	1.5%
	10	1	0.7%
	15	2	1.5%
	19	1	0.7%
	24	1	0.7%
	28	1	0.7%
	35	1	0.7%
	38	1	0.7%
85	1	0.7%	
<b>Total</b>	<b>135</b>	<b>100.0%</b>	

Table III-9, Table III-10, and Table III-11 provide numbers of emissions inspectors per station, broken down into full-time and part-time inspectors. “Full-time inspectors” are full-time employees 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 41% and 60.5% of OBD-only test-only and T&R stations, respectively, had more than one inspector working full time. This is slightly lower than the 56.5% and 74.9% of ASM-OBD test-only and T&R stations, respectively, had more than one inspector working full time.

The survey results also indicate that ASM-OBD stations are more likely to employ part-time inspectors than OBD-only stations.

**Table III-9. Number of Full-Time Emissions Inspectors\*—HGB/DFW (Test-Only)**

Station and Test Type	Number of FT Inspectors	Number of Respondents	Percent
<b>Test-Only</b>			
OBD-only	0	5	6.4%
	1	41	52.6%
	2	14	17.9%
	3	16	20.5%
	4	1	1.3%
	5	1	1.3%
	<b>Total</b>	<b>78</b>	<b>100.0%</b>
ASM-OBD	1	30	43.5%
	2	21	30.4%
	3	12	17.4%
	4	2	2.9%
	5	1	1.4%
	6	2	2.9%
	20	1	1.4%
	<b>Total</b>	<b>69</b>	<b>100.0%</b>

\* A full-time inspector is a full-time employee who does inspections as all or part of their duties.

**Table III-10. Number of Full-Time Emissions Inspectors\*—HGB/DFW  
 (Test-and-Repair)**

Station and Test Type	Number of FT Inspectors	Number of Respondents	Percent
<b>Test-and-Repair</b>			
OBD-only	0	3	0.8%
	1	145	38.7%
	2	107	28.5%
	3	58	15.5%
	4	23	6.1%
	5	19	5.1%
	6	5	1.3%
	7	3	0.8%
	8	4	1.1%
	9	1	0.3%
	10	1	0.3%
	11	1	0.3%
	13	1	0.3%
	14	1	0.3%
	15	1	0.3%
	27	1	0.3%
	68	1	0.3%
<b>Total</b>	<b>375</b>	<b>100.0%</b>	
ASM-OBD	0	1	0.7%
	1	33	24.4%
	2	50	37.0%
	3	14	10.4%
	4	13	9.6%
	5	8	5.9%
	6	4	3.0%
	7	3	2.2%
	8	1	0.7%
	15	2	1.5%
	19	1	0.7%
	24	1	0.7%
	28	1	0.7%
	35	1	0.7%
	37	1	0.7%
	85	1	0.7%
<b>Total</b>	<b>135</b>	<b>100.0%</b>	

\* A full-time inspector is a full-time employee who does inspections as all or part of their duties.

**Table III-11. Number of Part-Time Emissions Inspectors\*—HGB/DFW**

Station and Test Type	Number of PT Inspectors	Number of Respondents	Percent
<b>Test-Only</b>			
OBD-only	0	56	71.8%
	1	15	19.2%
	2	5	6.4%
	3	1	1.3%
	5	1	1.3%
	<b>Total</b>	<b>78</b>	<b>100.0%</b>
ASM-OBD	0	40	58.0%
	1	17	24.6%
	2	9	13.0%
	3	3	4.3%
	<b>Total</b>	<b>69</b>	<b>100.0%</b>
<b>Test-and-Repair</b>			
OBD-only	0	308	82.1%
	1	49	13.1%
	2	15	4.0%
	4	2	0.5%
	6	1	0.3%
	<b>Total</b>	<b>375</b>	<b>100.0%</b>
ASM-OBD	0	93	68.9%
	1	28	20.7%
	2	10	7.4%
	3	2	1.5%
	4	1	0.7%
	5	1	0.7%
	<b>Total</b>	<b>135</b>	<b>100.0%</b>

\* A part-time inspector is a part-time employee who does inspections as all or part of their duties.

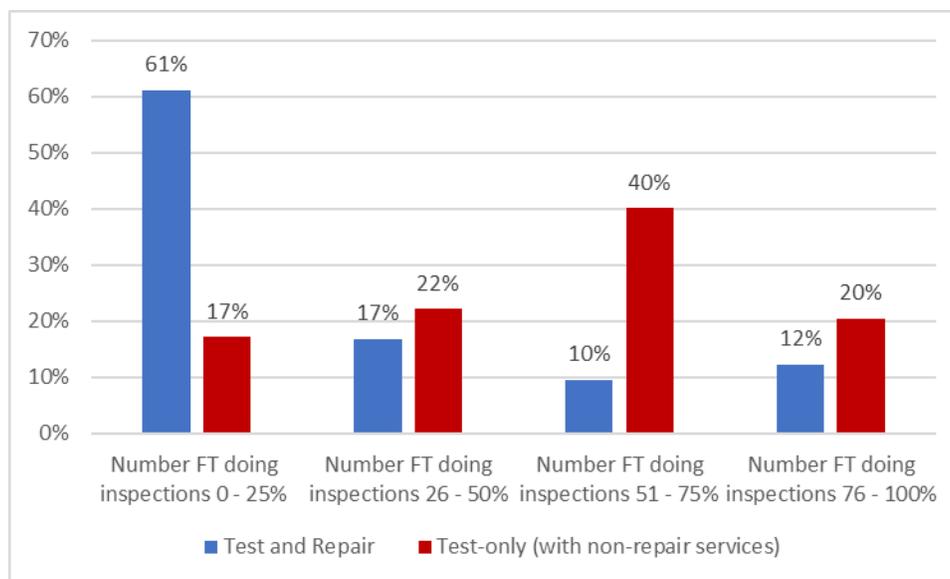
To explore the extent to which stations offering repair or non-repair services focus on activities other than emissions inspections, stations were asked how much time inspectors spend performing emissions inspections. Table III-12 shows the number of stations and total numbers of inspectors by services offered, as well as how many of those stations employ at least one full-time inspector spending at least half-time conducting inspections. Around one-third of test-only stations offer non-repair services (typically general maintenance services such as oil changes and filter replacements), but 71% of those that do offer these services have at least one full-time inspector working at least half-time conducting inspections. Over half of T&R stations offer both repair and non-repair services in addition to emissions testing. Not quite half of T&R stations have at least one full-time inspector conducting inspections at least half-time.

**Table III-12. Deployment of Labor by Station Type and Services Offered—HGB/DFW**

Station Type	All Stations		Stations Employing at Least One Full-Time Inspector Conducting Inspections at Least 51% of the Time		Number of Inspectors	
	Count	Percent of Station Type	Count	Percent of Station Type	Full-Time	Part-Time
<b>Test-Only</b>	<b>147</b>	—	—	—	<b>279</b>	<b>77</b>
No other services	91	14%	NA	NA	157	57
Non-repair services	56	9%	40	71%	122	20
<b>Test-and-Repair</b>	<b>510</b>	—	<b>223</b>	<b>44%</b>	<b>1,548</b>	<b>156</b>
Repair services only	176	27%	79	45%	<b>351</b>	<b>54</b>
Repair and non-repair services	334	51%	144	43%	<b>1,197</b>	<b>102</b>
<b>Total</b>	<b>657</b>	<b>100%</b>	<b>339</b>	<b>52%</b>	<b>1,827</b>	<b>233</b>

Figure III-5 shows the distribution of full-time inspectors by percent of time doing inspections. For T&R, this shows that labor is not only for inspections. Thus, we assume that inspectors are doing other work when not inspecting vehicles and this time does not have to be included in the cost model (i.e., this justifies only including incremental inspection time).

**Figure III-5. Full-Time Inspectors\* by Percent of Time Spent Doing Inspections—HGB/DFW**



\*A full-time inspector is a full-time employee who does inspections as all or part of their duties.

Table III-13 summarizes average hourly wages (unloaded) paid to emissions inspectors, as well as per-test commissions paid, by station type. Overall, median reported hourly wages for emissions inspectors were very similar across OBD-only (\$10 to \$12) and ASM-OBD (\$11 to \$12) stations. These values are similar to the \$13.54 and \$12.31 hourly wages shown for the HGB and DFW areas, respectively, for level 1 auto service technicians and mechanics, as reported by

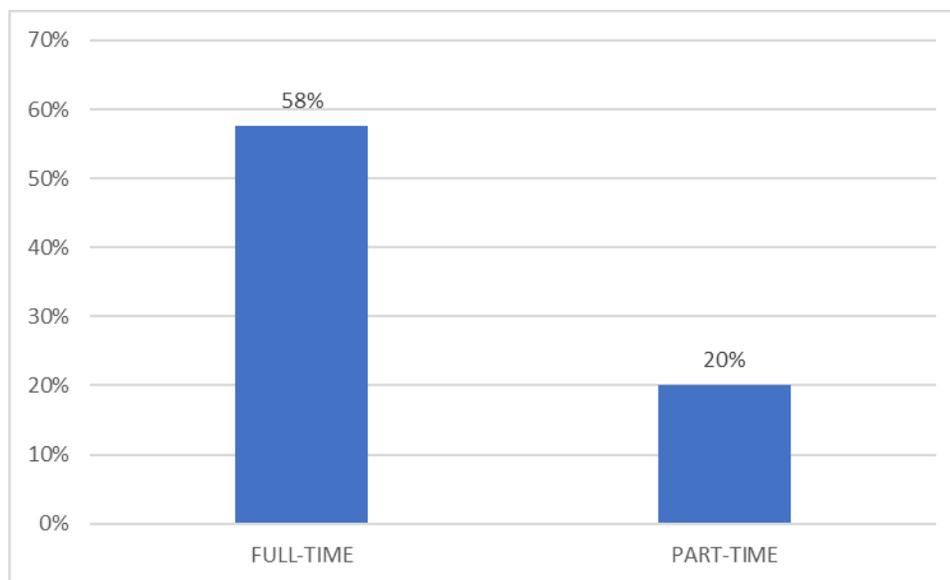
the Foreign Labor Certification Data Center (FLC, 2018). The cost model uses hourly wage information directly; it does not include per-test payments, since most inspectors are paid hourly or by salary (as opposed to commission).

**Table III-13. Current Wages Paid to Emissions Inspectors, Hourly (\$/hr) and Per-Test—HGB/DFW**

Station and Test Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
<b>Hourly/Salary</b>					
<b>Test-Only</b>					
OBD-only	\$10	\$10	\$15	\$12.22	54
ASM-OBD	\$10	\$11	\$12	\$13.27	54
<b>Test-and-Repair</b>					
OBD-only	\$10	\$12	\$15	\$13.96	288
ASM-OBD	\$10	\$12	\$14	\$12.24	108
<b>Per-Test</b>					
<b>Test-Only</b>					
OBD-only	\$5	\$10	\$10	\$9.76	25
ASM-OBD	\$1	\$5	\$10	\$5.83	18
<b>Test-and-Repair</b>					
OBD-only	\$5	\$8.10	\$10.50	\$8.98	77
ASM-OBD	\$1	\$6.25	\$10	\$7.61	43

Also new this year, respondents were asked to indicate the number of full- and part-time emissions inspectors receiving benefits. Benefits were presented in the survey as “health care, paid leave, etc.” Determining the number of inspectors who receive benefits allows the cost model to adjust the Bureau of Labor Statistics (BLS) fringe benefit rate to control for those inspectors who do receive benefits, and those who do not. As shown in Figure III-6, 58% of full-time emissions inspectors and only 20% of part-time inspections in HGB/DFW receive benefits.

**Figure III-6. Percent of Emissions Inspectors Receiving Benefits—HGB/DFW**



## E. EMISSIONS TESTING EQUIPMENT, BUILDING, AND OTHER COSTS

Cost data for certified emissions testing analyzers are presented in Table III-14 below. Emissions testing equipment data are presented on a per-unit basis rather than a per-station basis because stations may have more than one certified emissions testing analyzer. Because of this, totals may be larger than the number of stations that responded to the survey.

Respondents reported paying a median value of \$38,000 for ASM-OBD analyzers and a median of \$8,950 for OBD-only analyzers. A refurbished certified ASM-OBD analyzer ranges in price from \$25,500 to \$32,500 (TCEQ, 2017) and a new certified OBD analyzer typically ranges in price from \$7,195 to \$7,950, which coincides reasonably well with the reported survey values.

**Table III-14. Cost of Certified Emissions Testing Analyzers by Equipment Type—HGB/DFW**

Equipment Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
OBD-only	\$7,000	\$8,950	\$10,000	\$10,637	523
ASM-OBD	\$18,000	\$38,000	\$45,000	\$33,804	166

As shown in Table III-15, 52.8% of OBD-only equipment and 37.1% of ASM-OBD equipment was purchased with cash. For the cost model, while a slight majority of OBD equipment was purchased with cash, it is assumed that stations have a financing mechanism (loan or lease-to-purchase agreement) for acquiring inspection equipment, so the cost models use the survey data for these financing mechanisms.

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

Equipment Type	Finance Type	Number of Responses	Percent
OBD-only	Paid cash	351	52.8%
	Lease-to-purchase	106	15.9%
	Bank loan	98	14.7%
	<i>Not disclosed</i>	110	16.5%
	<b>Total</b>	<b>665*</b>	<b>100.0%</b>
ASM-OBD	Paid cash	73	37.1%
	Lease-to-purchase	38	19.3%
	Bank loan	64	32.5%
	<i>Not disclosed</i>	22	11.2%
	<b>Total</b>	<b>197*</b>	<b>100.0%</b>

\* Of the 657 respondents, 27.2% (179 stations) reported more than one certified analyzer.

For stations that did not pay with cash, Table III-16 shows that the median lease-to-purchase or bank loan term is 5 years for ASM-OBD equipment and 4 years for OBD-only equipment. The interquartile range for ASM-OBD analyzers is wider (6 versus 2 years), however, indicating that there is more variability in loan terms for ASM-OBD machines. Figure III-7 more clearly illustrates this distribution of loan terms for the HGB/DFW program areas.

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

Equipment Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
OBD-only analyzers	3	4	5	6	133
ASM-OBD analyzers	4	5	10	7.1	75

**Figure III-7. Distribution of the Lease-to-Purchase or Bank Loan Term (Years)—HGB/DFW**

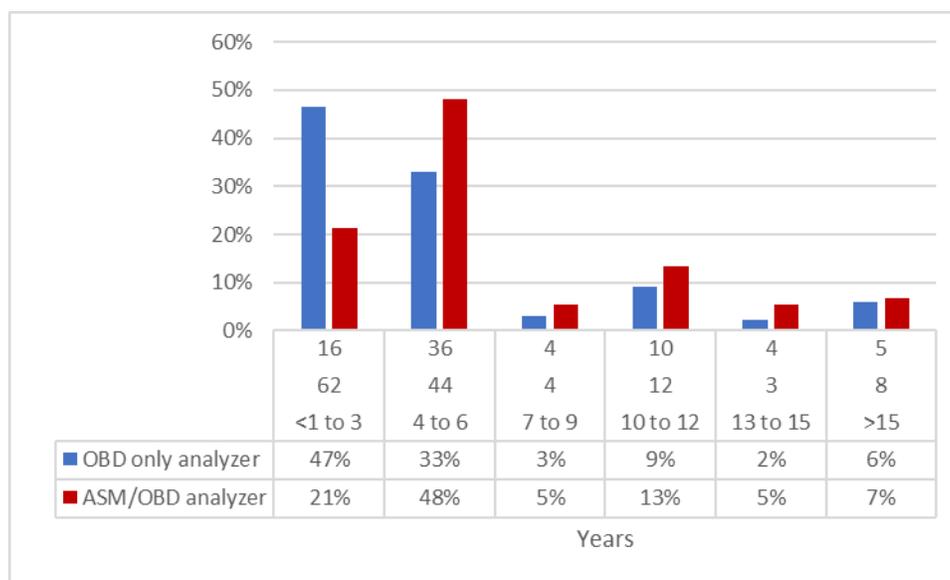
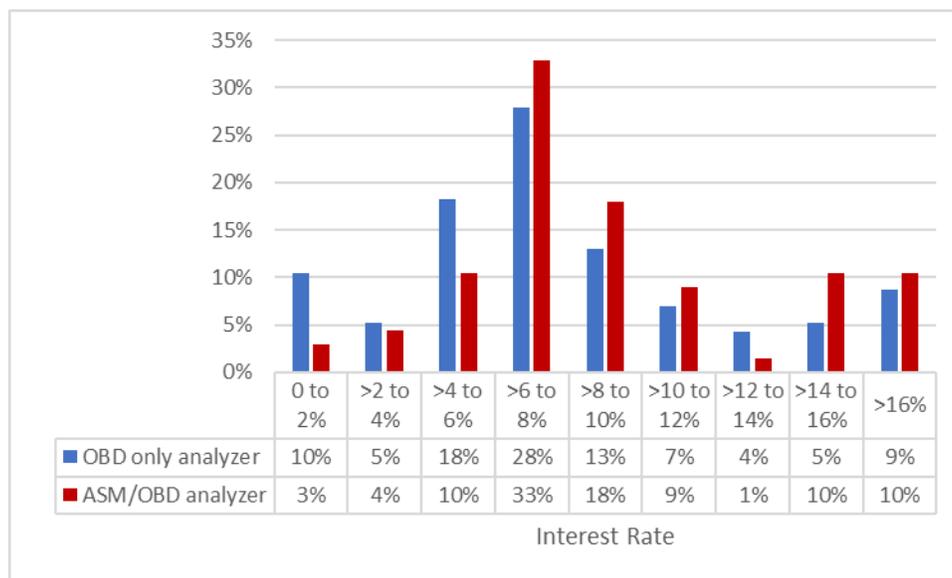


Table III-17 summarizes the survey responses regarding lease-to-purchase or bank loan interest rates. The data show that these rates were relatively similar for the two different equipment types. Figure III-8 presents the distributions of these interest rates by equipment type.

**Table III-17. Interest Rates for Lease-to-Purchase or Bank Loan—HGB/DFW**

Equipment Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
OBD-only	5.75%	8%	12%	8.80%	115
ASM-OBD	6.50%	8%	12%	10.50%	67

**Figure III-8. Distribution of the Interest Rates for Lease-to-Purchase or Bank Loan—HGB/DFW**



More test-only stations (48.6%) than T&R stations (37.3%) in HGB/DFW report having maintenance plans. However, more ASM-OBD (full service) stations (47%) report having maintenance plans than OBD-only stations (36%).

Table III-18 shows that OBD-only stations report paying a much lower median annual maintenance cost (\$1,000 for test-only and \$900 for T&R) than ASM-OBD stations (\$4,518 median for test-only and \$4,200 median for T&R). This is consistent with the much higher purchase price and maintenance costs of the certified ASM-OBD analyzers.

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

Station and Test Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
<b>Test-Only</b>					
OBD-only	\$840	\$1,000	\$1,800	\$1,442	27
ASM-OBD	\$2,500	\$4,518	\$5,472	\$4,595	38
<b>Test-and-Repair</b>					
OBD-only	\$756	\$900	\$1,200	\$1,128	121
ASM-OBD	\$2,700	\$4,200	\$5,000	\$3,698	54

Many stations also incur maintenance costs not covered by a service contract or maintenance package agreement. As shown in Table III-19, these additional costs were again much higher for ASM-OBD stations (medians of \$2,000 for both test-only and T&R stations) than for OBD-only stations (medians of \$475 and \$500 for test-only and T&R stations, respectively). ASM-OBD stations' higher median maintenance costs are not surprising, as those stations have more equipment to maintain.

**Table III-19. Extra Annual Maintenance Costs for Stations with Maintenance Plans—HGB/DFW**

Station and Test Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
<b>Test-Only</b>					
OBD-only	\$100	\$475	\$1,000	\$1,209	70
ASM-OBD	\$1,000	\$2,000	\$3,900	\$2,683	63
<b>Test-and-Repair</b>					
OBD-only	\$175	\$500	\$1,000	\$892	339
ASM-OBD	\$700	\$2,000	\$3,500	\$2,427	127

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 or 1,800 per year.

Table III-20 summarizes the results on whether stations have ever gotten rid of emissions testing equipment they no longer needed. Most test-only and T&R stations reported not getting rid of equipment. T&R stations offering OBD-only inspections were most likely to report getting rid of an analyzer, which is consistent with the phasing out of ASM emissions inspections (as they may have been formerly ASM-OBD stations). In fact, 76% of units that stations got rid of in HGB/DFW were ASM units.

**Table III-20. Stations That Got Rid of Emissions Testing Equipment—HGB/DFW**

Station and Test Type	Ever Got Rid of Equipment?	Number of Respondents	Percent
<b>Test-Only</b>			
OBD-only	Yes	9	11.5%
	No	51	65.4%
	Not sure	18	23.1%
	<i>Missing</i>	0	0%
	<b>Total</b>	<b>78</b>	<b>100.0%</b>
ASM-OBD	Yes	6	8.7%
	No	51	73.9%
	Not sure	11	15.9%
	<i>Missing</i>	1	1.4%
	<b>Total</b>	<b>69</b>	<b>100.0%</b>
<b>Test-and-Repair</b>			
OBD-only	Yes	79	21.1%
	No	255	68.0%
	Not sure	40	10.7%
	<i>Missing</i>	1	0.3%
	<b>Total</b>	<b>375</b>	<b>100.0%</b>
ASM-OBD	Yes	10	7.4%
	No	110	81.5%
	Not sure	15	11.1%
	<i>Missing</i>	0	0%
	<b>Total</b>	<b>135</b>	<b>100.0%</b>

Survey data show that stations that got rid of analyzers owned ASM analyzers for slightly longer on average (10.1 years) before getting rid of them, compared to OBD-only analyzers (8.7 years) (see Table III-21). Table III-22 shows how stations got rid of their emissions testing equipment. Table III-22. How Stations Got Rid of Equipment—HGB/DFW

Equipment Type	Free, Paid, or Sold?	Number of Responses	Percent
OBD-only	I sold this	9	37.5%
	I paid to get rid of this	2	8.3%
	I got rid of this for free	10	41.7%
	<i>Not disclosed</i>	3	12.5%
	<b>Total</b>	<b>24</b>	<b>100.0%</b>
ASM-OBD	I sold this	16	20.5%
	I paid to get rid of this	12	15.4%
	I got rid of this for free	42	53.8%
	<i>Not disclosed</i>	8	10.3%
	<b>Total</b>	<b>78</b>	<b>100.0%</b>

Table III-23 and Table III-24 show costs and revenues from getting rid of emissions testing equipment. Note that due to the small number of responses to the questions on equipment that stations got rid of, these results are not likely to be particularly representative of the whole industry.

**Table III-21. Years Owned Before Stations Got Rid of Equipment—HGB/DFW**

Equipment Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
OBD-only	4	9	12	8.7	22
ASM-OBD	5	10	15	10.1	74

**Table III-22. How Stations Got Rid of Equipment—HGB/DFW**

Equipment Type	Free, Paid, or Sold?	Number of Responses	Percent
OBD-only	I sold this	9	37.5%
	I paid to get rid of this	2	8.3%
	I got rid of this for free	10	41.7%
	<i>Not disclosed</i>	3	12.5%
	<b>Total</b>	<b>24</b>	<b>100.0%</b>
ASM-OBD	I sold this	16	20.5%
	I paid to get rid of this	12	15.4%
	I got rid of this for free	42	53.8%
	<i>Not disclosed</i>	8	10.3%
	<b>Total</b>	<b>78</b>	<b>100.0%</b>

**Table III-23. Cost to Get Rid of Equipment—HGB/DFW**

Equipment Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
OBD-only	\$250	\$3,375	\$6,500	\$3,375	2
ASM-OBD	\$400	\$850	\$2,500	\$2,872.70	11

**Table III-24. Revenue from Getting Rid of Equipment—HGB/DFW**

Equipment Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
OBD-only	\$1,000	\$1,400	\$2,000	\$1,666.70	9
ASM-OBD	\$500	\$2,000	\$5,000	\$3,446.70	15

In the HGB/DFW program areas, the majority of both test-only (78%) and T&R stations (89%) reported that they did not ever add or acquire building space (i.e., bay space) to perform vehicle emissions testing. To control for both added or acquired building space and analyzer equipment, and just equipment costs, the analytical model is designed to provide results both with and without building space costs. Table III-25 provides an overview of the number of stations that purchased or rent/lease their building space. The data show that roughly half of stations own the building space used for vehicle emissions testing and roughly half rent or lease their space, with slightly more T&R stations owning than renting compared to test-only stations.

**Table III-25. Building Space Rented or Purchased—HGB/DFW**

Station and Test Type	Purchase or Rent?	Number of Respondents	Percent
<b>Test-Only</b>			
OBD-only	Purchase	33	42.3%
	Rent/lease	44	56.4%
	<i>Missing</i>	1	1.3%
	<b>Total</b>	<b>78</b>	<b>100.0%</b>
ASM-OBD	Purchase	27	39.1%
	Rent/lease	40	58.0%
	<i>Missing</i>	2	2.9%
	<b>Total</b>	<b>69</b>	<b>100.0%</b>
<b>Test-and-Repair</b>			
OBD-only	Purchase	181	48.3%
	Rent/lease	182	48.5%
	<i>Missing</i>	12	3.2%
	<b>Total</b>	<b>375</b>	<b>100.0%</b>
ASM-OBD	Purchase	75	55.6%
	Rent/lease	54	40.0%
	<i>Missing</i>	6	4.4%
	<b>Total</b>	<b>135</b>	<b>100.0%</b>

Less than one-quarter of stations offer reduced-fee and/or free emissions inspections (other than performing obligatory free retests after a vehicle failed inspection at their station). As Table III-26 shows, OBD-only stations provided free emissions inspections at a similar frequency (21.8% at test-only stations and 14.1% at T&R stations) to ASM-OBD stations (18.8% at test-only stations and 16.3% at T&R stations). Common reasons for providing free retests included a “no pass-no pay” policy, providing free inspections for general customer satisfaction, and to friends, family, and employees.

**Table III-26. Free Emissions Tests (Except Free Retests)—HGB/DFW**

Station and Test Type	Free Tests Ever Given?	Number of Respondents	Percent
<b>Test-Only</b>			
OBD-only	No	61	78.20%
	Yes	17	21.80%
	<b>Total</b>	<b>78</b>	<b>100.00%</b>
ASM-OBD	No	56	81.20%
	Yes	13	18.80%
	<b>Total</b>	<b>69</b>	<b>100.00%</b>
<b>Test-and-Repair</b>			
OBD-only	No	322	85.90%
	Yes	53	14.10%
	<b>Total</b>	<b>375</b>	<b>100.00%</b>
ASM-OBD	No	113	83.70%
	Yes	22	16.30%
	<b>Total</b>	<b>135</b>	<b>100.00%</b>

Table III-27 shows, across station and testing types, similar rates of having ever charged a reduced fee (less than \$18.50 [OBD] or \$24.50 [ASM]) outside of free retests for previously failed vehicles. The percent of stations that occasionally offer free emissions inspections ranges from 10.4% (ASM-OBD T&R) to 18.8% (ASM-OBD test-only). Though this information does not feed into the cost model, it does provide an indicator on the adequacy of the fee. For example, a significant number of stations offering tests below the maximum fee might indicate that the fee cap is high enough. As Table III-28 shows, the median reduced fee charged was \$13.50 for OBD-only tests and \$19 for ASM-OBD tests.

**Table III-27. Reduced-Fee Emissions Tests (Less than \$18.50 [OBD] or \$24.50 [ASM])—HGB/DFW**

Station and Test Type	Charged Less than \$18.50 (OBD) or \$24.50 (ASM)?	Number of Respondents	Percent
<b>Test-Only</b>			
OBD-only	No	69	88.5%
	Yes	9	11.5%
	<b>Total</b>	<b>78</b>	<b>100.0%</b>
ASM-OBD	No	56	81.2%
	Yes	13	18.8%
	<b>Total</b>	<b>69</b>	<b>100.0%</b>
<b>Test-and-Repair</b>			
OBD-only	No	323	86.1%
	Yes	52	13.9%
	<b>Total</b>	<b>375</b>	<b>100.0%</b>
ASM-OBD	No	121	89.6%
	Yes	14	10.4%
	<b>Total</b>	<b>135</b>	<b>100.0%</b>

**Table III-28. Typical Reduced Fees Charged (Less than \$18.50 [OBD] or \$24.50 [ASM])—HGB/DFW**

Test Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
OBD-Only	\$10	\$13.50	\$15	\$11.68	81
ASM-OBD	\$12.50	\$19	\$20	\$15.67	24

The final question of the survey asked respondents whether the fee for emissions inspections covers the associated costs. As shown in Table III-29, the majority of respondents answered “no”: 66.7% of OBD-only test-only stations responded that the fee did not cover the costs, compared to the 82.6% of ASM-OBD test-only stations that indicated the fee does not cover the costs. Similarly, 67.7% of OBD-only T&R stations reported that the fee did not cover the costs, and 74.1% of ASM-OBD T&R stations reported that the fee did not cover the costs. This is expected, as costs tend to be higher for ASM-OBD stations than for OBD-only stations. Though the cost model does not include this information, it is important to the overall discussion of whether fees cover costs. Chapter VII provides an overview of stations’ explanations for why the fee does not cover costs.

**Table III-29. Does Fee Cover Emissions Testing Costs?—HGB/DFW**

Station and Test Type	Fee Covers Testing Costs?	Number of Respondents	Percent
<b>Test-Only</b>			
OBD-only	No	52	66.7%
	Yes	25	32.1%
	Missing	1	1.3%
	<b>Total</b>	<b>78</b>	<b>100.0%</b>
ASM-OBD	No	57	82.6%
	Yes	12	17.4%
	<b>Total</b>	<b>69</b>	<b>100.0%</b>
<b>Test-and-Repair</b>			
OBD-only	No	254	67.7%
	Yes	112	29.9%
	Missing	9	2.4%
	<b>Total</b>	<b>375</b>	<b>100.0%</b>
ASM-OBD	No	100	74.1%
	Yes	33	24.4%
	Missing	2	1.5%
	<b>Total</b>	<b>135</b>	<b>100.0%</b>

#### IV. EL PASO SURVEY RESULTS

This section of the report describes the survey responses for test-only and T&R stations in the El Paso program area (the survey instrument itself can be found in Appendix A). Any survey fields that were left blank are reported as “missing.” Due to rounding, the percentages in some of the tables do not total exactly 100%. Results are not provided for some basic questions that are not highly relevant to the analysis of the emissions inspection fee.

As noted in Chapter II, only 12 test-only stations in El Paso submitted (responses within the scope of this study) the survey, compared to 27 T&R stations that responded, so caution should be taken in assessing these data due to the small sample size.

##### A. GENERAL STATION INFORMATION

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. This information is not directly input into the cost model, but it does provide some insight into labor usage between station types, as test-only stations are required to pay inspectors for their entire shifts regardless of whether they are conducting inspections. Overall, test-only and T&R stations have similar operating hours.

**Table IV-1. Hours of Operation—El Paso**

Day	Median Open Time	Median Close Time	Median Hours Open	Number Open	Number Closed
<b>Test-Only</b>					
Monday	8:00am	5:15pm	9	11	1
Tuesday	8:00am	5:30pm	9	12	0
Wednesday	8:15am	5:30pm	9	12	0
Thursday	8:00am	5:30pm	9	12	0
Friday	8:00am	5:30pm	9	12	0
Saturday	8:00am	5:00pm	8	12	0
Sunday	—	—	—	0	12
<b>Test-and-Repair</b>					
Monday	8:00am	6:00pm	9	27	0
Tuesday	8:00am	6:00pm	9	27	0
Wednesday	8:00am	6:00pm	9	27	0
Thursday	8:00am	6:00pm	9	27	0
Friday	8:00am	6:00pm	9	27	0
Saturday	8:00am	4:00pm	7.5	26	1
Sunday	10:00am	4:00pm	6	1	26

Table IV-2 and Table IV-3 summarize the number of emissions inspection bays at each station and the uses for those bays. Table IV-2 shows how many bays in the station are used exclusively for emissions testing, while Table IV-3 counts the bays used for emissions testing and other work.

**Table IV-2. Number of Bays Used Exclusively for Testing—El Paso**

Number of Bays	Number of Respondents	Percent
<b>Test-Only</b>		
1	12	100.0%
<b>Total</b>	<b>12</b>	<b>100.0%</b>
<b>Test-and-Repair</b>		
0	2	7.4%
1	22	81.5%
2	2	7.4%
3	1	3.7%
<b>Total</b>	<b>27</b>	<b>100.0%</b>

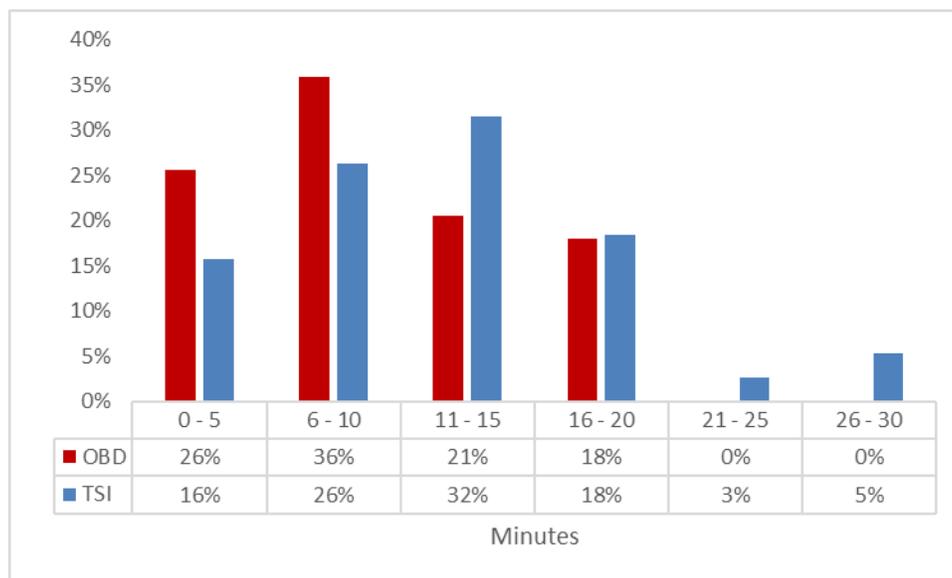
**Table IV-3. Number of Bays Used for Testing and Other Uses—El Paso**

Number of Bays	Number of Respondents	Percent
<b>Test-Only</b>		
0	11	91.7%
1	1	8.3%
<b>Total</b>	<b>12</b>	<b>100.0%</b>
<b>Test-and-Repair</b>		
0	19	70.4%
1	5	18.5%
3	2	7.4%
8	1	3.7%
<b>Total</b>	<b>27</b>	<b>100.0%</b>

## B. THE EMISSIONS INSPECTION PROCESS

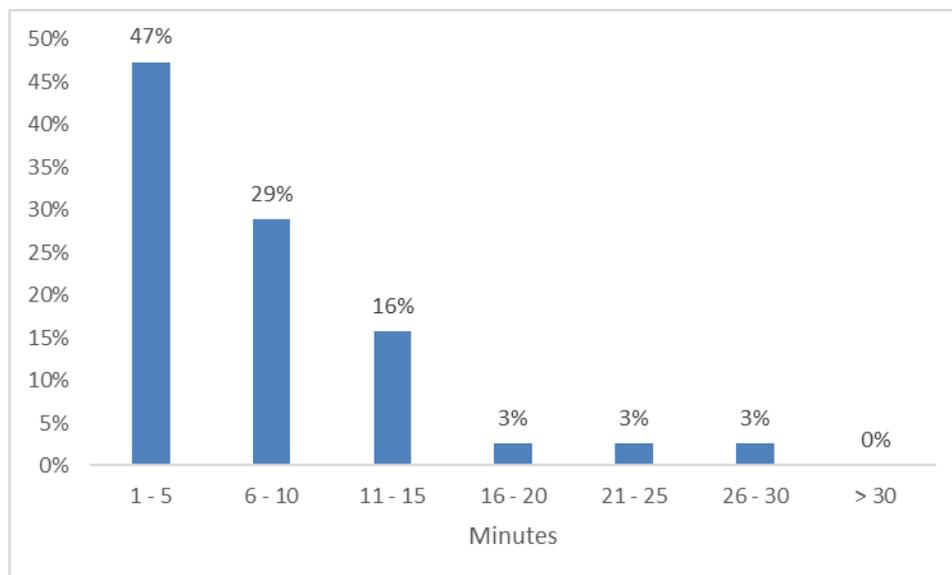
Figure IV-1 shows the distribution of survey responses regarding the average time (in minutes) for OBD tests and TSI tests. No stations reported testing times greater than 30 minutes. In El Paso, the median length of an OBD test is 10 minutes, which is less than the median length of OBD tests (15 minutes) in the HGB/DFW program areas, and the median length of a TSI test is 14 minutes.

**Figure IV-1. Average Time in Minutes to Conduct OBD and TSI Emissions Tests—El Paso**



New to this year’s survey, respondents were asked how much additional time, on average, emissions inspectors spend with each emissions inspection customer to explain either the inspection process or reasons for failure and recommended repairs. This question was added because past survey responses have identified additional time spent with customers as a hidden cost of the emissions inspection process. The median length of additional time spent with inspection customers in El Paso is 7.5 minutes.

**Figure IV-2. Average Additional Time in Minutes Spent with Emissions Inspection Customers—El Paso**



### C. REPAIR SERVICE REVENUE

Stations offering repair services in addition to emissions inspections provided information about the revenue stream generated from repairs to vehicles that failed emissions inspections. Since the relevant questions were applicable only to T&R stations, the results shown below represent only T&R stations.

As Table IV-4 shows, over half of T&R stations reported that between 1 and 20% of their repair revenue came from failed emissions repairs. One station reported that between 61 and 80% of their repair revenue came directly from failed emissions inspections.

**Table IV-4. Percentage of Repair Revenues Resulting from Failed Emissions Inspections—El Paso**

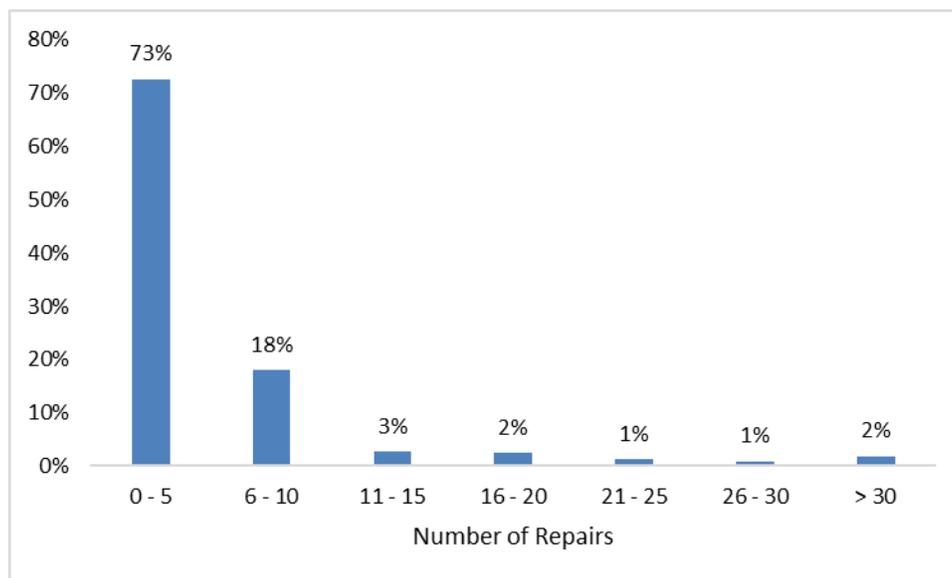
Percentage	Number of Respondents	Percent
0%	1	3.7%
1–20%	16	59.3%
21–40%	8	29.6%
41–60%	1	3.7%
61–80%	1	3.7%
81–100%	0	0.0%
Missing	0	0.0%
<b>Total</b>	<b>27</b>	<b>100.0%</b>

Table IV-5 shows that the average number of repair jobs per month that are generated from failed emissions inspections is 12.8, while the median is eight repair jobs per month. The interquartile range is 16, with the middle half of the stations averaging between four and 20 repair jobs per month from failed emissions tests. Figure IV-3 shows the distribution of the responses in a histogram. The average cost of such a repair was \$107, with a median value of \$100 (Table IV-6). The distribution of the average cost of repairs from failed inspections is presented in Figure IV-4. 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. This information does not feed directly into the cost model, but rather informs supplemental discussion about additional revenue from repairs.

**Table IV-5. Typical Number of Repair Jobs per Month Resulting from Failed Emissions Tests—El Paso**

25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
4	8	20	12.8	26

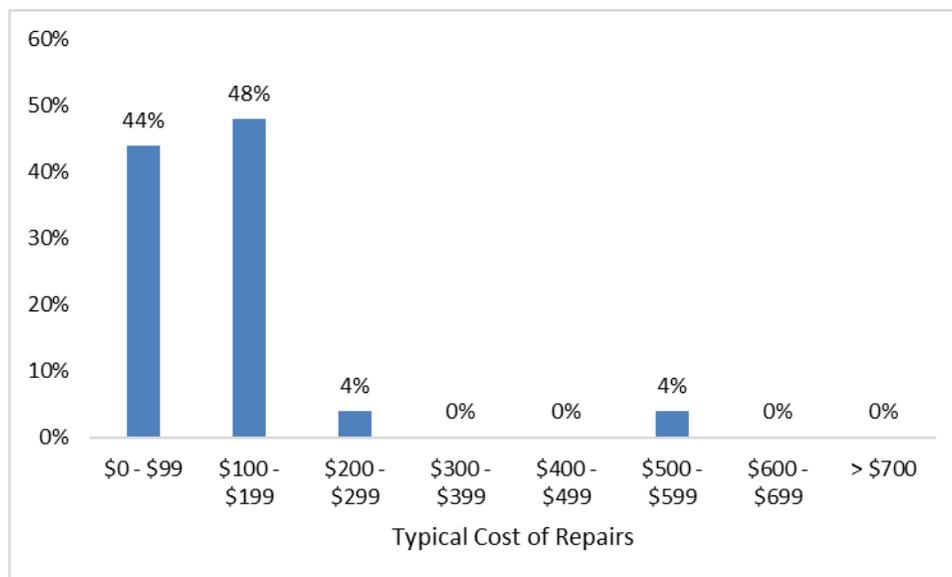
**Figure IV-3. Distribution of Typical Number of Repair Jobs per Month Resulting from Failed Emissions Tests—El Paso**



**Table IV-6. Typical Repair Costs for an Emissions Test Failure—El Paso**

25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
\$40	\$100	\$120	\$107	25

**Figure IV-4. Distribution of Typical Repair Costs for an Emissions Test Failure—El Paso**



## D. EMISSIONS INSPECTORS

Table IV-7 summarizes the total number of vehicle emissions inspectors employed per station, by station type, in El Paso. Most respondents reported employing one, two, or three inspectors at their stations. The highest number of inspectors a test-only station reported employing was eight, while the highest number a T&R station reported was five. Stations in El Paso employ a median of two inspectors.

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

Number of Inspectors	Number of Respondents	Percent
<b>Test-Only</b>		
1	6	50.0%
2	2	16.7%
3	1	8.3%
4	1	8.3%
7	1	8.3%
8	1	8.3%
<b>Total</b>	<b>12</b>	<b>100.0%</b>
<b>Test-and-Repair</b>		
1	9	33.3%
2	9	33.3%
3	4	14.8%
4	4	14.8%
5	1	3.7%
<b>Total</b>	<b>27</b>	<b>100.0%</b>

Table IV-8 and Table IV-9 provide numbers of emissions inspectors per station, broken down into full-time and part-time inspectors. A “full-time inspector” is a full-time employee qualified to perform inspections. Full-time inspectors may spend all, some, or just a little of their work time doing inspections. A “part-time inspector” is a part-time employee qualified to do inspections, who likewise may spend only some working time doing inspections. These tables show that El Paso-area stations tend to hire more full-time than part-time emissions inspectors. Most test-only stations (75%) and T&R stations (81.5%) reported zero part-time inspectors.

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

Number of FT Inspectors	Number of Respondents	Percent
<b>Test-Only</b>		
1	7	58.3%
2	3	25.0%
7	1	8.3%
8	1	8.3%
<b>Total</b>	<b>12</b>	<b>100.0%</b>
<b>Test-and-Repair</b>		
1	11	40.7%
2	9	33.3%
3	4	14.8%
4	2	7.4%
5	1	3.7%
<b>Total</b>	<b>27</b>	<b>100.0%</b>

\* A full-time inspector is a full-time employee who does 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
<b>Test-Only</b>		
0	9	75.0%
1	2	16.7%
2	1	8.3%
<b>Total</b>	<b>12</b>	<b>100.0%</b>
<b>Test-and-Repair</b>		
0	22	81.5%
1	4	14.8%
2	1	3.7%
<b>Total</b>	<b>27</b>	<b>100.0%</b>

\* A part-time inspector is a part-time employee who does inspections as all or part of their duties.

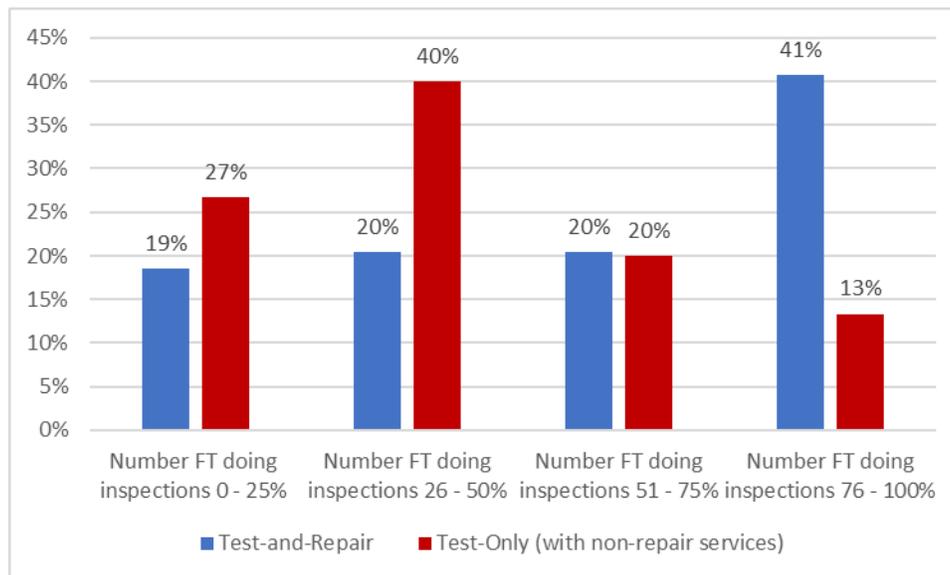
To explore the extent to which stations offering repair or non-repair services focus on activities other than emissions inspections, stations were asked how much time inspectors spend performing emissions inspections. Table IV-10 shows the number of stations and total numbers of inspectors by services offered, as well as how many of those stations employ at least one full-time inspector spending at least half-time conducting inspections. Half of test-only stations do not offer other non-repair services, and two-thirds of those that do have at least one full-time inspector working at least half-time conducting inspections. About half of T&R stations offer both repair and non-repair services in addition to emissions testing. About 77% of T&R stations have at least one full-time inspector conducting inspections at least half-time.

**Table IV-10. Deployment of Labor by Station Type and Services Offered—El Paso**

Station Type	All Stations		Stations Employing at Least One Full-Time Inspector Conducting Inspections at Least 50% of the Time		Number of Inspectors	
	Count	Percent of Station Type	Count	Percent of Station Type	Full-Time	Part-Time
<b>Test-Only</b>	<b>12</b>	—	—	—	<b>28</b>	<b>4</b>
No other services	6	15%	NA	NA	13	2
Non-repair services	6	15%	4	67%	15	2
<b>Test-and-Repair</b>	<b>27</b>	—	<b>22</b>	<b>81%</b>	<b>54</b>	<b>6</b>
Repair services only	13	33%	12	92%	25	3
Repair and non-repair services	14	36%	10	71%	29	3
<b>Total</b>	<b>39</b>	<b>100%</b>	<b>30</b>	<b>77%</b>	<b>82</b>	<b>10</b>

Figure IV-5 shows the distribution of full-time inspectors by percent of time doing inspections. For T&R, this shows that labor is not only for inspections. Therefore, we assume that inspectors are doing other work when not inspecting vehicles and this time does not have to be included in the cost model (i.e., this justifies only including inspection time).

**Figure IV-5. Full-Time Inspectors\* by Percent of Time Spent Doing Inspections—El Paso**



\* A full-time inspector is a full-time employee who does inspections as all or part of their duties.

Table IV-11 summarizes average hourly wages (unloaded) paid to emissions inspectors, as well as per-test commissions paid, by station type in the El Paso program area. Median hourly wages at test-only stations (\$10.00) are just slightly more than at T&R stations (\$9.00). These values are close to the \$10.24 average hourly wage for level 1 auto service technicians and mechanics reported for the El Paso area by the Foreign Labor Certification Data Center (FLC, 2018). 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 representative of what most stations reported. The cost

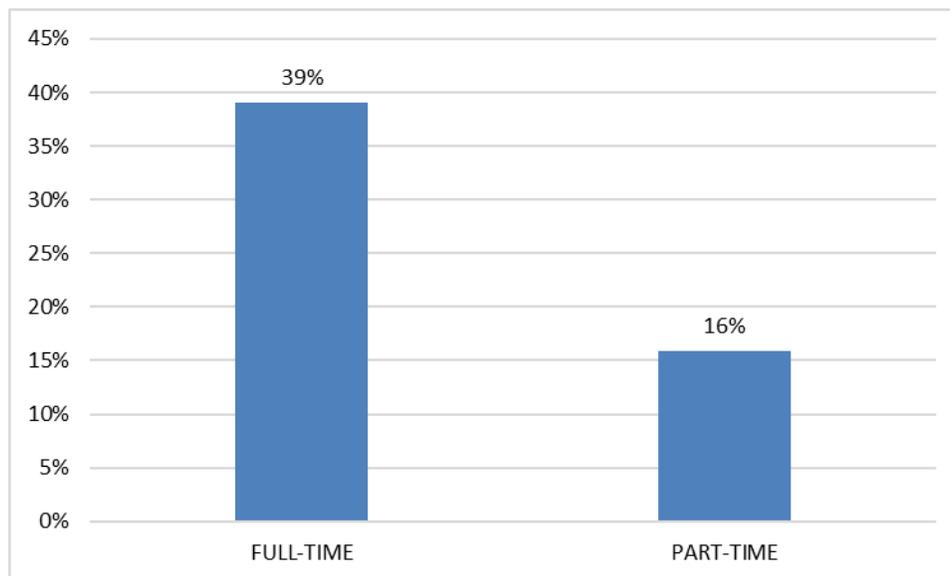
model uses hourly wage information directly; it does not include per-test payments, since most inspectors are paid hourly or by salary (as opposed to commission).

**Table IV-11. Current Wages Paid to Emissions Inspectors, Hourly (\$/hr) and Per-Test—El Paso**

Station Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
<b>Hourly/Salary</b>					
Test-only	\$8.25	\$10	\$12	\$10.13	6
Test-and-repair	\$8	\$9	\$10	\$9.49	23
<b>Per-Test</b>					
Test-only	\$2	\$3	\$8	\$6.45	5
Test-and-repair	\$8.50	\$9.25	\$10	\$9.25	2

Also new this year, respondents were asked to indicate the number of full- and part-time emissions inspectors receiving benefits. Benefits were presented in the survey as “health care, paid leave, etc.” Determining the number of inspectors who receive benefits allows the cost model to adjust the BLS fringe benefit rate to control for those inspectors who do receive benefits, and those who do not. As Figure IV-6 shows, 39% of full-time emissions inspectors and only 16% of part-time inspectors in El Paso receive benefits.

**Figure IV-6. Percent of Emissions Inspectors Receiving Benefits—El Paso**



## E. EMISSIONS TESTING EQUIPMENT, BUILDING, AND OTHER COSTS

Cost information for certified emissions testing analyzers is presented in Table IV-12 below. Emissions testing equipment data are presented on a per-unit basis rather than a per-station basis because stations may have more than one certified emissions testing analyzer. Because of this, totals may be larger than the number of stations that responded to the survey.

The results show a median purchase price of emissions inspection equipment of \$15,000. This value is on par with the price for a single new certified TSI/OBD analyzer, which typically ranges from \$15,495 to \$15,995 (TCEQ, 2017).

**Table IV-12. Cost of Certified Emissions Testing Analyzers by Equipment Type—El Paso**

Equipment Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
TSI/OBD	\$8,000	\$15,000	\$18,000	\$13,212.10	33

As shown in Table IV-13, units were fairly evenly split between cash purchases (30.0%), financing lease-to-purchase agreements (25.0%) and financing with bank loans (22.5%). For the cost model, it is assumed that stations have a financing mechanism (loan or lease-to-purchase agreement) for acquiring inspection equipment, so the cost models use the survey data for these financing mechanisms.

**Table IV-13. Financing Mechanisms for Purchasing Emissions Testing Equipment—El Paso**

Finance Type	Number of Responses	Percent
Paid cash	12	30.0%
Lease-to-purchase	10	25.0%
Bank loan	9	22.5%
<i>Not disclosed</i>	9	22.5%
<b>Total</b>	<b>40*</b>	<b>100.0%</b>

\* Of the 39 respondents, 2.6% (1 station) reported more than one certified analyzer.

For stations that financed the purchase of an analyzer, Table IV-14Table IV-15 shows that the average lease-to-purchase or bank loan term is 5.2 years with a median of 5 years. Figure IV-7 shows the distribution of these loan terms for test-only and T&R stations combined.

**Table IV-14. Lease-to-Purchase or Bank Loan Term (Years)—El Paso**

25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
5	5	6	5.2	15

**Figure IV-7. Distribution of Lease-to-Purchase or Bank Loan Term (Years)—El Paso**

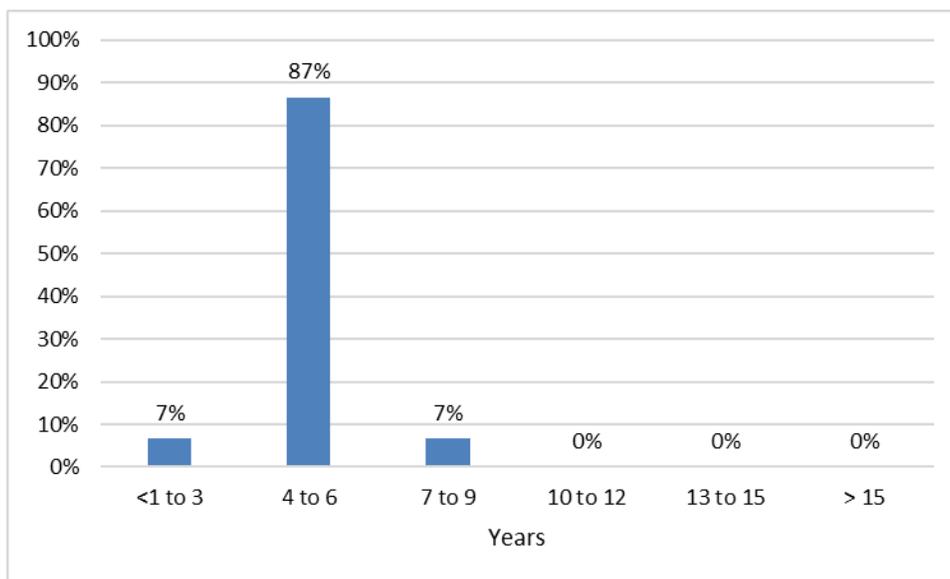


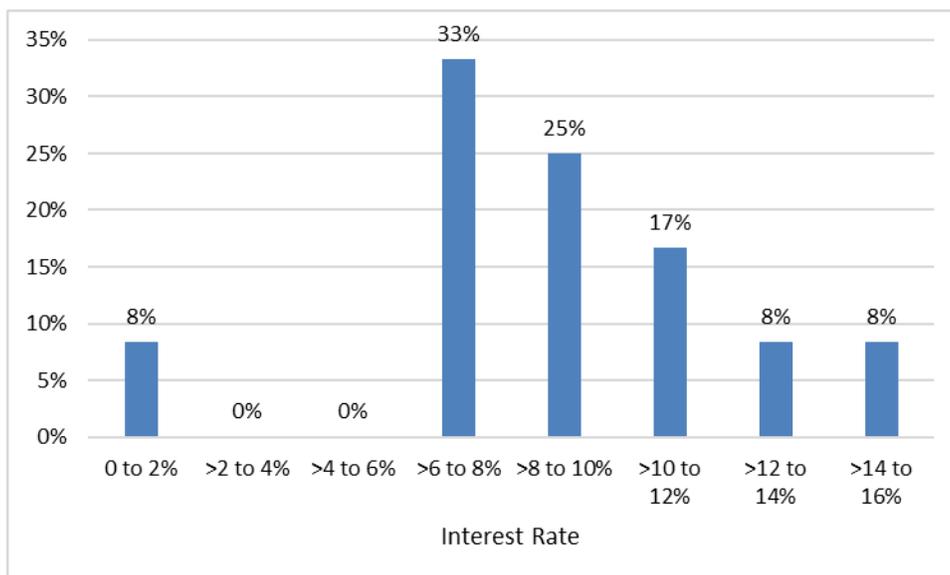
Table IV-15 shows reported lease-to-purchase or bank loan interest rates. The average and median reported values for interest rates on financed analyzers were similar, at 9.2% and 8.9% respectively.

Figure IV-8 shows the distribution of these loan terms for current equipment.

**Table IV-15. Interest Rates for Lease-to-Purchase or Bank Loan—El Paso**

25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
8%	8.9%	12%	9.2%	12

**Figure IV-8. Distribution of the Interest Rates for Lease-to-Purchase or Bank Loan—El Paso**



Upon purchasing emissions inspection analyzer(s), stations usually have the opportunity to opt in to an annual maintenance package. Of the 12 test-only respondents, only three (25%) confirmed they have a maintenance package for their emissions inspection analyzer(s). Of the 27 T&R survey respondents, 11 (41%) confirmed they have an annual maintenance package. Table IV-16 shows the cost breakdown of an annual maintenance package for both test-only and T&R stations. Test-only stations with an annual maintenance package had a median cost of \$1,500; T&R stations with an annual maintenance package had a median cost of \$2,000.

**Table IV-16. Annual Maintenance Package Costs—El Paso**

Station Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
Test-only	\$600	\$1,500	\$2,700	\$1,600	3
Test-and-repair	\$1,600	\$2,000	\$2,200	\$1,909	11

Some stations also incur maintenance costs not covered by a service contract or maintenance package agreement. Table IV-17 shows the median reported value of these costs was \$675 annually for test-only stations and \$1,000 annually for T&R stations.

**Table IV-17. Extra Annual Maintenance Costs for Stations with Maintenance Plans—El Paso**

Station Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
Test-only	\$500	\$675	\$1,300	\$1,100	10
Test-and-repair	\$550	\$1,000	\$1,450	\$1,174	24

Stations were also asked whether they have ever gotten rid of emissions testing equipment they no longer needed. As shown in Table IV-18, the majority of respondents either had not sold, paid to get rid of, or gotten rid of old equipment for free, or they were not sure if they had. Only six stations reported getting rid of an analyzer (see Table IV-19). Note that, due to the small number of responses to the questions on whether stations had ever gotten rid of emissions testing equipment, these results are not likely to be particularly representative of the whole industry.

**Table IV-18. Stations That Got Rid of Emissions Testing Equipment—El Paso**

Ever Got Rid of Equipment?	Number of Respondents	Percent
<b>Test-Only</b>		
Yes	1	8.3%
No	8	66.7%
Not sure	3	25.0%
Missing	0	0.0%
<b>Total</b>	<b>12</b>	<b>100.0%</b>
<b>Test-and-Repair</b>		
Yes	5	18.5%
No	20	74.1%
Not sure	2	7.4%
Missing	0	0.0%
<b>Total</b>	<b>26</b>	<b>100.0%</b>

**Table IV-19. How Station Got Rid of Emissions Testing Equipment—El Paso**

Free, Paid, or Sold?	Number of Responses	Percent
I sold this	1	16.7%
I paid to get rid of this	2	33.3%
I got rid of this for free	2	33.3%
<i>Not disclosed</i>	1	16.7%
<b>Total</b>	<b>6</b>	<b>100.0%</b>

More information about the equipment stations got rid of—for example, years owned, and costs or profits from getting rid of the equipment—is summarized in Table IV-20, Table IV-21, and Table IV-22. The six units that respondents got rid of in El Paso were owned for an average of 9.2 years.

**Table IV-20. Years Owned Before Station Got Rid of Equipment—El Paso**

25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
4	9	15	9.2	6

**Table IV-21. Cost to Get Rid of Equipment—El Paso**

25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
\$0	\$50	\$100	\$50	2

**Table IV-22. Revenue from Getting Rid of Equipment—El Paso**

25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
\$6,000	\$6,000	\$6,000	\$6,000	1

In El Paso, two-thirds of test-only stations and 81.5% of T&R stations reported that they did not ever add or acquire building space (i.e., bay space) to perform vehicle emissions testing. To control for both added or acquired building space and analyzer equipment, and just equipment costs, the analytical model is designed to provide results both with and without building space costs. Table IV-23 provides an overview of the number of stations that purchased or rent/lease their building space. The data show that roughly half of stations own the building space used for vehicle emissions testing and roughly half rent or lease their space, with slightly more T&R stations owning than renting compared to test-only stations.

**Table IV-23. Building Space Rented or Purchased?—El Paso**

Station Type	Purchase or Rent?	Number of Respondents	Percent
<b>Test-Only</b>			
	Purchase	6	50.0%
	Rent/Lease	6	50.0%
	<b>Total</b>	<b>12</b>	<b>100.0%</b>
<b>Test-and-Repair</b>			
	Purchase	15	55.6%
	Rent/Lease	12	44.4%
	<b>Total</b>	<b>27</b>	<b>100.0%</b>

Overall, few stations in El Paso reported offering free emissions inspections (other than performing free retests of vehicles that failed initial inspection at their station). One-third of test-only stations and about 15% of T&R stations offer free emissions tests (see Table IV-24). None of the stations surveyed in El Paso offer emissions inspections for a reduced fee (under \$11.50) (see Table IV-25). Though this information does not feed into the cost model, it is an indicator on the adequacy of the fee.

**Table IV-24. Free Emissions Tests (Except Free Retests)—El Paso**

Free Tests Ever Given?	Number of Respondents	Percent
<b>Test-Only</b>		
No	8	66.7%
Yes	4	33.3%
<b>Total</b>	<b>12</b>	<b>100.0%</b>
<b>Test-and-Repair</b>		
No	23	85.2%
Yes	4	14.8%
<b>Total</b>	<b>27</b>	<b>100.0%</b>

**Table IV-25. Reduced-Fee Emissions Tests (Less than \$11.50)—El Paso**

Charged Less than \$11.50?	Number of Respondents	Percent
<b>Test-Only</b>		
No	12	100.0%
Yes	0	0.0%
<b>Total</b>	<b>12</b>	<b>100.00%</b>
<b>Test-and-Repair</b>		
No	27	96.30%
Yes	0	0.0%
<b>Total</b>	<b>27</b>	<b>100.00%</b>

**Table IV-26. Typical Reduced Fees Charged (Less than \$11.50)—El Paso**

25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
NA	NA	NA	NA	0

The final question of the survey asked respondents whether the fee for emissions inspections covers the associated costs. As shown in Table IV-27, the majority of the respondents answered

“no”: 66.7% of test-only stations and 81.5% of T&R stations responded that the fee does not cover costs. Though the cost model does not include this information, it is important to the overall discussion of whether fees cover costs. Chapter VII provides an overview of stations’ explanations for why the fee does not cover costs.

**Table IV-27. Does Fee Cover Emissions Testing Costs? —El Paso**

Fee Covers Testing Costs?	Number of Respondents	Percent
<b>Test-Only</b>		
No	8	66.7%
Yes	4	33.3%
<b>Total</b>	<b>12</b>	<b>100.0%</b>
<b>Test-and-Repair</b>		
No	22	81.5%
Yes	4	14.8%
Missing	1	3.7%
<b>Total</b>	<b>27</b>	<b>100.0%</b>

## V. ARR SURVEY RESULTS

This section of the report describes the survey responses for test-only and T&R stations in the ARR program area (the survey instrument itself can be found in Appendix A of this report). Any survey fields that were left blank are reported as “missing.” Due to rounding, the percentages in some of the tables do not total exactly 100%. Results are not provided for some basic questions that are not highly relevant to the analysis of the emissions inspection fee.

As noted in Chapter II, only 17 test-only stations in ARR submitted surveys, compared to 74 T&R stations, so caution should be taken in assessing the data from test-only stations due to the small sample size.

### A. GENERAL STATION INFORMATION

Table V-1 summarizes the typical hours of operation for 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. This information is not directly input into the cost model, but it does provide some insight into labor usage between station types, as test-only stations are required to pay inspectors for their entire shifts regardless of whether they are conducting inspections. Overall, test-only and T&R stations have similar operating hours, although a higher percentage of T&R stations are closed on the weekends.

**Table V-1. Hours of Operation—ARR**

Day	Median Open Time	Median Close Time	Median Hours Open	Number Open	Number Closed
<b>Test-Only</b>					
Monday	8:00am	6:00pm	9	17	0
Tuesday	8:00am	6:00pm	9	17	0
Wednesday	8:00am	6:00pm	9	17	0
Thursday	8:00am	6:00pm	9	17	0
Friday	8:00am	6:00pm	9	17	0
Saturday	8:00am	3:30pm	7	17	0
Sunday	8:00am	7:00pm	11	1	16
<b>Test-and-Repair</b>					
Monday	8:00am	5:30pm	10	73	1
Tuesday	8:00am	5:30pm	10	73	1
Wednesday	8:00am	5:30pm	10	73	1
Thursday	8:00am	5:30pm	10	74	0
Friday	8:00am	5:30pm	10	72	2
Saturday	8:00am	5:00pm	9	46	28
Sunday	9:00am	4:15pm	7.25	2	72

Table V-2 and Table V-3 summarize the number of emissions inspection bays at each station and the uses for those bays. Table V-2 shows how many bays in the station are used exclusively for emissions testing, while Table V-3 shows the bays used for emissions testing in addition to other uses.

**Table V-2. Number of Bays Used Exclusively for Testing—ARR**

Number of Bays	Number of Respondents	Percent
<b>Test-Only</b>		
0	1	5.9%
1	13	76.5%
2	3	17.6%
<b>Total</b>	<b>17</b>	<b>100.0%</b>
<b>Test-and-Repair</b>		
0	23	31.1%
1	45	60.8%
2	5	6.8%
3	1	1.4%
<b>Total</b>	<b>74</b>	<b>100.0%</b>

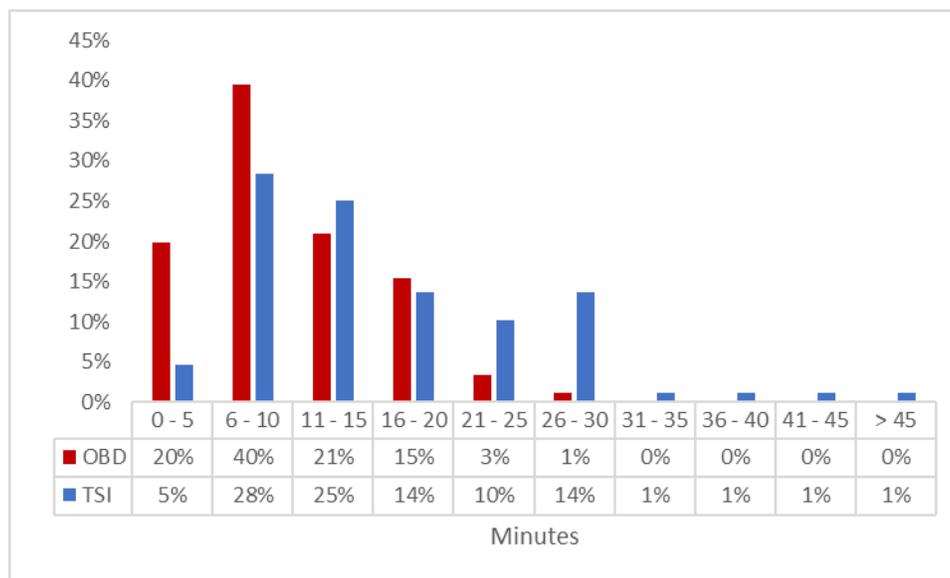
**Table V-3. Number of Bays Used for Testing and Other Uses—ARR**

Number of Bays	Number of Respondents	Percent
<b>Test-Only</b>		
0	13	76.5%
1	3	17.6%
2	1	5.9%
<b>Total</b>	<b>17</b>	<b>100.0%</b>
<b>Test-and-Repair</b>		
0	40	54.1%
1	19	25.7%
2	10	13.5%
3	2	2.7%
4	1	1.4%
8	1	1.4%
10	1	1.4%
<b>Total</b>	<b>74</b>	<b>100.0%</b>

## B. THE EMISSIONS INSPECTION PROCESS

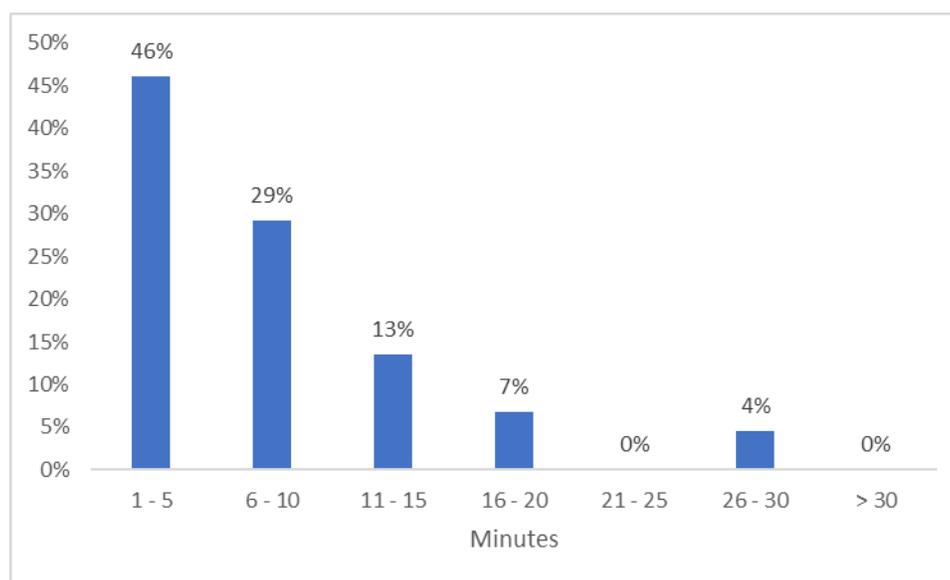
Figure V-1 shows the distribution of survey responses regarding the average time (in minutes) for OBD tests and TSI tests. No stations reported OBD testing times greater than 30 minutes; four reported TSI testing times greater than 30 minutes. The median length of the OBD test was 10 minutes, compared to a median TSI testing time of 15 minutes.

**Figure V-1. Average Time in Minutes to Conduct OBD and TSI Emissions Tests—ARR**



New to this year’s survey, respondents were also asked how much additional time, on average, is spent with each inspection customer to explain either the emissions inspection process or reasons for failure and recommended repairs. This question was added because additional time spent with customers had been identified by past survey respondents as a hidden cost of the emissions inspection process. The median length of additional time spent with inspection customers in ARR was 7.5 minutes. Figure V-2 shows the distribution of responses for the average time (in minutes) that emissions inspectors spend with emissions inspection customers.

**Figure V-2. Average Additional Time in Minutes Spent with Emissions Inspection Customers—ARR**



### C. REPAIR SERVICE REVENUE

Stations offering repair services in addition to emissions testing provided information about the revenue stream generated from repairs to vehicles that failed emissions inspections. Since the relevant questions were applicable only to T&R stations, the results shown below represent only T&R stations.

As Table V-4 shows, nearly 80% of stations reported that between 1 and 20% of their repair revenue resulted from work following failed emissions inspections. Only two stations reported generating between 41 and 60% of their repair income from failed emissions inspections.

**Table V-4. Percentage of Repair Revenues Resulting from Failed Emissions Inspections—ARR**

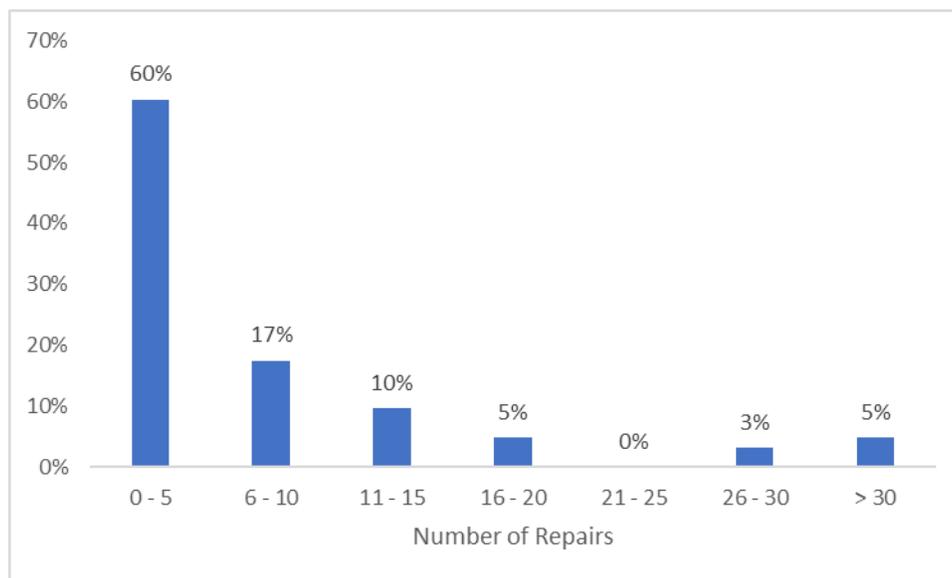
Percentage	Number of Respondents	Percent
0%	7	9.5%
1–20%	59	79.7%
21–40%	5	6.8%
41–60%	2	2.7%
61–80%	0	0.0%
81–100%	0	0.0%
Missing	1	1.4%
<b>Total</b>	<b>74</b>	<b>100.0%</b>

Table V-5 shows that the average number of repair jobs per month from failed emissions inspections is nine, while the median value is five. The interquartile range is eight. Figure V-3 shows the distribution of the responses in a histogram. The average and median typical cost of such a repair is \$250 (see Table V-6) and Figure V-4 shows the distribution of these repair costs in a histogram. This only gives insight into the gross revenue generated by repairs from failed inspections; it does not provide any insight to the additional profit from these repairs. This information does not feed directly into the cost model, but rather informs supplemental discussion about additional revenue from repairs.

**Table V-5. Typical Number of Repair Jobs per Month Resulting from Failed Emissions Tests—ARR**

25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
2	5	10	9	63

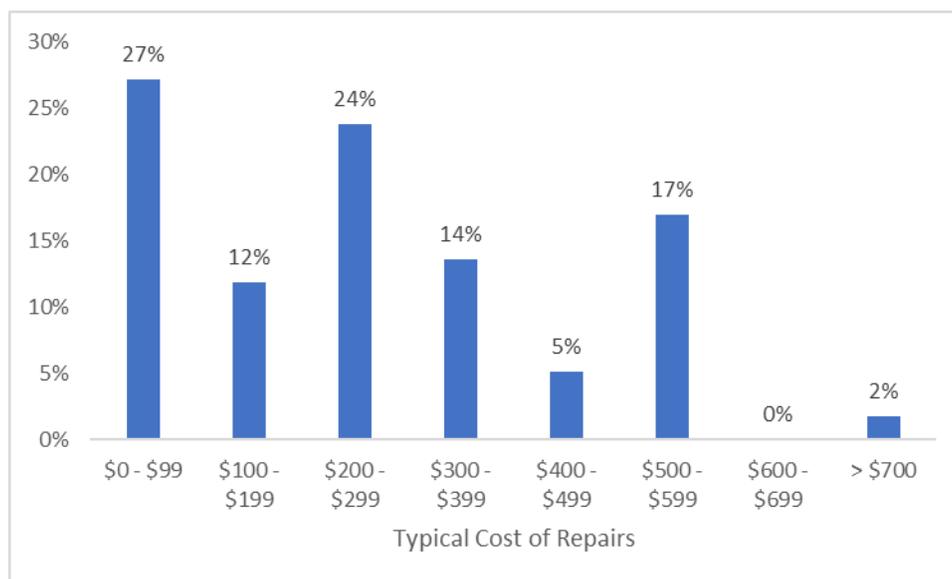
**Figure V-3. Distribution of Typical Number of Repair Jobs per Month Resulting from Failed Emissions Tests—ARR**



**Table V-6. Typical Repair Cost for an Emissions Test Failure—ARR**

25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
\$50	\$250	\$350	\$250	59

**Figure V-4. Distribution of Typical Repair Costs for an Emissions Test Failure—ARR**



#### D. EMISSIONS INSPECTORS

Table V-7 summarizes the total number of vehicle emissions inspectors employed per station, by station type, for ARR. Most respondents reported employing one, two, or three inspectors at

their stations. The highest number of inspectors a test-only station reported employing was six, while the highest number a T&R station reported was 30. Stations in ARR employ a median of two inspectors.

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

Number of Inspectors	Number of Respondents	Percent
<b>Test-Only</b>		
1	6	35.3%
2	6	35.3%
3	2	11.8%
4	1	5.9%
5	1	5.9%
6	1	5.9%
<b>Total</b>	<b>17</b>	<b>100.0%</b>
<b>Test-and-Repair</b>		
1	22	29.7%
2	19	25.7%
3	13	17.6%
4	8	10.8%
5	7	9.5%
6	1	1.4%
13	1	1.4%
15	1	1.4%
17	1	1.4%
30	1	1.4%
<b>Total</b>	<b>74</b>	<b>100.0%</b>

Table V-8 and Table V-9 provide numbers of emissions inspectors per station, broken down into full-time and part-time inspectors. A “full-time inspector” is a full-time employee qualified to perform inspections. Full-time inspectors may spend all, some, or just a little of their work time doing inspections. A “part-time inspector” is a part-time employee qualified to do inspections, who likewise may spend only some working time doing inspections. These tables show that ARR program area stations tend to employ more full-time than part-time emissions inspectors. This is especially true for T&R stations: only 13.6% 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 V-8. Number of Full-Time Emissions Inspectors\*—ARR**

Number of FT Inspectors	Number of Respondents	Percent
<b>Test-Only</b>		
1	8	47.1%
2	5	29.4%
3	1	5.9%
4	1	5.9%
5	2	11.8%
<b>Total</b>	<b>17</b>	<b>100.0%</b>
<b>Test-and-Repair</b>		
0	2	2.7%
1	23	31.1%
2	21	28.4%
3	11	14.9%
4	7	9.5%
5	6	8.1%
13	1	1.4%
15	1	1.4%
17	1	1.4%
30	1	1.4%
<b>Total</b>	<b>74</b>	<b>100.0%</b>

\* A full-time inspector is a full-time employee who does inspections as all or part of their duties.

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

Number of PT Inspectors	Number of Respondents	Percent
<b>Test-Only</b>		
0	14	82.4%
1	2	11.8%
2	1	5.9%
<b>Total</b>	<b>17</b>	<b>100.0%</b>
<b>Test-and-Repair</b>		
0	64	86.5%
1	8	10.8%
2	1	1.4%
6	1	1.4%
<b>Total</b>	<b>74</b>	<b>100.0%</b>

\* A part-time inspector is a part-time employee who does inspections as all or part of their duties.

To explore the extent to which stations offering repair or non-repair services focus on activities other than emissions inspections, stations were asked how much time inspectors spend performing emissions inspections. Table V-10 shows the number of stations and total numbers of inspectors by services offered, as well as how many of those stations employ at least one full-time inspector spending at least half-time conducting inspections. About three-quarters of test-only stations do not offer other non-repair services, and the majority of those that do have at least one full-time inspector working at least half-time conducting inspections. Over half of T&R stations offer both repair and non-repair services in addition to emissions testing. Just

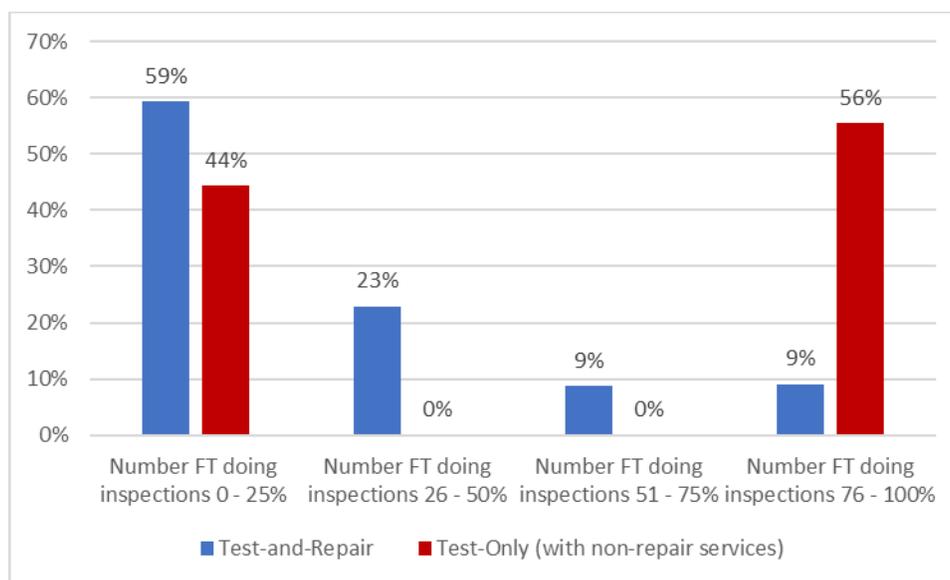
over one-third of T&R stations have at least one full-time inspector conducting inspections at least half-time.

**Table V-10. Deployment of Labor by Station Type and Services Offered—ARR**

Station Type	All Stations		Stations Employing at Least One Full-Time Inspector Conducting Inspections at Least 50% of the Time		Number of Inspectors	
	Count	Percent of Station Type	Count	Percent of Station Type	Full-Time	Part-Time
<b>Test-Only</b>	<b>17</b>	—	—	—	<b>35</b>	<b>4</b>
No other services	13	14%	NA	NA	26	4
Non-repair services	4	4%	3	75%	9	0
<b>Test-and-Repair</b>	<b>74</b>	—	<b>28</b>	<b>38%</b>	<b>231</b>	<b>16</b>
Repair services only	27	30%	6	22%	45	4
Repair and non-repair services	47	52%	22	47%	186	12
<b>Total</b>	<b>91</b>	<b>100%</b>	<b>43</b>	<b>47%</b>	<b>266</b>	<b>20</b>

Figure V-5 shows the distribution of full-time inspectors by percent of time doing inspections. For T&R, this shows that labor is not only for inspections. Thus, we assume that inspectors are doing other work when not inspecting vehicles and this time does not have to be included in the cost model (i.e., this justifies only including incremental inspection time).

**Figure V-5. Full-Time Inspectors\* by Percent of Time Spent Doing Inspections—ARR**



\* A full-time inspector is a full-time employee who does inspections as all or part of their duties.

Table V-11 summarizes average hourly wages (unloaded) paid to emissions inspectors, as well as per-test commissions paid, by station type in the ARR program area. Median hourly wages are slightly higher at T&R stations (\$13.00) than test-only stations (\$12.00) and the interquartile

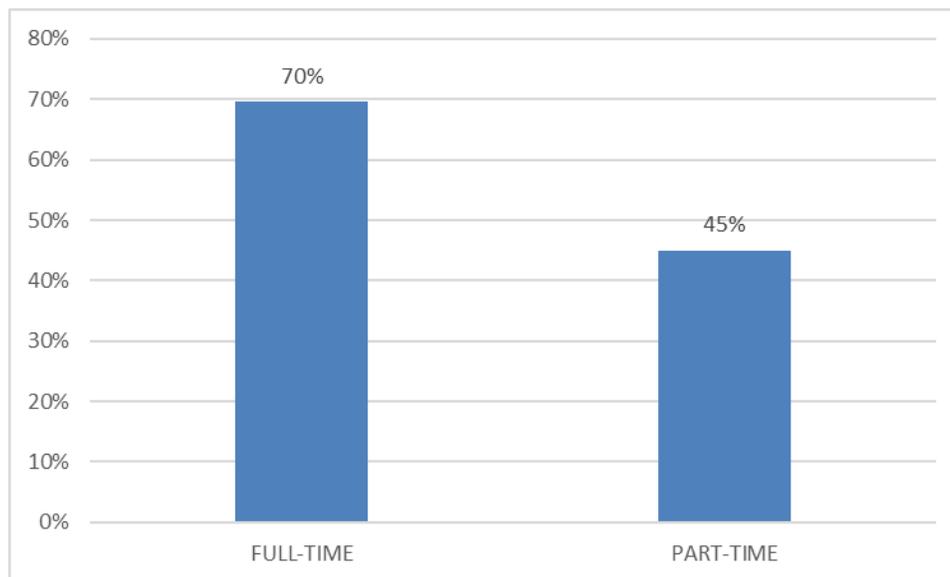
ranges for these data are also narrow (\$11.00 to \$12.00 for test-only and \$12.00 to \$15.00 for T&R), indicating that the middle half of stations pay a very similar rate to inspectors. For comparison, the average wage values (\$12 for test-only stations and \$14.55 for T&R stations) fall just around the \$12.11 average hourly wage shown for the ARR area for level 1 auto service technicians and mechanics, as reported by the Foreign Labor Certification Data Center (FLC, 2018). The cost model uses hourly wage information directly; it does not include per-test payments, since most inspectors are paid hourly or by salary (as opposed to commission).

**Table V-11. Current Wages Paid to Emissions Inspectors, Hourly (\$/hr) and Per-Test—ARR**

Station Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
<b>Hourly/Salary</b>					
Test-only	\$11	\$12	\$12	\$12	13
Test-and-repair	\$12	\$13	\$15	\$14.55	57
<b>Per-Test</b>					
Test-only	\$1	\$6	\$11.50	\$6.43	7
Test-and-repair	\$1	\$6	\$7.40	\$5.62	23

Also new this year, respondents were asked to indicate the number of full- and part-time emissions inspectors receiving benefits. Benefits were presented in the survey as “health care, paid leave, etc.” Determining the number of inspectors who receive benefits allows the cost model to adjust the BLS fringe benefit rate to control for those inspectors who do receive benefits, and those who do not. As shown in Figure V-6, 70% of full-time emissions inspectors and only 45% of part-time inspections in the ARR program area receive benefits.

**Figure V-6. Percent of Emissions Inspectors Receiving Benefits—ARR**



## E. EMISSIONS TESTING EQUIPMENT, BUILDING, AND OTHER COSTS

Cost information for the certified emissions testing analyzers is presented in Table V-12 below. Emissions testing equipment data are presented on a per-unit basis rather than a per-station basis because stations may have more than one certified emissions testing analyzer. Because of this, totals may be larger than the number of stations that responded to the survey.

The results show a median purchase price of emissions inspection equipment of \$16,500. This value is slightly higher than the price for a single new certified TSI/OBD analyzer, which typically ranges from \$15,495 to \$15,995 (TCEQ, 2017).

**Table V-12. Cost of Certified Emissions Testing Analyzers by Equipment Type—ARR**

Equipment Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
TSI/OBD	\$14,000	\$16,500	\$18,500	\$16,424.10	95

As shown in Table V-13, 56.5% of current equipment purchases were paid for with cash, 19.4% were financed with lease-to-purchase agreements, and 13% required bank loans. For the cost model, it is assumed that stations have a financing mechanism (loan or lease-to-purchase agreement) for acquiring inspection equipment, so the cost models use the survey data for these financing mechanisms model.

**Table V-13. Financing Mechanisms for Purchasing Emissions Testing Equipment—ARR**

Finance Type	Number of Responses	Percent
Paid cash	61	56.5%
Lease-to-purchase	21	19.4%
Bank loan	14	13.0%
<i>Not disclosed</i>	12	11.1%
<b>Total</b>	<b>108*</b>	<b>100.0%</b>

\* Of the 91 respondents, 17.6% (16 stations) reported more than one certified analyzer.

Table V-14 shows the typical lease-to-purchase or bank loan terms for current equipment used by stations responding to the survey. The median term is 5 years; the average is 7.7 years. The interquartile range for these data is also narrow (0.5 years), indicating that the middle half of stations have very similar loan terms. Figure V-7 more clearly illustrates this distribution of loan terms for the ARR program area.

**Table V-14. Lease-to-Purchase or Bank Loan Term (Years)—ARR**

25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
5	5	5.5	7.7	24

**Figure V-7. Distribution of Lease-to-Purchase or Bank Loan Term (Years)—ARR**

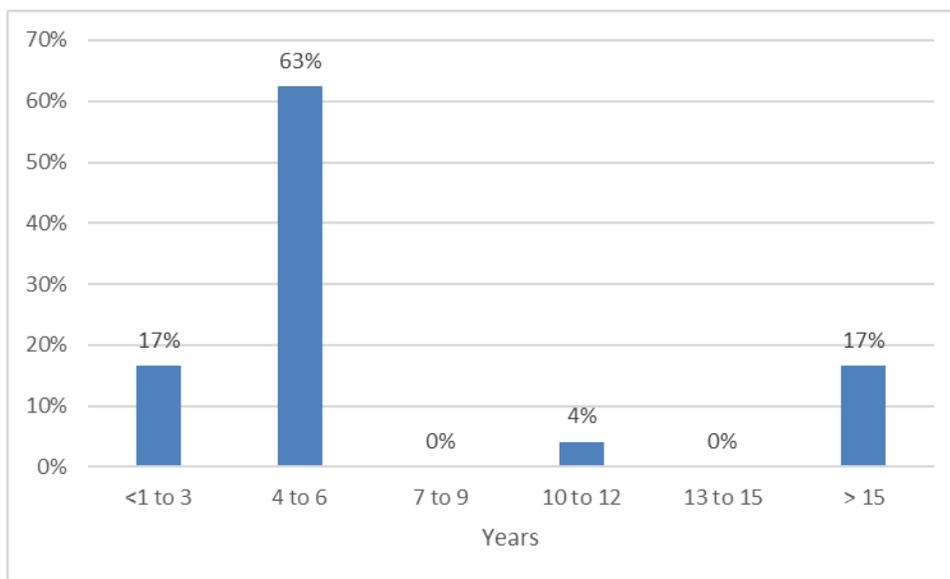
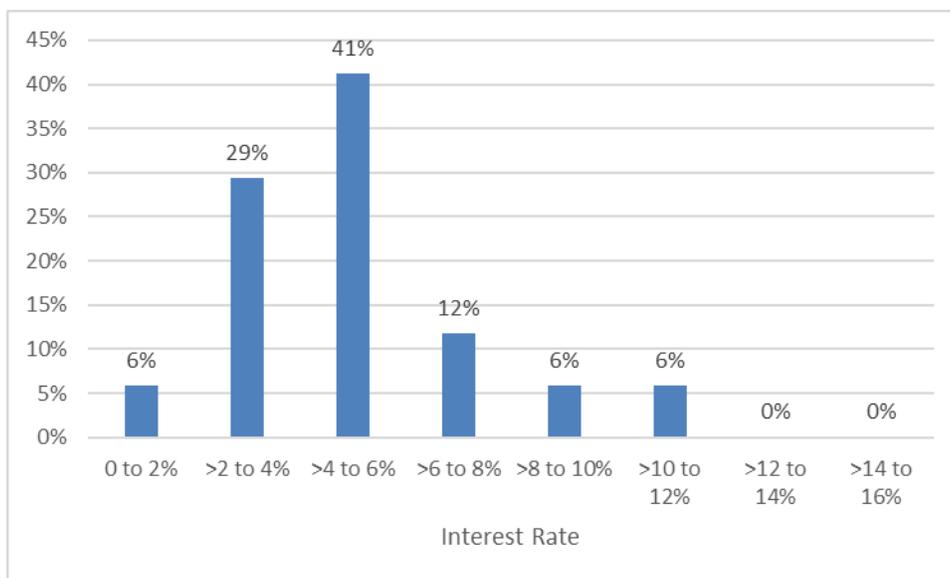


Table V-15 shows the reported lease-to-purchase or bank loan interest rates. The average and median reported values for interest rates on financed analyzers were very similar at 5.4% and 5%, respectively. The interquartile range (middle half of the data) is from 4% to 6%. Figure V-8 shows the distribution of these loan interest rates.

**Table V-15. Interest Rates for Lease-to-Purchase or Bank Loan—ARR**

25 <sup>th</sup> Percentile	Median	75 <sup>th</sup> Percentile	Average	Responses
4%	5%	6%	5.4%	17

**Figure V-8. Distribution of Interest Rates for Lease-to-Purchase or Bank Loan—ARR**



Upon purchasing emissions inspection analyzer(s), stations usually have the opportunity to opt in to an annual maintenance package. Table V-16 shows that test-only and T&R stations pay about the same median cost annually for a maintenance package for their emissions inspection equipment—\$2,000 and \$1,800, respectively. Of the 17 test-only respondents, 13 (76%) confirmed they have a maintenance package; of the 74 T&R survey respondents, 39 (about 53%) confirmed they have a maintenance plan.

**Table V-16. Annual Maintenance Package Costs—ARR**

Station Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
Test-only	\$1,824	\$2,000	\$2,767	\$2,794	13
Test-and-repair	\$1,600	\$1,800	\$2,200	\$1,901	39

Some stations also incur additional maintenance costs not covered by a service contract or maintenance agreement, these costs are shown in Table V-17. The median reported value of these additional annual costs was similar for test-only stations (\$800) and T&R stations (\$700).

**Table V-17. Extra Maintenance Costs for Stations with Maintenance Plans—ARR**

Station Type	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
Test-only	\$100	\$800	\$4,500	\$1,879	15
Test-and-repair	\$350	\$700	\$2,000	\$1,559	65

Stations were also asked whether they have ever gotten rid of emissions testing equipment they no longer needed. As shown in Table V-18, most respondents in ARR had not sold, paid to get rid of, or gotten rid of old equipment for free. Only seven stations reported getting rid of analyzers they no longer needed. Of those seven analyzers, five were sold (see Table V-19). Note that, due to the small number of responses to the questions on equipment stations got rid of, these results are not likely to be representative of the whole industry.

**Table V-18. Stations That Got Rid of Emissions Testing Equipment—ARR**

Ever Got Rid of Equipment?	Number of Respondents	Percent
<b>Test-Only</b>		
Yes	3	17.6%
No	14	82.4%
Not sure	0	0.0%
<b>Total</b>	<b>17</b>	<b>100.0%</b>
<b>Test-and-Repair</b>		
Yes	4	5.4%
No	65	87.8%
Not sure	5	6.8%
<b>Total</b>	<b>74</b>	<b>100.0%</b>

**Table V-19. How Stations Got Rid of Emissions Testing Equipment—ARR**

Free, Paid, or Sold?	Number of Responses	Percent
I sold this	5	71.4%
I paid to get rid of this	0	0.0%
I got rid of this for free	1	14.3%
<i>Not disclosed</i>	1	14.3%
<b>Total</b>	<b>7</b>	<b>100.0%</b>

More information about the equipment stations got rid of—for example, years owned and costs or profits from getting rid of equipment—is summarized in Table V-20, Table V-21, and Table V-22. The seven analyzers that respondents got rid of in ARR were owned for an average of 6.6 years.

**Table V-20. Years Owned Before Stations Got Rid of Equipment—ARR**

25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
4	7	9	6.6	7

**Table V-21. Cost to Get Rid Equipment—ARR**

25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
—	—	—	—	0

**Table V-22. Revenue from Getting Rid of Equipment—ARR**

25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
\$4,000	\$6,000	\$6,500	\$5,300	5

In ARR, about 80% of stations overall (53% of test-only stations and 88% of T&R stations) did not add or acquire building space (i.e., bay space) to perform vehicle emissions inspections. To control for the costs of both added or acquired building space and analyzer equipment, and just equipment costs, the analytical model is designed to provide results both with and without building space costs. Table V-23 provides an overview of whether stations purchased or rent/lease their building space. The data show that more test-only stations (76.5%) rent or lease their space than do T&R stations (59.5%).

**Table V-23. Building Space Rented or Purchased?—ARR**

Station Type	Purchase or Rent?	Number of Respondents	Percent
<b>Test-Only</b>			
	Purchase	4	23.5%
	Rent/Lease	13	76.5%
	<b>Total</b>	<b>17</b>	<b>100.0%</b>
<b>Test-and-Repair</b>			
	Purchase	30	40.5%
	Rent/Lease	44	59.5%
	<b>Total</b>	<b>74</b>	<b>100.0%</b>

Table V-24 shows that 23.5% of test-only stations reported providing free emissions inspections at some point, and Table V-25 shows that 17.6% of test-only stations reported having offered emissions inspections at reduced fees (under \$11.50). In comparison, 21.6% of T&R stations reported having provided free tests (other than free retests after an initial failure), and 4.1% reported offering emissions inspections at reduced fees (under \$11.50).

Stations reported several reasons for offering free emissions inspections, including rewarding regular customers; occasional promotions; and providing a service for friends, family, and employees.

**Table V-24. Free Emissions Tests (Except Free Retests)—ARR**

Free Tests Ever Given?	Number of Respondents	Percent
<b>Test-Only</b>		
No	13	76.5%
Yes	4	23.5%
<b>Total</b>	<b>17</b>	<b>100.0%</b>
<b>Test-and-Repair</b>		
No	58	78.4%
Yes	16	21.6%
<b>Total</b>	<b>74</b>	<b>100.0%</b>

**Table V-25. Reduced-Fee Emissions Tests (Less than \$11.50)—ARR**

Charged Less than \$11.50?	Number of Respondents	Percent
<b>Test-Only</b>		
No	14	82.4%
Yes	3	17.6%
<b>Total</b>	<b>17</b>	<b>100.0%</b>
<b>Test-and-Repair</b>		
No	71	95.9%
Yes	3	4.1%
<b>Total</b>	<b>74</b>	<b>100.0%</b>

Table V-26 breaks down instances when stations offered emissions inspections at a reduced fee, under \$11.50. For the six captured instances, the median reduced fee was \$8.50. Though this information does not feed into the cost model, it does provide an indicator on the adequacy of the fee. For example, a significant number of stations offering tests below the maximum fee might indicate that the fee cap is high enough.

**Table V-26. Typical Reduced Fees Charged (Less than \$11.50)—ARR**

25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile (Median)	75 <sup>th</sup> Percentile	Average	Responses
\$8	\$8.50	\$8.50	\$7.08	6

The final question of the survey asked respondents whether the fee for emissions inspections covers their costs associated with emissions inspections. As illustrated in Table V-27, the majority of the respondents answered “no”: 88.2% of test-only stations and 86.5% of T&R stations responded that the fee does not cover costs. Though the cost model does not include

this information, it is important to the overall discussion of whether fees cover costs. Chapter VII provides an overview of stations' explanations for why the fee does not cover costs.

**Table V-27. Does Fee Cover Emissions Testing Costs? —ARR**

<b>Fee Covers Testing Costs?</b>	<b>Number of Respondents</b>	<b>Percent</b>
<b>Test-Only</b>		
No	15	88.2%
Yes	2	11.8%
<b>Total</b>	<b>17</b>	<b>100.0%</b>
<b>Test-and-Repair</b>		
No	64	86.5%
Yes	8	10.8%
Missing	2	2.7%
<b>Total</b>	<b>74</b>	<b>100.0%</b>

## VI. COST MODEL ANALYSES

This chapter presents the results of the “model station” and “break-even” cost analyses performed for four program area and test type combinations:

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

The chapter first summarizes the results of the break-even and model station analyses, then presents the applicable costs and revenues that feed into the cost models, and then provides these cost models in more detail in program area-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 both equipment and building costs. As shown in Table VI-3, between 10 and 23% in each program area had added or acquired additional building space due to emissions inspections; thus, the equipment-only scenario could be considered more representative of the industry. Additionally, the bay space is regularly used for safety tests and is thus it is not a definitive incremental cost of performing vehicle emissions inspection testing. Table VI-1 summarizes the results of the break-even analyses. Excluding building costs, the percent of stations that break even according to the model ranges from 89% to 93% in the HGB/DFW program areas; the El Paso and ARR program areas are much lower, at 77% to 84%. When incorporating building costs, the percent of stations that break-even according to the model ranges from 71% to 84% in the HGB/DFW program areas; the El Paso and ARR program areas are much lower, at 50% to 61%.

The model station analyses include representative small, medium, and large stations solely based on actual emissions inspection throughput from January 1 to December 31, 2017, for the 5,257 stations in the TCEQ vehicle emissions inspection database. The small station represents a station with emissions inspection throughput in the 25<sup>th</sup> percentile (1<sup>st</sup> quartile), the medium station represents a station with emissions inspection throughput in the 50<sup>th</sup> percentile (median), and the large station represents a station with emissions inspection throughput in the 75<sup>th</sup> percentile (3<sup>rd</sup> quartile).

The net revenue and total costs (fixed and variable) for these model stations are shown in Table VI-2. For stations with lower testing volume, there are a few instances in which revenues do not exceed total costs. These instances occur in small model stations in the HGB/DFW program areas conducting OBD-only inspections, small model stations in the El Paso program area, and small model stations in the ARR program area; finally, a medium station in ARR barely breaks even. All other station types across the four program areas had net revenues that exceeded costs. These models do not make a distinction between test-only and T&R stations (as the incremental emissions inspection costs are the same)—these station types are aggregated

together in the analyses. This section does, however, provide supplementary quantitative and qualitative analysis discussing how the generally higher throughput at test-only stations affects the cost models. This section also 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**

	HGB/DFW, OBD-Only	HGB/DFW, ASM-OBD	El Paso	ARR
<b>Break-Even Number of Tests (per Month)</b>				
Including equipment costs	26	97	70	82
Including equipment and building costs	53	145	123	153
<b>Percent of Stations Above Break-Even Number</b>				
Including equipment costs	89%	93%	84%	77%
Including equipment and building costs	71%	84%	61%	50%

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

	HGB/DFW OBD-Only	HGB/DFW ASM-OBD	El Paso	ARR
Small station net revenue	\$888	\$3,268	\$1,104	\$1,012
Small station total costs	\$953	\$2,897	\$1,317	\$1,419
<b>Small stations net revenue – total cost</b>	<b>(\$65)</b>	<b>\$371</b>	<b>(\$213)</b>	<b>(\$407)</b>
Medium station net revenue	\$1,536	\$5,125	\$2,001	\$1,771
Medium station total costs	\$1,183	\$3,560	\$1,590	\$1,766
<b>Medium station net revenue – total cost</b>	<b>\$353</b>	<b>\$1,565</b>	<b>\$411</b>	<b>\$5</b>
Large station net revenue	\$2,257	\$7,669	\$3,588	\$3,416
Large station total costs	\$1,440	\$4,469	\$2,072	\$2,516
<b>Large station net revenue – total cost</b>	<b>\$817</b>	<b>\$3,199</b>	<b>\$1,516</b>	<b>\$900</b>

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

Types of Costs Ever Incurred	HGB/DFW, OBD-Only	HGB/DFW, ASM-OBD	El Paso	ARR
Building costs	10%	17%	23%	17%

#### 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 program 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 test-only and T&R stations combined. All inputs used in the cost model analyses are provided in Table VI-4 and Table VI-5.

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

Variable	Source	Value
All equipment: useful life	BEA, 2003; Cusick, 2012	11 years (from BEA service life estimate for “Service industry machinery, other than wholesale and retail trade”)
Electricity: monthly cost (\$)	ERG, 2007	\$40 (the TCEQ reconfirmed value in May 2018)
Communication with VID (vehicle inspection database): number of transactions per inspection	TCEQ	2
Communication with VID (vehicle inspection database): cost per call (\$)	TCEQ	\$0.19 per call
Fringe benefits: percent of total compensation	BLS, 2018	Total benefits make up 27.1% of total compensation in 2017.
Bay size	TxDPS, 2017	288 square feet. Minimum size of a bay is 288 square feet. This was used to apportion the cost of the building to vehicle emissions testing.

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

Variable	HGB/DFW OBD-Only	HGB/DFW ASM-OBD	El Paso	ARR
Building space—median purchase price (bay-related)*	\$30,158	\$92,571	\$24,000	\$44,400
Building space—monthly rent for bay space	\$324	\$576	\$422.40	\$446.40
Testing equipment—median purchase price	\$8,950	\$38,000	\$15,000	\$16,500
Calibration gases—median annual cost	N/A	\$720	\$260	\$300
Wands/probes—median annual cost	N/A	\$250	\$137.50	\$200
Printer paper and ink/toner—median annual cost	\$300	\$600	\$400	\$300
Dedicated phone line and/or internet—median annual cost	\$618	\$1,320	\$780	\$600
Maintenance agreement—median annual cost	\$900	\$4,263.50	\$2,000	\$1,830
Extra maintenance—median annual cost	\$500	\$2,000	\$950	\$725
Inspector wage—median hourly salary	\$12	\$12	\$9	\$12.50
Percent of employees receiving benefits	55%	56%	38%	69%
Labor—median minutes per TSI test	NA	NA	15	15
Labor—median minutes per OBD test	15	15	10	10
Labor—median minutes per ASM test	NA	25	NA	NA
Labor—other time with customer (minutes per test)	10	10	7.5	7.5
Loan term—median length (years)	4	5	5	5
Loan rate—median amount (percent)	8%	8%	8.85%	5%
Retest rate for TSI test (percent)	NA	NA	6.3%	16.4%
Retest rate for OBD test (percent)	5.2%	5.1%	5.2%	7.4%
Retest rate for ASM test (percent)	NA	13.8%	NA	NA

\* Median purchase price (bay-related) was contextually informative but was not used in the cost model. Instead, for building space, monthly rent for bay space is used to estimate building costs because renting is more prevalent than purchasing. Monthly rent for bay space ends up being a higher monthly cost, for building space, than the median purchase price (bay-related) when spread over the life of the building.

ERG cross-checked the survey data in Table VI-5 with publicly available information. According to the Foreign Labor Certification Data Center (FLC, 2018), the average hourly wage for a level 1 auto service technician and mechanic is \$13.54 in Houston, \$12.31 in Dallas, \$10.24 in El Paso,

and \$12.11 in ARR. These values are all consistent with the median inspector wages reported by survey respondents (shown in Table VI-5).

The survey-reported costs of the certified analyzers and their maintenance agreements are reasonably consistent with publicly available information. The cost for a new certified OBD-only analyzer ranges from \$7,195 to \$7,950; a new certified ASM-OBD analyzer ranges between \$25,500 and \$32,500. As shown in Table VI-5, the survey median values for stations purchasing certified OBD-only analyzers in the HGB/DFW program areas are reasonably close to the listed price of the analyzers. The reported ASM analyzer costs are a little higher than what is currently available on the market; however, the analyzers on the market typically include a refurbished dynamometer, so the higher reported survey cost may reflect the cost of a brand-new analyzer. 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 one for an ASM-OBD analyzer ranges from \$3,998 to \$4,861 annually (survey median value of \$4,263.50) (TCEQ, 2017). For both the El Paso and ARR program areas, the new certified TSI analyzer is listed to cost between \$15,495 and \$15,995 (TCEQ, 2017), which is consistent with the survey median values of \$15,000 (El Paso) and \$16,500 (ARR). 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 \$2,000 (El Paso) and \$1,830 (ARR) (TCEQ, 2017).

Table VI-6 presents the net fee by program area and test type. Offering emissions inspection is incremental to offering safety inspections; thus, the net revenue calculation only considers the net fee charged to the customer by the inspection station, excluding the safety inspection fee and costs associated with the safety inspection. The net fee thus excludes the safety portion of the fee and inspection-related fees paid directly to the state at the time of vehicle registration.

**Table VI-6. Net Fees from an Emissions Inspection**

	HGB/DFW OBD-Only	HGB/DFW ASM-OBD	El Paso	ARR
<b>Net Fee</b>	\$18.50	\$24.50 (ASM), \$18.50 (OBD)	\$11.50	\$11.50

The cost model assumes that testing equipment lasts 11 years as outlined in Table VI-4, and that the equipment is paid off over the entire 11-year period and has no value at the end of the 11 years. The cost model does not factor in tax impacts, including depreciation, associated with costs and revenues of performing vehicle emissions inspections.

## **B. HGB/DFW OBD-ONLY COST MODELS**

Table VI-7 presents the revenues and costs associated with an OBD-only station in HGB/DFW based on survey and non-survey data. These results feed into the Table VI-8 model station analysis and Table VI-9 break-even analysis.

Table VI-8 presents the HGB/DFW-program area model station analysis for OBD-only stations. It presents the total costs and total revenue for model stations—hypothetical stations based on a certain throughput—that have a monthly emissions inspection volume of 48 (small-throughput station), 83 (medium-throughput station), and 122 (large-throughput station). These emissions inspection throughputs correspond to the 25<sup>th</sup> percentile, 50<sup>th</sup> percentile, and 75<sup>th</sup> percentile of monthly emissions inspections per OBD-only station in the HGB/DFW program areas. As the

table shows, the monthly revenues for medium, and large stations exceed monthly costs by \$353, and \$817, respectively. Unlike in 2016, small model stations in the HGB/DFW program areas that only conduct OBD-only inspections do not have revenues that exceed costs. Per the cost model, HGB/DFW OBD-only small model stations lose (a median) of \$65 per month.

Table VI-9 presents the HGB/DFW-program area break-even model analysis for OBD-only stations. This analysis calculates the number of inspections that it takes for revenue to equal costs, and the percent of stations open for an entire year in the program area that perform at least that number of inspections in an average month. The analysis indicates that it takes 26 inspections per month to break even and 89% of stations perform enough inspections to cover costs that include only equipment (all costs in Table VI-7 except building costs); with both equipment and building costs (all costs in Table VI-7) taken into consideration, it takes 53 inspections per month to break even and 71% of stations perform enough inspections to cover costs.

**Table VI-7. Revenues and Costs—HGB/DFW OBD-Only**

<b>Revenues and Costs</b>		<b>Per OBD Test</b>
<b>Station Revenue per Test</b>		<b>\$18.50</b>
<b>Variable Costs</b>		
	<b>Total</b>	<b>Per OBD Test</b>
Communication with VID (cost per call)	\$0.19	\$0.38
Communication with VID (calls per test)	2	
Labor (wage per hour)	\$12.00	\$5.00
Labor (minutes per test)	15	
Labor—other time with customer (minutes per test)	10.0	
Fringe benefits (percent of total compensation)*	14.9%	\$0.88
Percent of OBD tests with free retests	5.2%	\$0.33
<b>Total Variable Costs per Month</b>		<b>\$6.58</b>
<b>Fixed Costs</b>		
	<b>Total</b>	<b>Monthly</b>
OBD analyzer (purchase price)†	\$8,950	\$79.45
Other equipment (annual cost)	\$300	\$25.00
Maintenance agreement (annual cost)	\$900	\$75.00
Additional maintenance cost (annual cost)	\$500	\$41.67
Dedicated phone line or internet (monthly cost)	\$618	\$51.50
Loan period (years)	4	
Loan interest rate (percent)	8.0%	
Building space (monthly rent for bay space)		\$324.00
Electricity (monthly cost)		\$40.00
<b>Total Fixed Costs</b>		<b>\$636.62</b>

\* Includes paid leave, supplemental pay, insurance, retirement and savings, and legally required benefits. ERG calculates this by multiplying percent of fringe benefits compared to compensation by the percent of employees receiving benefits (from the survey).

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

**Table VI-8. Model Station Analysis—HGB/DFW OBD-Only**

	Small Throughput	Medium Throughput	Large Throughput
Number of inspections per month (small, medium, large)*	48	83	122
<b>Net Revenue (Number of Tests × Revenue per Test)</b>	\$888	\$1,536	\$2,257
Total fixed costs	\$637	\$637	\$637
Total variable costs	\$316	\$546	\$808
<b>Total Cost</b>	\$953	\$1,183	\$1,440
<b>Net Revenue – Total Costs</b>	<b>(\$65)</b>	<b>\$353</b>	<b>\$817</b>

\* Values represent number of emissions inspections for 25<sup>th</sup> percentile, median, and 75<sup>th</sup> percentile stations, of all stations performing inspections in the program area.

**Table VI-9. Break-Even Analysis—HGB/DFW OBD-Only**

Item	Equipment Only	Equipment and Building Costs
Fixed cost per month	\$313	\$637
Variable cost per inspection	\$6.58	\$6.58
Net revenue per inspection	\$18.50	\$18.50
<b>Break-Even Number of Inspections</b>	<b>26</b>	<b>53</b>
<b>Station at/above Break-Even Number of Inspections</b>	<b>89%</b>	<b>71%</b>

### C. HGB/DFW ASM-OBD COST MODELS

Table VI-10 presents the revenues and costs associated with an ASM-OBD station in the HGB/DFW program areas based on survey and non-survey data. These results feed into the Table VI-11 model station analysis and Table VI-12 break-even analysis.

Table VI-11 presents the HGB/DFW-program area model station analysis for ASM-OBD stations. It presents the total costs and total revenue for model stations—hypothetical stations based on a certain throughput—that have a monthly emissions inspection volume of 176 (small-throughput station), 276 (medium-throughput station), and 413 (large-throughput station). These emissions inspection throughputs correspond to the 25<sup>th</sup> percentile, 50<sup>th</sup> percentile, and 75<sup>th</sup> percentile of monthly emissions inspections per ASM-OBD station in the HGB/DFW program areas. As the table shows, the monthly revenues for small, medium, and large stations exceed monthly costs by \$371, \$1,565, and \$3,199, respectively.

Table VI-12 presents the HGB/DFW-program area break-even model analysis for ASM-OBD stations. The break-even analysis calculates the number of inspections that it takes for revenue to equal costs, and the percent of stations open for an entire year in the program area, which perform at least that number of inspections in an average month. This analysis indicates that it takes 97 inspections per month to break even and 93% of stations perform enough inspections to cover costs that include equipment (all costs in Table VI-10 except building costs); with both equipment and building costs (all costs in Table VI-10) taken into consideration, it takes 145 inspections per month to break even and 84% of stations perform enough inspections to cover costs.

**Table VI-10. Revenues and Costs—HGB/DFW ASM-OBD**

Revenues and Costs		Per ASM Test	Per OBD Test
<b>Station Revenue per Test</b>		\$24.50	\$18.50
<b>Variable Costs</b>			
	<b>Total</b>	<b>Per ASM Test</b>	<b>Per OBD Test</b>
Communication with VID (cost per call)	\$0.19	\$0.38	\$0.38
Communication with VID (calls per test)	2		
Labor (wage per hour)	\$12.00	\$7.00	\$5.00
Labor (minutes per ASM test)	25		
Labor (minutes per OBD test)	15		
Labor—other time with customer (minutes per test)	10.0		
Fringe benefits (percent of total compensation) *	15.2%	\$1.26	\$0.90
Percent of ASM tests with free retest	13.8%	\$1.19	
Percent of OBD tests with free retest	5.1%		\$0.32
Percent of tests that are ASM tests	1.1%		
Percent of tests that are OBD tests	98.9%		
Total variable costs per test		\$9.83	\$6.60
<b>Weighted Variable Cost per Test<sup>†</sup></b>	<b>\$6.64</b>		
<b>Fixed Costs</b>			
	<b>Total</b>	<b>Monthly</b>	
ASM analyzer (purchase price) <sup>‡</sup>	\$38,000	\$350.23	
Other equipment (annual cost)	\$1,570	\$130.83	
Maintenance agreement (annual cost)	\$4,264	\$355.29	
Additional maintenance cost (annual cost)	\$2,000	\$166.67	
Dedicated phone line or internet (monthly cost)	\$1,320	\$110.00	
Loan period (years)	5		
Loan interest rate (percent)	8.0%		
Building space (monthly rent for bay space)		\$576.00	
Electricity (monthly cost)		\$40.00	
<b>Total Fixed Costs</b>		<b>\$1,729.02</b>	

\* Includes paid leave, supplemental pay, insurance, retirement and savings, and legally required benefits. ERG calculates this by multiplying percent of fringe benefits compared to compensation by the percent of employees receiving benefits (from the survey).

† Weighted cost is calculated from the relative percent of TSI and OBD tests performed.

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

**Table VI-11. Model Station Analysis—HGB/DFW ASM-OBD**

	Small Throughput	Medium Throughput	Large Throughput
Number of inspections per month (small, medium, large)*	176	276	413
<b>Net Revenue (Number of Tests × Revenue per Test)</b>	<b>\$3,268</b>	<b>\$5,125</b>	<b>\$7,669</b>
Total fixed costs	\$1,729	\$1,729	\$1,729
Total variable costs	\$1,168	\$1,831	\$2,740
<b>Total Cost</b>	<b>\$2,897</b>	<b>\$3,560</b>	<b>\$4,469</b>
<b>Net Revenue – Total Costs</b>	<b>\$371</b>	<b>\$1,565</b>	<b>\$3,199</b>

\* Values represent number of emissions inspections for 25<sup>th</sup> percentile, median, and 75<sup>th</sup> percentile stations, of all stations performing inspections in the program area.

**Table VI-12. Break-Even Analysis—HGB/DFW ASM-OBD**

Item	Equipment Only	Equipment and Building Costs
Fixed cost per month	\$1,153	\$1,729
Variable cost per inspection	\$6.64	\$6.64
Net revenue per inspection	\$18.57	\$18.57
<b>Break-Even Number of Inspections</b>	<b>97</b>	<b>145</b>
<b>Station at/above Break-Even Number of Inspections</b>	<b>93%</b>	<b>84%</b>

#### D. EL PASO COST MODELS

Table VI-13 presents the revenues and costs associated with a station in El Paso based on survey and non-survey data. These results feed into the Table VI-14 model station analysis and the Table VI-15 break-even analysis.

Table VI-14 presents the EL Paso-program area model station analysis. It presents the total costs and total revenue for model stations—hypothetical stations based on a certain throughput—that have a monthly emissions inspection volume of 96 (small-throughput station), 174 (medium-throughput station), and 312 (large-throughput station). These emissions inspection throughputs correspond to the 25<sup>th</sup> percentile, 50<sup>th</sup> percentile, and 75<sup>th</sup> percentile of monthly emissions inspections per station in the El Paso program area. As the table shows, the monthly revenues for medium and large stations exceed monthly costs by \$411, and \$1,516, respectively. However, unlike in 2016, the cost model indicates that small model stations in the El Paso program area do not have revenues that exceed monthly costs. That is, small model stations have costs that exceed revenue by a median of \$213 per month.

Table VI-15 presents the El Paso-area break-even model analysis. This analysis calculates the number of inspections that it takes for revenue to equal costs, and the percent of stations open for an entire year in the program area that perform at least that number of inspections in an average month. The analysis indicates that it takes 70 inspections per month to break even and 84% of stations perform enough inspections to cover costs that include equipment (all costs in Table VI-13 except building costs); with both equipment and building costs (all costs in Table VI-13) taken into consideration, it takes 123 inspections per month to break even and 61% of stations perform enough inspections to cover costs.

**Table VI-13. Revenues and Costs—El Paso**

Revenues and Costs		Per TSI Test	Per OBD Test
<b>Station Revenue per Test</b>		<b>\$11.50</b>	<b>\$11.50</b>
<b>Variable Costs</b>			
	<b>Total</b>	<b>Per TSI Test</b>	<b>Per OBD Test</b>
Communication with VID (cost per call)	\$0.19	\$0.38	\$0.38
Communication with VID (calls per test)	2		
Labor (wage per hour)	\$9.00	\$3.38	\$2.63
Labor (minutes per TSI test)	15		
Labor (minutes per OBD test)	10		
Labor—other time with customer (minutes per test)	7.5		
Fringe benefits (percent of total compensation)*	10.3%	\$0.39	\$0.30
Percent of TSI tests with free retest	6.3%	\$0.26	
Percent of OBD tests with free retest	5.2%		\$0.17
Percent of tests that are TSI tests	2.4%		
Percent of tests that are OBD tests	97.6%		
Total variable costs per test		\$4.40	\$3.48
<b>Weighted Variable Cost per Test<sup>†</sup></b>	<b>\$3.50</b>		
<b>Fixed Costs</b>			
	<b>Total</b>	<b>Monthly</b>	
TSI analyzer (purchase price) <sup>‡</sup>	\$15,000	\$141.04	
Other equipment (annual cost)	\$798	\$66.46	
Maintenance agreement (annual cost)	\$2,000	\$166.67	
Additional maintenance cost (annual cost)	\$950	\$79.17	
Dedicated phone line or internet (monthly cost)	\$780	\$65.00	
Loan period (years)	5		
Loan interest rate (percent)	8.9%		
Building space (monthly rent for bay space)		\$422.40	
Electricity (monthly cost)		\$40.00	
<b>Total Monthly Fixed Costs</b>		<b>\$980.73</b>	

\* Includes paid leave, supplemental pay, insurance, retirement and savings, and legally required benefits. ERG calculates this by multiplying percent of fringe benefits compared to compensation by the percent of employees receiving benefits (from the survey).

† Weighted cost is calculated from the relative percent of TSI and OBD tests performed.

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

**Table VI-14. Model Station Analysis—El Paso**

	Small Throughput	Medium Throughput	Large Throughput
Number of Inspections per month (small, medium, large)*	96	174	312
<b>Net Revenue (Number of Tests × Revenue per Test)</b>	<b>\$1,104</b>	<b>\$2,001</b>	<b>\$3,588</b>
Total fixed costs	\$981	\$981	\$981
Total variable costs	\$336	\$609	\$1,092
<b>Total Cost</b>	<b>\$1,317</b>	<b>\$1,590</b>	<b>\$2,072</b>
<b>Net Revenue – Total Costs</b>	<b>(\$213)</b>	<b>\$411</b>	<b>\$1,516</b>

\* Values represent number of emissions inspections for 25<sup>th</sup> percentile, median, and 75<sup>th</sup> percentile stations, of all stations performing inspections in the program area.

**Table VI-15. Break-Even Analysis—El Paso**

Item	Equipment Only	Equipment and Building Costs
Fixed cost per month	\$558	\$981
Variable cost per inspection	\$3.50	\$3.50
Net revenue per inspection	\$11.50	\$11.50
<b>Break-Even Number of Inspections</b>	<b>70</b>	<b>123</b>
<b>Station at/above Break-Even Number of Inspections</b>	<b>84%</b>	<b>61%</b>

## E. ARR COST MODELS

Table VI-16 presents the revenues and costs associated with a station in ARR based on survey and non-survey data. These results feed into the Table VI-17 model station analysis and Table VI-18 break-even analysis.

Table VI-17 presents the ARR-program area model station analysis. It presents the total costs and total revenue for model stations—hypothetical stations based on a certain throughput—that have a monthly emissions inspection volume of 88 (small-throughput station), 154 (medium-throughput station), and 297 (large-throughput 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 the table shows, the monthly revenues for medium and large model stations exceed monthly costs by \$5 and \$900, respectively. Small model stations in the ARR program area had costs that exceeded revenue by a median of \$407.

Table VI-18 presents the ARR-program area break-even model analysis. This analysis calculates the number of inspections that it takes for revenue to equal costs, and the percent of stations open for an entire year in the program area that perform at least that number of inspections in an average month. The analysis indicates that it takes 82 inspections per month to break even and 77% of stations perform enough inspections to cover costs that include equipment (all costs in Table VI-16 except building costs); with both equipment and building costs (all costs in Table VI-16) taken into consideration, it takes 153 inspections per month to break even and 50% of stations perform enough inspections to cover costs.

**Table VI-16. Revenues and Costs—ARR**

Revenues and Costs		Per TSI Test	Per OBD Test
<b>Station Revenue per Test</b>		<b>\$11.50</b>	<b>\$11.50</b>
<b>Variable Costs</b>			
	<b>Cost</b>	<b>Per TSI Test</b>	<b>Per OBD Test</b>
Communication with VID (cost per call)	\$0.19	\$0.38	\$0.38
Communication with VID (calls per test)	2		
Labor (wage per hour)	\$12.50	\$4.69	\$3.65
Labor (minutes per TSI test)	15		
Labor (minutes per OBD test)	10		
Labor—other time with customer (minutes per test)	7.5		
Fringe benefits (percent of total compensation)*	18.7%	\$1.08	\$0.84
Percent of TSI tests with free retest	16.4%	\$1.01	
Percent of OBD tests with free retest	7.4%		\$0.36
Percent of tests that are TSI tests	1.2%		
Percent of tests that are OBD tests	98.8%		
Total variable costs per test		\$7.15	\$5.22
<b>Weighted Variable Cost per Test<sup>†</sup></b>	<b>\$5.25</b>		
<b>Fixed Costs</b>			
	<b>Total</b>	<b>Monthly</b>	
TSI analyzer (purchase price) <sup>‡</sup>	\$16,500	\$141.53	
Other equipment (annual cost)	\$800	\$66.67	
Maintenance agreement (annual cost)	\$1,830	\$152.50	
Additional maintenance cost (annual cost)	\$725	\$60.42	
Dedicated phone line or internet (monthly cost)	\$600	\$50.00	
Loan period (years)	5		
Loan interest rate (percent)	5.0%		
Building space (monthly rent for bay space)		\$446.40	
Electricity (monthly cost)		\$40.00	
<b>Total Monthly Fixed Costs</b>		<b>\$957.52</b>	

\* Includes paid leave, supplemental pay, insurance, retirement and savings, and legally required benefits. ERG calculates this by multiplying percent of fringe benefits compared to compensation by the percent of employees receiving benefits (from the survey).

† Weighted cost is calculated from the relative percent of TSI and OBD tests performed.

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

**Table VI-17. Model Station Analysis—ARR**

	Small Throughput	Medium Throughput	Large Throughput
Number of inspections per month (small, medium, large)*	88	154	297
<b>Net Revenue (Number of Tests × Revenue per Test)</b>	<b>\$1,012</b>	<b>\$1,771</b>	<b>\$3,416</b>
Total fixed costs	\$958	\$958	\$958
Total variable costs	\$462	\$808	\$1,558
<b>Total Cost</b>	<b>\$1,419</b>	<b>\$1,766</b>	<b>\$2,516</b>
<b>Net Revenue – Total Costs</b>	<b>(\$407)</b>	<b>\$5</b>	<b>\$900</b>

\* Values represent number of emissions inspections for 25<sup>th</sup> percentile, median, and 75<sup>th</sup> percentile stations, of all stations performing inspections in the program area.

**Table VI-18. Break-Even Analysis—ARR**

<b>Item</b>	<b>Equipment Only</b>	<b>Equipment and Building Costs</b>
Fixed cost per month	\$511	\$958
Variable cost per inspection	\$5.25	\$5.25
Net revenue per inspection	\$11.50	\$11.50
<b>Break-Even Number of Inspections (monthly)</b>	<b>82</b>	<b>153</b>
<b>Station at/above Break-Even Number of Inspections</b>	<b>77%</b>	<b>50%</b>

## VII. COMMENTS FROM EMISSIONS INSPECTION SURVEY RECIPIENTS

As in prior surveys, respondents were asked if they felt the emissions inspection fee covered the costs associated with offering emissions inspections at their stations. Respondents claiming an insufficient fee amount were prompted to rate their agreement with eight statements representing the most commonly cited justifications for a fee insufficiency, as garnered from prior years' survey responses.

Table VII-1 shows these agreement ratings using a 5-point Likert scale, where 1 is "strongly agree," 2 is "agree," 3 is "neither agree nor disagree," 4 is "disagree," and 5 is "strongly disagree." Those who chose "not applicable" for any item are also included and the mean value of responses is calculated after converting each response to its corresponding number on the Likert scale. The table is sorted by mean value, sorted from highest agreement to lowest. As indicated in Table VII-1, the statement with which the largest number of respondents agreed or strongly agreed was that "All the costs simply add up to more than the fee, but I decide to offer testing because it is important to my business in other ways."

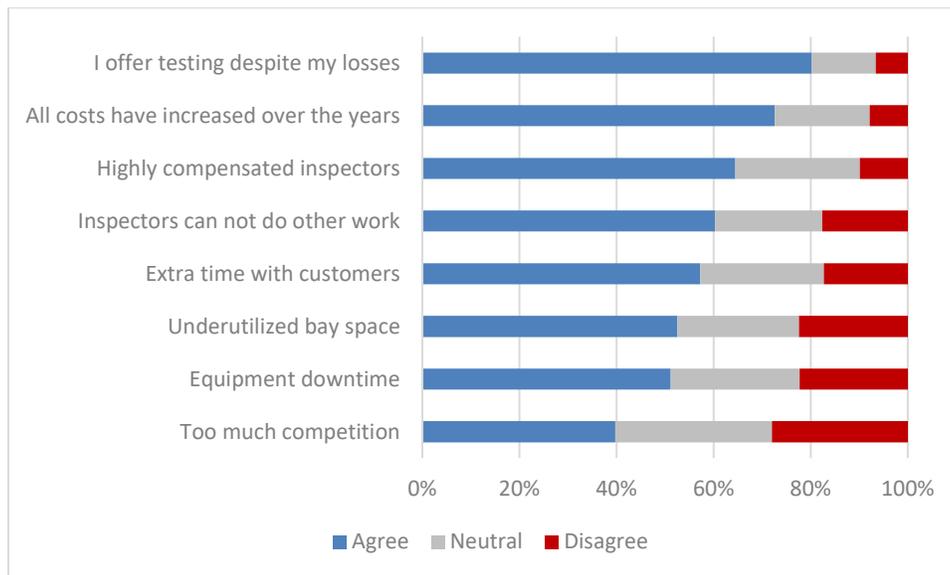
**Table VII-1. Reasons the Emissions Inspection Fee Does Not Cover Costs of Testing**

<b>Reason Fee Does Not Cover Costs</b>	<b>1 Strongly Agree</b>	<b>2 Agree</b>	<b>3 Neither</b>	<b>4 Disagree</b>	<b>5 Strongly Disagree</b>	<b>NA</b>	<b>Mean Value*</b>
All the costs simply add up to more than the fee, but I decide to offer testing because it is important to my business in other ways.	43%	35%	13%	4%	2%	3%	1.84
Costs associated with testing have increased over the years and now our costs exceed the revenue from the test fee.	42%	28%	19%	6%	2%	2%	1.94
I must pay my inspectors a high salary/rate because their primary job function is one that demands a higher salary than emissions inspectors.	31%	29%	24%	7%	2%	8%	2.15
I must pay an emissions inspector to be on site, and it is costly because it is difficult to task them with other work when they are not performing inspections.	30%	22%	19%	11%	4%	13%	2.27
The extra time I spend with customers during emissions inspections is costly.	29%	27%	25%	12%	5%	3%	2.36
My testing equipment is frequently in need of repair, and the downtime hurts my ability to break even.	24%	26%	26%	17%	5%	3%	2.52
I pay for emissions inspection bay/building space, but it is underutilized for emissions testing or cannot easily be used for other purposes.	23%	23%	22%	12%	7%	12%	2.52
I do not conduct enough emissions inspections because there are too many stations performing inspections.	19%	19%	31%	17%	10%	5%	2.79

\* Weighted average of score (1 is assigned to strongly agree, 2 is assigned to agree, 3 is assigned to neither, 4 is assigned to disagree, 5 is assigned to strongly disagree). The lower the score, the higher the level of agreement.

Figure VII-1 further illustrates the level of agreement by respondents across the various statements by comparing the percentage of those who agree or strongly agree with a statement to those who disagree or strongly disagree. The statement with which more respondents were likely to disagree was “I do not conduct enough emissions inspections because there are too many stations performing inspections.”

**Figure VII-1. Reasons Emissions Inspection Fee Does Not Cover Costs Testing**



Respondents were also invited to describe any additional reasons that the emissions inspection fee does not cover their costs. 174 respondents submitted supplementary answers, although the majority of these responses were duplicative of the statements previously listed. Below are prominent examples of explanations not previously captured:

- Customers often do not return to the shop at which they originally fail (nine respondents).
- The time spent re-inspecting failed vehicles is costly (nine respondents).
- The inspection restriction on OBD-only stations prevents high enough throughput to break even (seven respondents).

A smaller number of responses mentioned offering inspections at a discount to increase their customer base; that credit card processing fees are high, and many more people use cards now than when the station made the decision to enter the market; that ASM throughput is so low now that it does not cover the associated maintenance costs; and that there have been communication errors with the state computers and associated downtime.

## VIII. CONCLUSIONS AND FINDINGS

Section VIII.A presents survey responses about whether emissions inspection fees cover station costs. Section VIII.B examines how investors (current and potential station owners) view the market based on the net flow of stations into the vehicle emissions inspection market, while Section VIII.C delves into the adequacy of the fee from the point of cost models based on survey and non-survey data. Sections VIII.D and VIII.E present two additional considerations: revenue streams from failed inspections and emissions inspection cost-model differences between T&R and test-only stations. Section VIII.F is an overall assessment of the adequacy of the fee. Finally, Section VIII.G recommends possible changes to the survey for future data collection efforts.

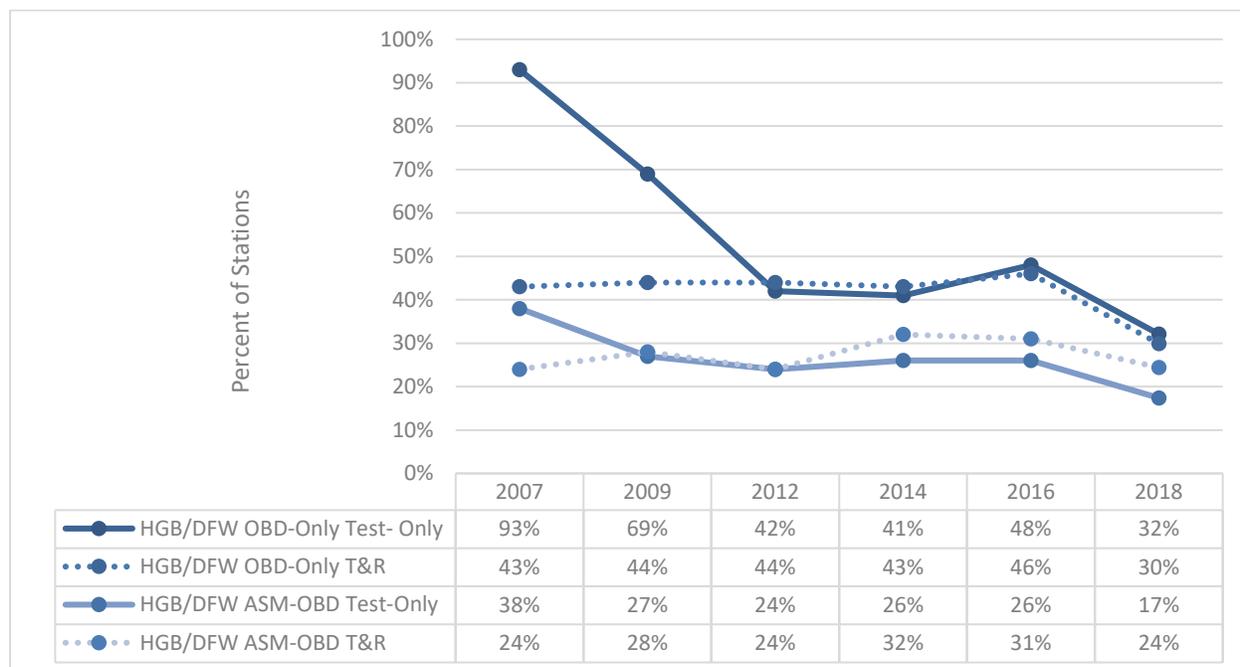
### A. ADEQUACY OF FEE: WHAT THE RESPONDENTS SAY

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

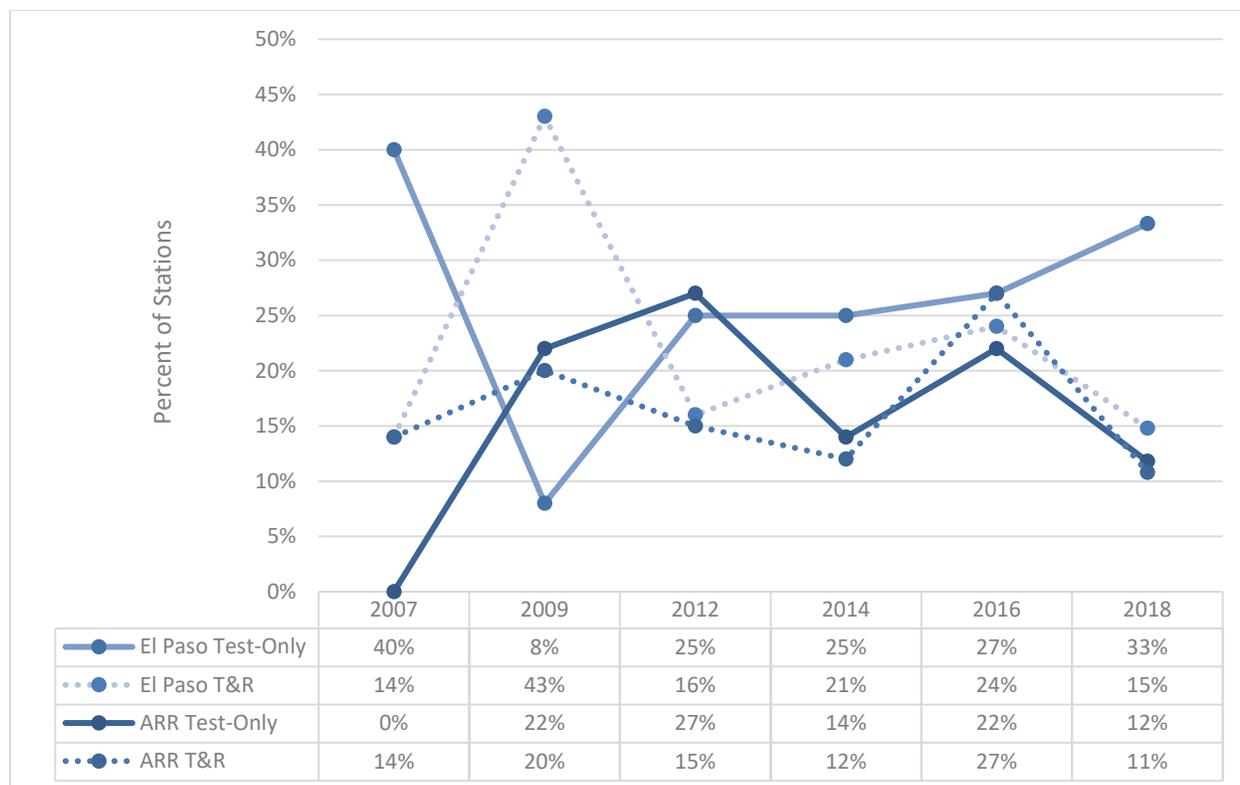
As shown in Figure VIII-1, among test-only and T&R respondents in HGB/DFW, between 30 and 32% of OBD-only stations reported the fee covered their costs. This is compared to ASM-OBD stations, for which between 17% and 24% (across test-only and T&R stations) stations reported the fee covered their costs. These represent small to moderate decreases in the number of stations reporting that reported fees covered costs compared to 2016.

As shown in Figure VIII-2, among test-only and T&R stations in El Paso, between 15% and 33% of stations reported the fee covered their costs. This represents an increase in the percent of test-only stations that reported the fee covered their costs compared to 2016, and a decrease in the number of T&R stations that reported the fee covers their costs in 2016. Among test-only and T&R stations in ARR, between 11% and 12% of stations reported their fees cover the costs of emissions inspections. This represents a significant decrease for both test-only and T&R stations reporting that the fee covers the costs associated with emissions inspections, when compared to 2016.

**Figure VIII-1. Respondents Reporting Test Fees Cover Their Costs: HGB/DFW**



**Figure VIII-2. Respondents Reporting Test Fees Cover Their Costs: El Paso and ARR**



## B. ADEQUACY OF FEE: HOW INVESTORS VIEW MARKET

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 a prospective owner) or whether they should remain in or leave the market (in the case of a current owner). A net decrease in the number of stations may 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 may indicate that prospective and existing owners estimate 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 shops) 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. The counts from prior years' analyses (ERG, 2005, 2007, 2012, 2014, 2016; Pechan, 2009) and the counts made in March 2018 for this study were used to develop the following comparisons.

Figure VIII-3 summarizes the station counts for the HGB/DFW program areas from the TCEQ Vehicle Identification Database in 2007, 2009, 2012, 2014, 2016, and 2018. This figure shows a 5% increase in the number of stations between the 2014 and 2016 counts, and another 9% increase since the 2016 count. As shown below in Table VIII-5, the throughput per station increased from 2016 to 2018 after steadily decreasing from 2008 through 2016. This was the result of the large surge of stations into the market over that time period without a corresponding surge of testing volume. In 2018, the overall testing volume in the HGB/DFW program areas, however, increased by 23% compared to 2016. 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 is an indicator that the fees are probably adequate in the HGB/DFW program areas.

**Figure VIII-3. Number of Inspection Stations in HGB/DFW Program Areas, 2007 to 2018**

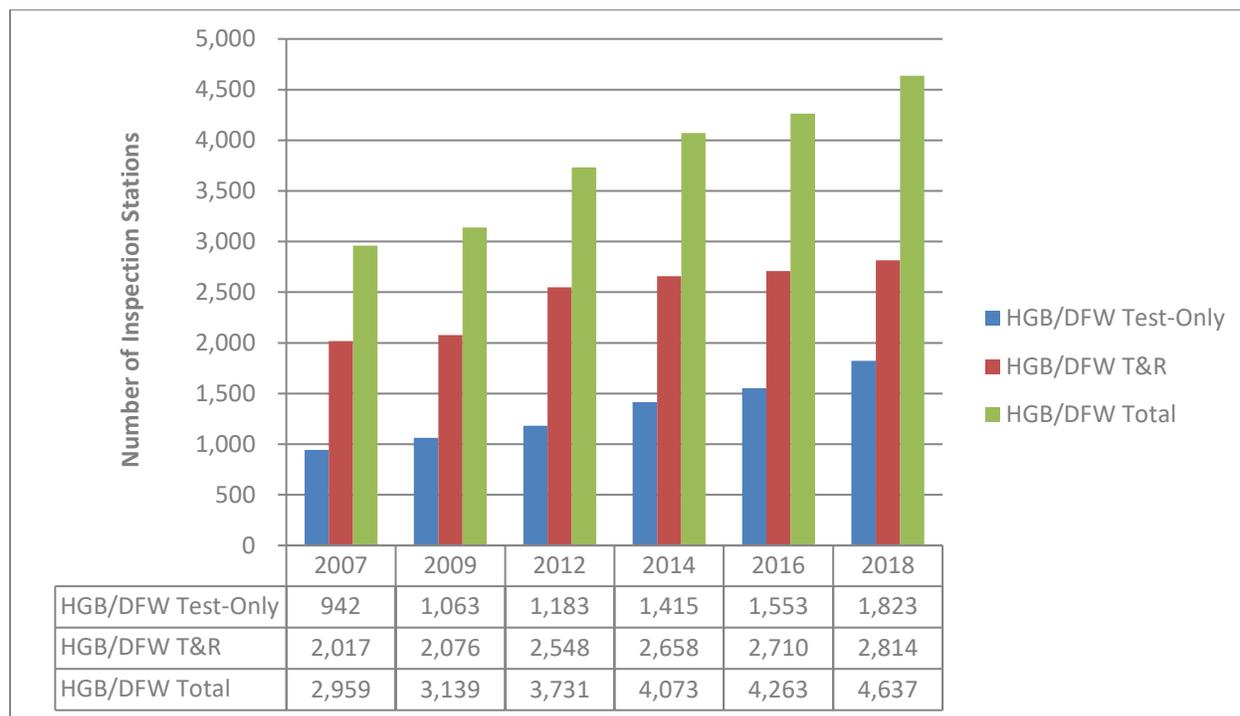


Figure VIII-4 summarizes the station counts for the El Paso program areas for 2007, 2009, 2012, 2014, 2016, and 2018. This figure shows a small increase in the number of stations in the El Paso program area between 2012 and 2018: one station, compared to an increase of 26 stations between 2007 and 2012. However, El Paso saw a decrease of seven stations between 2016 and 2018; test-only stations increased by one (from 72 to 73 stations) and T&R stations decreased by eight (from 143 to 135 stations). In 2018, the overall testing volume in the El Paso program area increased by 16% compared to 2016, and as a result (see Table VIII-5 below), the throughput per station increased from 2016 to 2018 after steadily decreasing from 2008 through 2014. This was the result of increasing number of stations into the market over that time period (2007 to 2014) without a corresponding surge of testing volume. Because the total number of stations decreased, the public experienced a reduction in supply for their emissions inspections. The total decrease in stations from 2016 to 2018 indicates that more station owners chose to exit the market than to enter the market. 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-4. Number of Inspection Stations in El Paso Program Area, 2007 to 2018**

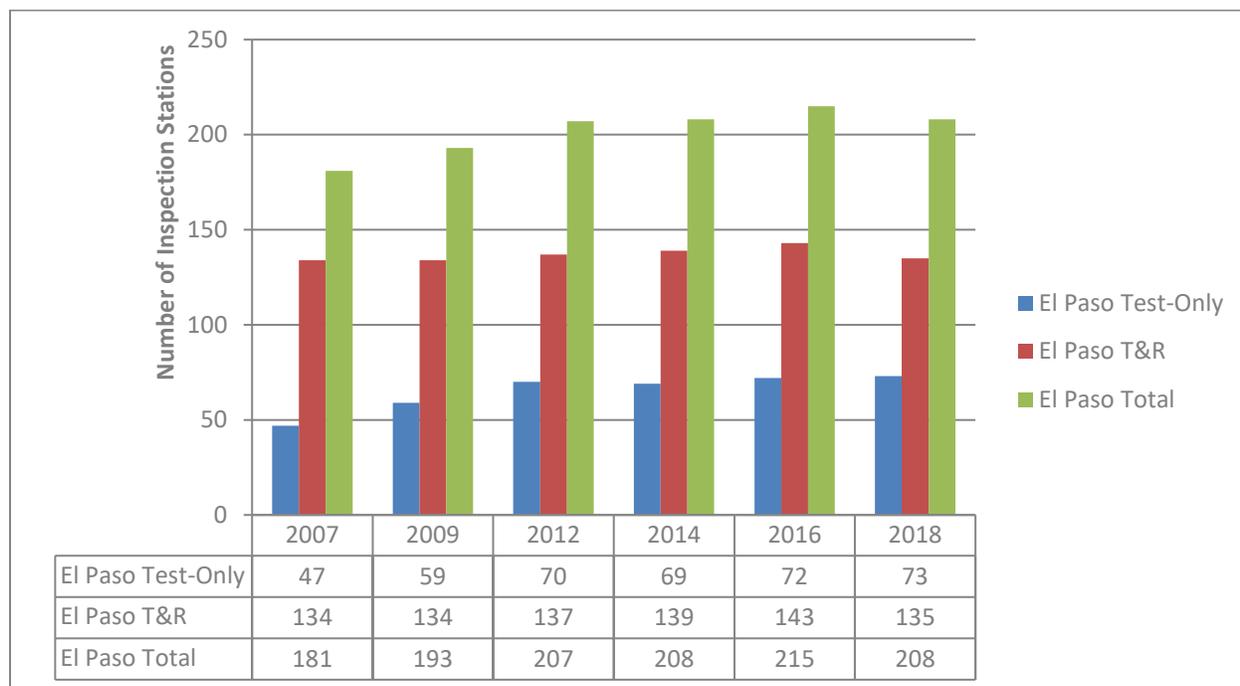
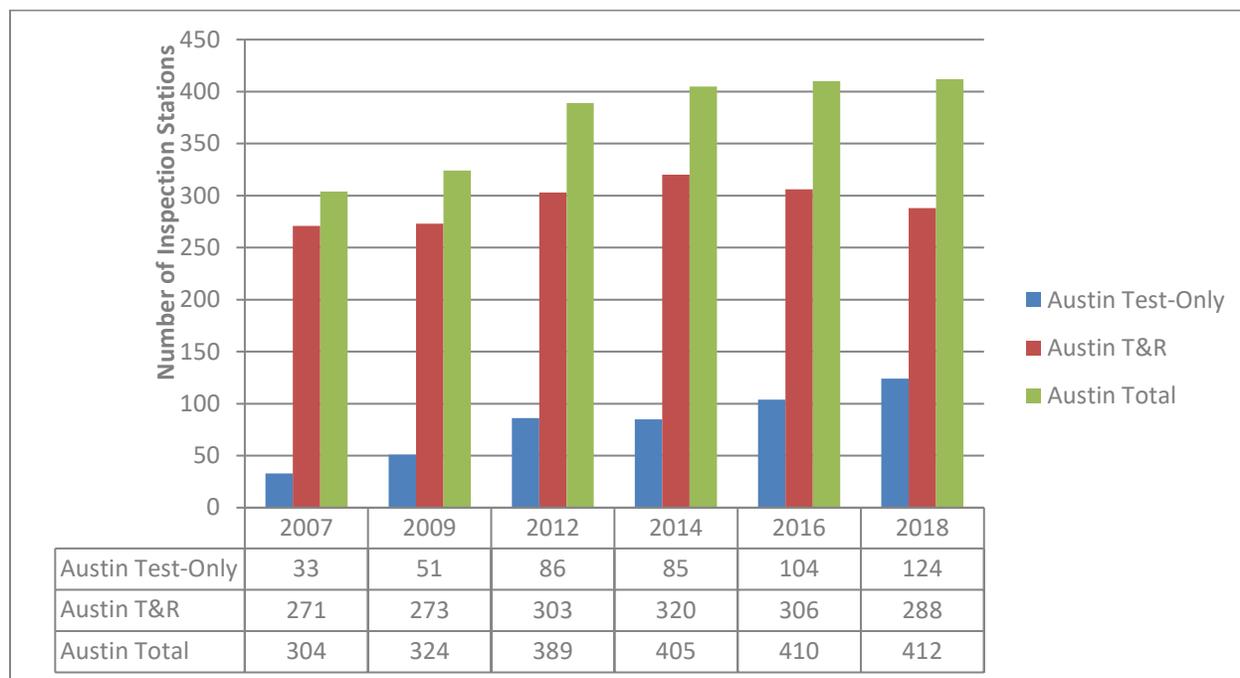


Figure VIII-5 summarizes the station counts for the ARR program area for 2007, 2009, 2012, 2014, 2016, and 2018. This figure shows a small increase in the number of stations in the ARR program area between 2012 and 2018: 23 stations, compared to an increase of 85 stations between 2007 and 2012. Between 2016 and 2018, the total number of stations offering emissions inspections only increased by two, from 410 stations to 412 stations. Test-only stations experienced modest growth (20 stations), as the number of stations increased from 104 in 2016 to 124 in 2018. T&R stations saw a modest decrease in the number of stations (18), which decreased from 306 stations in 2016 to 288 stations in 2018. In 2018, the overall testing volume in the ARR program area increased by 27% compared to 2016, and as a result (see Table VIII-5 below), the throughput per station increased from 2016 to 2018 after steadily decreasing from 2008 through 2014. This was the result of increasing number of stations into the market over that time period (2008 to 2016) without a corresponding surge of testing volume. Because the total number of stations did not decrease, the public did not see a reduction in supply for their emissions inspections. Additionally, the number of total stations in ARR remained relatively consistent, indicating that station owners entered the market at about the same rate they exited the market. This is one indicator that the fee is at about the right level. 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-5. Number of Inspection Stations in ARR Program Area, 2007 to 2016**



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

As Chapter VI discusses in more detail, ERG developed both break-even and model station cost models for the HGB/DFW (both OBD-only and ASM-OBD), El Paso, and ARR program areas.

In the break-even cost model summarized in Table VIII-1, 89% to 93% of stations (excluding building costs) 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 El Paso and ARR, 77% to 84% of stations (excluding building costs) have sufficient throughput to generate emissions inspection revenues that meet or exceed variable and fixed costs. As discussed in previous sections, some stations did not incur incremental building costs to be able to offer testing, so the analyses are done with and without building costs included.

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

	HGB/DFW OBD-Only	HGB/DFW ASM-OBD	El Paso	ARR
<b>Break-Even Number of Tests (per Month)</b>				
Including equipment costs	26	97	70	82
Including equipment and building costs	53	145	123	153
<b>Percent of Stations Above Break-Even Number</b>				
Including equipment costs	89%	93%	84%	77%
Including equipment and building costs	71%	84%	61%	50%

The summary of the percent of stations breaking even since 2012, shown below in Table VIII-2, compares 2018 percentages of stations breaking even to those of the past. The HGB/DFW program areas have had a consistent number of break-even tests for both OBD-only stations (26

to 27) and ASM-OBD stations (89 to 97), with between 84% to 93% of stations across both models breaking even. Likewise, the El Paso program area has had a consistent number of break-even tests (70 to 73) and a consistent percent of stations (80% to 84%) breaking even from 2012 to 2018. The ARR program area also had a consistent number of break-even tests (76 to 82) and a consistent percent of stations (73% to 77%) breaking even from 2012 to 2018.<sup>8</sup>

**Table VIII-2. Summary of Break-Even Number of Inspections from 2012 to 2018 in All Program Areas, Excluding Building Costs**

	Break-Even Tests (2012)	Percent of Stations Breaking Even (2012)	Break-Even Tests (2014)	Percent of Stations Breaking Even (2014)	Break-Even Tests (2016)	Percent of Stations Breaking Even (2016)	Break-Even Tests (2018)	Percent of Stations Breaking Even (2018)
HGB/DFW (OBD-only)	27	86%	26	87%	26	87%	26	89%
HGB/DFW (ASM-OBD)	94	84%	89	85%	89	87%	97	93%
El Paso	70	80%	73	81%	70	80%	70	84%
ARR	80	74%	76	73%	79	74%	82	77%

Table VIII-3 shows the percent of OBD tests at HGB/DFW ASM-OBD stations, El Paso stations (which perform OBD and TSI tests), and ARR stations (which perform OBD and TSI tests). In the 2018 survey, stations reported a median time of 15 minutes for OBD tests in all program areas, 15 minutes for TSI tests, and 25 minutes for ASM tests, so one benefit stations are seeing as fewer vehicles require TSI or ASM tests is that a higher percentage of tests will be OBD tests, reducing the average time and cost of performing a test.

**Table VIII-3. Percent OBD Tests Relative to All Test Types**

	Percent OBD Tests (2012)	Percent OBD Tests (2014)	Percent OBD Tests (2016)	Percent OBD Tests (2018)
HGB/DFW (ASM-OBD)	85.4%	95.2%	97.7%	98.9%
El Paso	88.0%	91.7%	95.7%	97.6%
ARR	88.1%	95.6%	97.8%	98.8%

The model station analysis reveals similar findings. This analysis created area-specific small-, medium-, and large-throughput stations representative of stations in the 25<sup>th</sup>, 50<sup>th</sup> (median), and 75<sup>th</sup> percentiles, respectively, based on emissions inspection throughput. Table VIII-4 shows whether small-, medium-, and large-throughput model stations in HGB/DFW (both testing types), El Paso, and ARR generate enough revenue from emissions inspections to recoup costs. Unlike in 2016, some station types have revenues that do not exceed total costs. These instances occur in small model stations in HGB/DFW program areas conducting OBD-only inspections, and small model stations in both the El Paso and ARR program areas. All other model station types across the four program areas had net revenues that exceeded costs.

<sup>8</sup> A few small improvements were made in the 2018 model. We used improved data collected from the 2018 model to re-run the 2012 to 2016 cost models for more meaningful year-to-year comparability.

**Table VIII-4. Total Monthly Costs and Net Revenues at Model Stations (2018)**

	HGB/DFW OBD-Only	HGB/DFW ASM-OBD	El Paso	ARR
Small station net revenue	\$888	\$3,268	\$1,104	\$1,012
Small station total costs	\$953	\$2,897	\$1,317	\$1,419
<b>Small stations net revenue – total cost</b>	<b>(\$65)</b>	<b>\$371</b>	<b>(\$213)</b>	<b>(\$407)</b>
Medium station net revenue	\$1,536	\$5,125	\$2,001	\$1,771
Medium station total costs	\$1,183	\$3,560	\$1,590	\$1,766
<b>Medium station net revenue – total cost</b>	<b>\$353</b>	<b>\$1,565</b>	<b>\$411</b>	<b>\$5</b>
Large station net revenue	\$2,257	\$7,669	\$3,588	\$3,416
Large station total costs	\$1,440	\$4,469	\$2,072	\$2,516
<b>Large station net revenue – total cost</b>	<b>\$817</b>	<b>\$3,199</b>	<b>\$1,516</b>	<b>\$900</b>

Table VIII-5 (average testing throughput per station)<sup>9</sup> and Table VIII-6 (total testing throughput by program area) provide some additional insight, as throughput is a major driver of generating enough revenue to break even. Across all program areas the total testing throughput has increased from 2015 through 2017. The average monthly throughput per station has increased substantially in all program areas as well.

**Table VIII-5. Average Monthly Throughput per Station from Calendar Year 2008 to 2017**

Program Area	2008	2011	2013	2015*	2017
HGB/DFW	184	165	148	137	156
EL Paso	194	188	179	181	217
ARR	222	195	184	178	225
<b>Grand Total</b>	<b>187</b>	<b>169</b>	<b>153</b>	<b>143</b>	<b>164</b>

\* March 1, 2015, through February 29, 2016.

**Table VIII-6. Initial Calendar Year Testing Throughput from 2008 to 2017 in All Program Areas**

Program Area	2008 Annual Throughput	2011 Annual Throughput	2013 Annual Throughput	2015 Annual Throughput*	2017 Annual Throughput
HGB/DFW (overall)	6,912,515	7,402,704	7,240,815	7,027,333	8,666,394
HGB/DFW (OBD tests)	NA	6,840,062	6,892,947	6,862,215	8,567,335
HGB/DFW (ASM tests) <sup>†</sup>	NA	562,642	347,868	165,118	99,059
El Paso (overall)	448,442	466,570	446,991	467,653	541,250
El Paso (TSI test)	NA	57,283	41,489	19,889	12,903
El Paso (OBD tests)	NA	409,287	405,502	447,764	528,347
ARR (overall)	861,660	911,455	894,648	877,146	1,114,352
ARR (TSI tests)	NA	61,969	39,421	19,592	12,993
ARR (OBD test)	NA	849,486	855,227	857,554	1,101,359
<b>Grand Total</b>	<b>8,222,617</b>	<b>8,780,729</b>	<b>8,582,454</b>	<b>8,372,132</b>	<b>10,321,996</b>

\* March 1, 2015, through February 29, 2016.

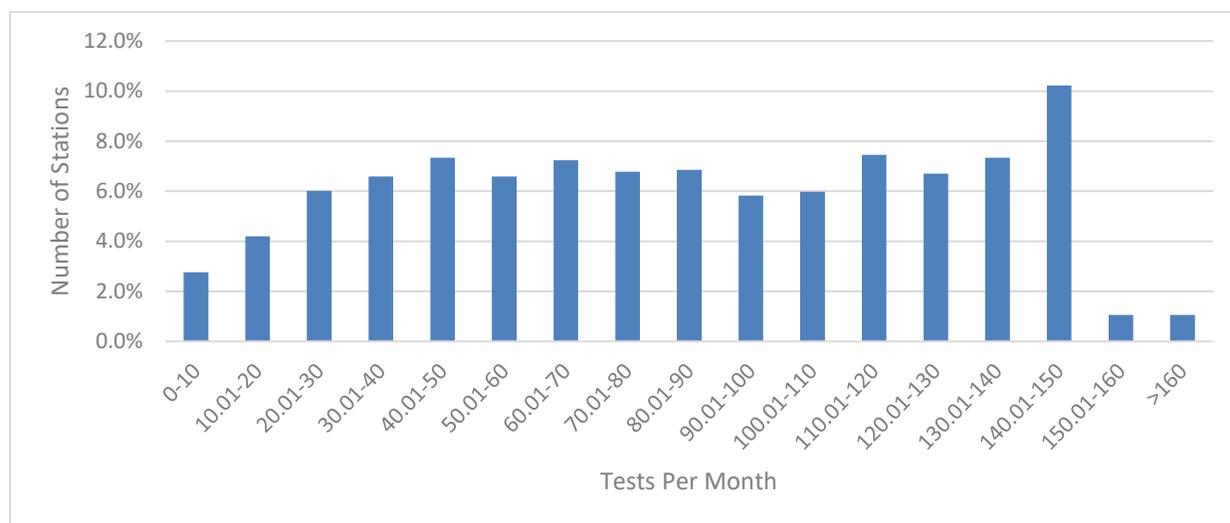
† Includes a small number of TSI tests performed in the program area.

<sup>9</sup> These throughput per month calculations were typically done using throughput from calendar years (i.e., 2008, 2011, 2013, 2015, and 2017) and the number of active stations the following March (March 2009, 2012, 2014, 2016, and 2018).

Figure VIII-6 (HGB/DFW OBD-only), Figure VIII-7 (HGB/DFW ASM-OBD), Figure VIII-8 (El Paso), and Figure VIII-9 (ARR) and show the distribution of station testing throughput for stations open the entire year. The following analysis provides context about the percent of stations that could start to break even if conditions improve or no longer break even if conditions worsen.

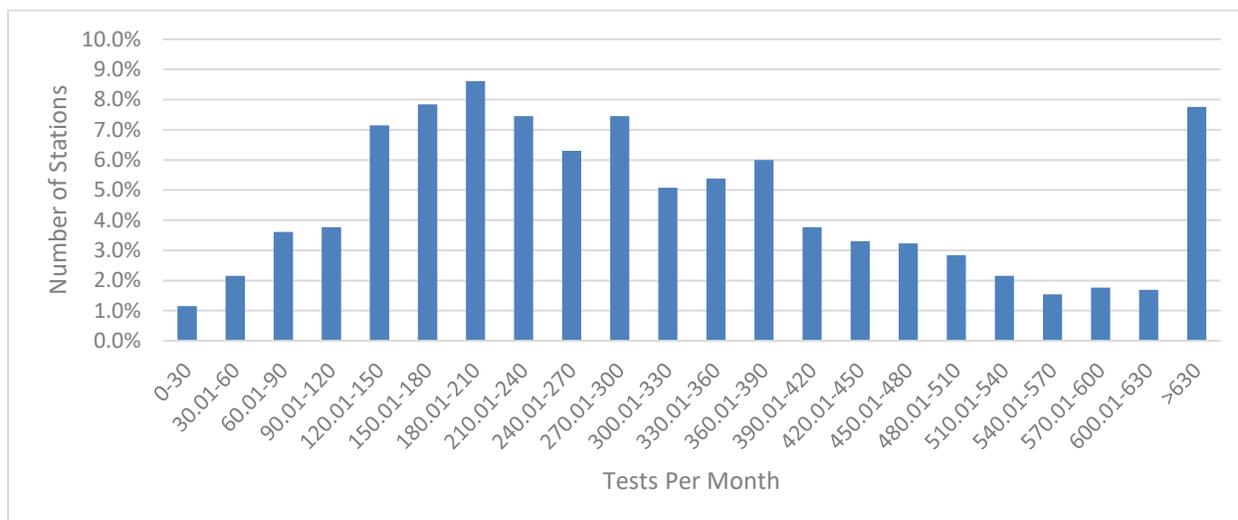
For HGB/DFW, the break-even analysis showed, it took about 26 tests per month for an OBD-only station to break even (see Table VIII-2). As shown in Figure VIII-6, about 6% of stations had a monthly throughput between 20 and 30 (barely breaking even). About 4% of stations had a monthly throughput between 10 and 20 tests (not quite breaking even), which provides insight about the number of stations that could start to break even if conditions improve. About 7% of stations had a monthly throughput between 30 and 40 tests and are at risk for no longer breaking even if conditions worsen.

**Figure VIII-6. Monthly Testing Throughput for OBD-Only Stations in HGB/DFW**



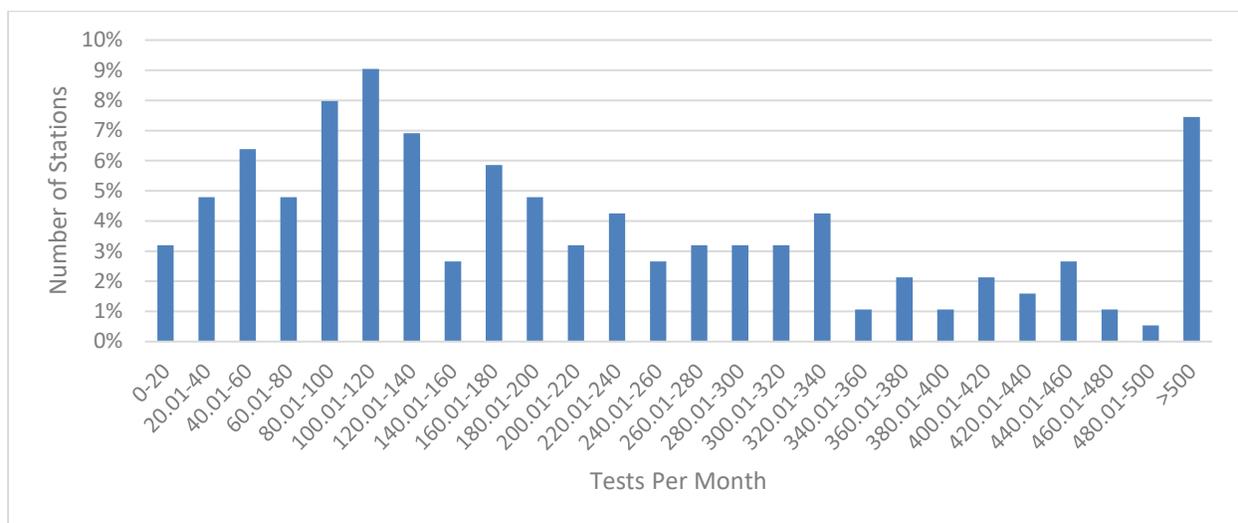
For HGB/DFW, the break-even analysis showed, it took about 97 tests per month for an ASM/OBD station to break even (see Table VIII-2). As shown in Figure VIII-7, about 4% of stations performed 90 to 120 tests a month (barely breaking even and at risk of no longer breaking even if conditions worsen). About 4% of stations perform 60 to 90 tests per month (and could break even if situations improve).

**Figure VIII-7. Monthly Testing Throughput for ASM-OBD Stations in HGB/DFW**



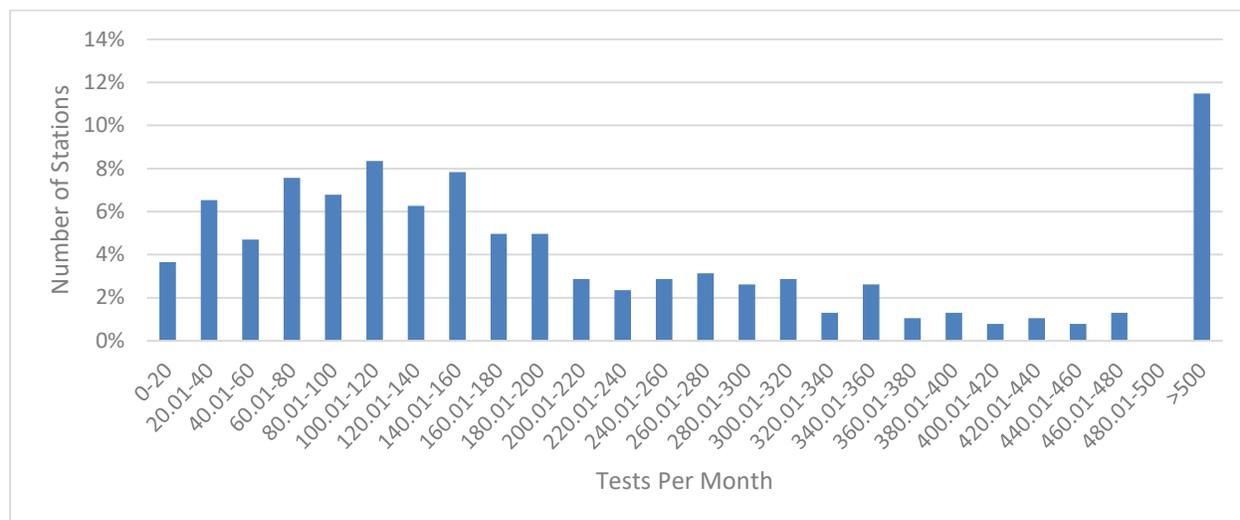
In El Paso, the break-even analysis showed, it took about 70 tests per month for a station to break even (see Table VIII-2). As shown in Figure VIII-8, approximately 5% of stations performed 60 to 80 tests a month (barely breaking even), 6% of stations perform 40 to 60 tests per month (and could break even if situations improve), and 8% of stations perform 80 to 100 tests per month (and are at risk to stop breaking even if conditions worsen).

**Figure VIII-8. Monthly Testing Throughput for El Paso Stations**



In ARR, the break-even analysis showed, it took about 82 tests per month for a station to break even (see Table VIII-2). As shown in Figure VIII-9, about 7% of stations performed 80 to 100 tests a month (barely breaking even and are at risk to no longer break even if conditions worsen) and nearly 8% of stations perform 60 to 80 tests per month (and could break even if situations improve).

**Figure VIII-9. Monthly Testing Throughput for ARR Stations**



**D. ADDITIONAL CONSIDERATIONS: REPAIR REVENUE FROM FAILED INSPECTIONS**

As noted in the Chapter VI cost model analysis, there was no differentiation between test-only and T&R 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 analysis. 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-7 along with the total monthly revenue generated from failed inspections.

**Table VIII-7. Monthly Revenue Generated from Failed Inspections**

	HGB/DFW OBD-Only	HGB/DFW ASM-OBD	El Paso	ARR
Number of repairs per month (median)	3.5	5.0	8	5.0
Repair revenue from each failed emissions inspection (median)	\$200	\$200	\$100	\$250
Estimated monthly repair revenue generated from failed inspections	\$700	\$1,000	\$800	\$1,250
Percent net revenue per dollar of repair work	4.9%	4.9%	4.9%	4.9%
Estimated net revenue attributed to emissions inspection repairs	\$34.30	\$49	\$39.20	\$61.25
Reduction in number of tests to break even	3	4	5	10

The table above shows that a typical T&R station generates about \$700 to \$1,250 per month in additional gross revenue, depending on the program area, from repairs associated with failed emissions inspections. Stations will have an assortment of costs associated with repairs (labor, parts, etc.); thus, the net revenue to the station attributable to the repairs from failed emissions inspections will be some relatively small fraction, about 4.9% of the total revenue generated

(IRS, 2016).<sup>10</sup> This is the equivalent impact of reducing a station’s break-even number of tests by between three (HGB/DFW OBD-only) and 10 (ARR) per month. Additionally, this is an opportunity for stations to build a relationship with potential clients. Based on the comments from respondents and answers to current and past 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 use throughput figures for all stations to generate representative small, medium, and large stations based on throughput. 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 (solely dependent, for stations that do not offer non-repair services) on revenue from emissions inspections. Table VIII-8 shows the 25<sup>th</sup> percentile, 50<sup>th</sup> percentile (median), and 75<sup>th</sup> percentile emissions inspection throughput by program area for test-only stations, T&R stations, and both aggregated. As expected, test-only stations had higher inspection throughput than T&R stations across all program areas and test types, with much larger disparities in throughput for El Paso and ARR.

**Table VIII-8. Initial Testing Throughput by Program Area and Station Type (Excluding Building Costs)**

Program Area	Station Type	25 <sup>th</sup> Percentile (“Small”)	50 <sup>th</sup> Percentile (Median) (“Medium”)	75 <sup>th</sup> Percentile (“Large”)	Break-Even Tests (no building)	Break-Even Test (with building)
HGB/DFW (OBD-only)	Test-only	50	89	125	26	53
	Test-and-repair	47	82	120	26	53
	Both types	48	83	122	26	53
HGB/DFW (ASM-OBD)	Test-only	197	305	457	97	145
	Test-and-repair	169	257	386	97	145
	Both types	176	276	413	97	145
El Paso	Test-only	132	261	390	70	123
	Test-and-repair	91	137	244	70	123
	Both types	96	174	312	70	123
ARR	Test-only	110	215	347	82	153
	Test-and-repair	83	145	264	82	153
	Both types	88	154	297	82	153

Table VIII-8 also shows the break-even number of emissions inspections—the number needed for revenue to equal the costs associated with emissions inspections in each program area. Without building costs factored in, no model stations fall below the break-even number, but the ARR T&R small-throughput station only clears the break-even point by one test per month.

<sup>10</sup> Based on a net income of \$3,659,508,000 divided by business receipts of \$74,577,213,000 for the entire “Automotive Repair and Maintenance” minor industry in 2012.

Representative medium-throughput test-only stations in all program areas uniformly perform two and a half to four times the amount of break-even inspections.

## F. OVERALL FINDINGS ON THE ADEQUACY OF THE FEE

The cost model analyses show over 89% of stations (excluding building costs) in the HGB/DFW program areas with total revenue covering costs and an increasing number of stations entering the market, which seems to indicate that the fee is sufficient in these program areas.

In the El Paso program area, 84% of stations (excluding building costs) are estimated to break even. The number of stations in El Paso decreased slightly since 2016, by about 3%. Overall, this may indicate that the fee should not be any lower and may need to be slightly increased.

In the ARR program area, a smaller percentage of stations (excluding building costs) break even according to the cost model analyses (77%). The number of stations in the program area has been relatively unchanged since 2014. Overall, this may indicate that the fee should not be any lower and may need to be slightly increased.

## G. RECOMMENDATIONS FOR FUTURE SURVEY EFFORTS

Based on the survey administration and data collection effort, ERG recommends that the TCEQ consider the following minor changes to the survey:

- At the beginning of the survey, consider asking whether stations have multiple Station IDs for a single physical location.
- For question 5, consider making it clearer whether “exclusive” use of bay space for vehicle emissions inspection testing also includes safety testing.
- For question 17, use open response answers from this survey to ask more specific questions about the training course costs and renewal fees.
- For question 26b, consider asking stations to provide their opinion what they think a fair fee would be.
- Consider additional validation to not allow for non-numeric numbers in equipment cost fields.

## IX. REFERENCES

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## **APPENDIX A. SURVEY INSTRUMENTS**

This appendix includes the program area-specific survey instruments that were sent to stations. The electronic survey was a single survey using the same questions, programmed to ask the program area-specific questions based on the responding station's location (e.g., if a station was from the El Paso or ARR program area, a value of \$11.50 would appear for questions 25 and 26). ERG programmed skip logic into the survey, so stations would not see questions that did not apply to them (e.g., if a respondent replied "no other services" [test-only] in question 8, the electronic survey would automatically skip them to question 14 as outlined in the paper survey).

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

**HGB/DFW Survey Instrument**

# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

## 2018 Vehicle Emissions Inspection Program Fee 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 cost 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](mailto:fee-survey@erg.com) or call us toll free at 1-888-254-0818.
- 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](http://www.tceqsurvey.com)

**Need help or have questions about completing this survey?**

→ Please email ERG at [fee-survey@erg.com](mailto:fee-survey@erg.com) or call 1-888-254-0818.

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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](mailto:fee-survey@erg.com) or 1-888-254-0818.

- In answering the questions:
- Please use blue or black ink.
  - Place an **X** inside the box.
  - Please do not put slashes

## PART I – GENERAL 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** Identify the type of motor vehicle emissions inspections 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 motor vehicle emissions inspection 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** What is the approximate total square footage of this station?  sq. ft.

- 5** 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 5b)

- 5b** For emissions inspection bays also used for other purposes, on average, what percent of their use is for emissions testing?
- percent (%) of time that emissions bays with other uses are used for emissions testing

## PART II - THE EMISSIONS INSPECTION PROCESS

- 6** On average, how long does it take to perform the following **emissions** tests (exclude safety test time)?
- On-Board Diagnostics (OBD)  minutes
- Acceleration Simulation Mode (ASM)  minutes

- 7** On average, how much additional time is spent with each inspection customer (for example, explaining the emissions inspection process, reasons for failure and/or recommended repairs)?
- additional minutes spent with emissions inspection customer

## PART III – OTHER STATION SERVICES

**8** 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 **12**
- Repair services only – Go to **9**
- Non-repair services only – Continue to **8b then skip to 12**
- Repair services and non-repair services – Continue to **8b**

**8b** Which non-repair services do you offer at your station? Mark  **ALL that apply.**

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Regular maintenance<br>(oil, transmission, AC,<br>brakes, exhaust, etc.) | <input type="checkbox"/> Glass repair/replacement        | <input type="checkbox"/> Auto parts & accessories sales or<br>installation |
| <input type="checkbox"/> Gas service station  | <input type="checkbox"/> Paint or body work              | <input type="checkbox"/> Towing & emergency services                       |
| <input type="checkbox"/> Tire sales and service   | <input type="checkbox"/> Car wash or auto detailing      | <input type="checkbox"/> Food, drink, or convenience store                 |
| <input type="checkbox"/> Other  | <input type="checkbox"/> Car sales (new or used)         |  |
|   | <input type="checkbox"/> Auto, truck, or trailer rentals |  |
- Please describe

## PART IV - REPAIR SERVICE REVENUE: [If this station does not offer repair services, go to Question 12.]

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

- 0%- Go to **12**
- 1-20%
- 21-40%
- 41-60%
- 61-80%
- 81-100%

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

repair jobs

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

\$  ,    .00 per repair for a failed emission test

## PART V - YOUR EMISSIONS INSPECTORS

How many emissions inspectors currently work at this station?

Full-time emissions inspectors

Part-time emissions inspectors (If > 0, please answer 12b)

On average, about how many hours per week does each part-time emissions inspector work?

hours/week

Of the number of inspectors that work **FULL TIME**, how many spend...?

76-100% of their time performing emissions inspections:.....

inspectors

51-75% of their time performing emissions inspections:.....

inspectors

26-50% of their time performing emissions inspections:.....

inspectors

0-25% of their time performing emissions inspections:.....

inspectors

Of the number of inspectors that work **PART TIME**, how many spend...?

76-100% of their time performing emissions inspections:.....

inspectors

51-75% of their time performing emissions inspections:.....

inspectors

26-50% of their time performing emissions inspections:.....

inspectors

0-25% of their time performing emissions inspections:.....

inspectors

- 15** How do you typically pay your emissions inspectors? What is the current average hourly wage and/or per test amount paid?
- Hourly wage or salary → \$       per hour
- Per emissions test → \$      per test
- Hourly wage or salary + per emissions test (Please enter dollar amounts in the corresponding spaces above.)

- 16** How many emissions inspectors receive benefits (e.g., health care, paid leave, etc.)?
- Full-time emissions inspectors
- Part-time emissions inspectors

- 17** Do you incur costs specifically for training your employees to conduct emissions inspections?
- Yes →  Please describe the training costs you have incurred:
- No

## PART VI - EMISSIONS TESTING EQUIPMENT, BUILDING AND OTHER COSTS

- 18** Please tell us about the certified emissions testing analyzers that you currently have at this station. For each one, please indicate the number of years it has been owned and provide your best estimate of the cost, including installation. Please also identify the option that best describes how the purchase was financed.

Equipment Type	Number of Years Owned	Approximate Cost, including Installation	How did you finance the purchase?	If lease or loan...	
				Lease/Loan term (years)	Interest rate (%)
<input type="checkbox"/> ODB-only <input type="checkbox"/> ASM	<input type="text"/> years	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	<input type="checkbox"/> Paid cash <input type="checkbox"/> Lease-to-purchase <input type="checkbox"/> Loan from bank	<input type="text"/>	<input type="text"/> %
<input type="checkbox"/> ODB-only <input type="checkbox"/> ASM	<input type="text"/> years	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	<input type="checkbox"/> Paid cash <input type="checkbox"/> Lease-to-purchase <input type="checkbox"/> Loan from bank	<input type="text"/>	<input type="text"/> %
<input type="checkbox"/> ODB-only <input type="checkbox"/> ASM	<input type="text"/> years	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	<input type="checkbox"/> Paid cash <input type="checkbox"/> Lease-to-purchase <input type="checkbox"/> Loan from bank	<input type="text"/>	<input type="text"/> %
<input type="checkbox"/> ODB-only <input type="checkbox"/> ASM	<input type="text"/> years	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	<input type="checkbox"/> Paid cash <input type="checkbox"/> Lease-to-purchase <input type="checkbox"/> Loan from bank	<input type="text"/>	<input type="text"/> %
<input type="checkbox"/> ODB-only <input type="checkbox"/> ASM	<input type="text"/> years	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	<input type="checkbox"/> Paid cash <input type="checkbox"/> Lease-to-purchase <input type="checkbox"/> Loan from bank	<input type="text"/>	<input type="text"/> %

- 19** Do you have a maintenance package for your emissions testing equipment?
- Yes. - Go to **19b**
- No. - Go to **20**

- 19b** What is the maintenance package cost for the emissions testing equipment? Please circle the time frame.
- \$   ,    .00 per month/quarter/year

- 20** During the last year, what costs did you incur for normal maintenance of the emissions testing equipment that were not covered by the service contract or maintenance package?
- \$   ,    .00

**21** Have you ever gotten rid of emissions testing equipment that you no longer needed?

- Yes. - Go to **21b**  
 No. - Go to **22**

**21b** Please tell us about any certified emissions testing analyzers you have gotten rid of that you no longer needed. For each one, please indicate the number of years the equipment was owned and how you got rid of it. Please also indicate the revenue from its sale AND/OR the cost to dispose of it.

	Type of Analyzer No Longer Needed	# of Years Owned	If you got rid the analyzer for free	If you <b>SOLD</b> this analyzer, please indicate	If you <b>PAID</b> to get rid of this analyzer, please indicate
			Check here	YOUR REVENUE	YOUR COST
1	<input type="checkbox"/> ODB-only <input type="checkbox"/> ASM	<input type="text"/>	<input type="checkbox"/>	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00
2	<input type="checkbox"/> ODB-only <input type="checkbox"/> ASM	<input type="text"/>	<input type="checkbox"/>	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00
3	<input type="checkbox"/> ODB-only <input type="checkbox"/> ASM	<input type="text"/>	<input type="checkbox"/>	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00
4	<input type="checkbox"/> ODB-only <input type="checkbox"/> ASM	<input type="text"/>	<input type="checkbox"/>	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00

**22** Please tell us about the costs you have for tools, equipment, and related supplies specific to vehicle emissions inspections that have not been captured in previous questions.

Item	Cost	Frequency of expense (circle one)
a. Dedicated phone line or internet	\$ <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	Monthly / Annually / One-time
b. Calibration gases	\$ <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	Monthly / Annually / One-time
c. Wands/Probes	\$ <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	Monthly / Annually / One-time
d. Printer paper and ink/toner	\$ <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	Monthly / Annually / One-time
e. Other supplies or replacement parts <i>Please describe</i>	\$ <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	Monthly / Annually / One-time

**23** Did you ever add or acquire building space (i.e., bay space) in order to perform vehicle emissions testing at this station?

- Yes.  
 No.

**24** Did you purchase or do you rent/lease the building space for this station?

- Purchase.      What was the approximate purchase price? \$  ,    ,    .00
- Rent/Lease.      What is the approximate monthly rent?      \$  ,    ,    .00

**25** Other than free retests on vehicles that failed previously at your station, do you ever offer emissions tests at no charge OR charge less than \$18.50 for an OBD emissions test or \$24.50 for an ASM emissions test? **Mark  ALL that apply.**

No - Go to **26**

Yes, we sometimes offer emissions tests for **FREE**. - Go to **25b**

Yes, we sometimes offer emissions tests for **less than \$18.50/\$24.50**. - Go to **25c**

**25b** This station offers emissions tests at no charge for: **Mark  ALL that apply.**

Friends and Family.

Employees.

Active or Veteran Military personnel.

Members of our customer loyalty program.

Customers getting retests just outside 15 days of their initial failed inspection.

Customers who failed an emissions test at another station and had repairs performed at THIS station.

Customers who cannot afford an inspection.

General customer satisfaction at owner's or manager's discretion.

Other reasons – please describe.

**25c** What is the lowest fee that you charge for an emissions test?

\$   .

**26** In your opinion, does the \$18.50 OBD test and \$24.50 ASM fee cover your costs of offering emissions testing at this station?

Yes. **Survey Complete**

No. - Go to **26b**

**26b** Please tell us the extent to which you agree or disagree with the following statements?

Strongly Agree  
 Agree  
 Neither Agree  
 nor Disagree  
 Disagree  
 Strongly Disagree  
 N/A

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	N/A
I do not conduct enough emissions inspections because there are too many stations performing inspections.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I pay for emissions inspection bay/building space, but it is underutilized for emissions testing or cannot easily be used for other purposes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I must pay an emissions inspector to be on site, and it is costly because it is difficult to task them with other work when they are not performing inspections.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I must pay my inspectors a high salary/rate because their primary job function is one that demands a higher salary than emissions inspectors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My testing equipment is frequently in need of repair, and the downtime hurts my ability to break even.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The extra time I spend with customers during emissions inspections is costly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Costs associated with testing have increased over the years and now our costs exceed the revenue from the test fee.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All the costs simply add up to more than the fee, but I decide to offer testing because it is important to my business in other ways.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please describe any other reasons that the emissions inspection fee does not cover your costs.

**END**

**Thank you for completing this survey.**

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

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 and ARR Survey Instrument**

# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

## 2018 Vehicle Emissions Inspection Program Fee 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 cost 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](mailto:fee-survey@erg.com) or call us toll free at 1-888-254-0818.
- 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](http://www.tceqsurvey.com)

**Need help or have questions about completing this survey?**

→ Please email ERG at [fee-survey@erg.com](mailto:fee-survey@erg.com) or call 1-888-254-0818.

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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](mailto:fee-survey@erg.com) or 1-888-254-0818.

- In answering the questions:
- Please use blue or black ink.
  - Place an **X** inside the box.
  - Please do not put slashes

## PART I – GENERAL 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 motor vehicle emissions inspection 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** What is the approximate total square footage of this station?  sq. ft.

- 5** 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 5b)

- 5b** For emissions inspection bays also used for other purposes, on average, what percent of their use is for emissions testing?

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

## PART II - THE EMISSIONS INSPECTION PROCESS

- 6** On average, how long does it take to perform the following **emissions** tests (exclude safety test time)?

On-Board Diagnostics (OBD)  minutes

Two Speed Idle (TSI)  minutes

- 7** On average, how much additional time is spent with each inspection customer (for example, explaining the emissions inspection process, reasons for failure and/or recommended repairs)?

additional minutes spent with emissions inspection customer

## PART III – OTHER STATION SERVICES

**8** 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 **12**
- Repair services only – Go to **9**
- Non-repair services only – Continue to **8b then skip to 12**
- Repair services and non-repair services – Continue to **8b**

**8b** Which non-repair services do you offer at your station? Mark  **ALL that apply.**

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Regular maintenance<br>(oil, transmission, AC,<br>brakes, exhaust, etc.) | <input type="checkbox"/> Glass repair/replacement        | <input type="checkbox"/> Auto parts & accessories sales or<br>installation |
| <input type="checkbox"/> Gas service station  | <input type="checkbox"/> Paint or body work              | <input type="checkbox"/> Towing & emergency services                       |
| <input type="checkbox"/> Tire sales and service   | <input type="checkbox"/> Car wash or auto detailing      | <input type="checkbox"/> Food, drink, or convenience store                 |
| <input type="checkbox"/> Other  | <input type="checkbox"/> Car sales (new or used)         |  |
|   | <input type="checkbox"/> Auto, truck, or trailer rentals |  |
- Please describe

## PART IV - REPAIR SERVICE REVENUE: [If this station does not offer repair services, go to Question 12.]

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

- 0%- Go to **12**
- 1-20%
- 21-40%
- 41-60%
- 61-80%
- 81-100%

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

repair jobs

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

\$  ,    .00 per repair for a failed emission test

## PART V - YOUR EMISSIONS INSPECTORS

How many emissions inspectors currently work at this station?

Full-time emissions inspectors

Part-time emissions inspectors (If > 0, please answer 12b)

On average, about how many hours per week does each part-time emissions inspector work?

hours/week

Of the number of inspectors that work **FULL TIME**, how many spend...?

76-100% of their time performing emissions inspections:.....  inspectors

51-75% of their time performing emissions inspections:.....  inspectors

26-50% of their time performing emissions inspections:.....  inspectors

0-25% of their time performing emissions inspections:.....  inspectors

Of the number of inspectors that work **PART TIME**, how many spend...?

76-100% of their time performing emissions inspections:.....  inspectors

51-75% of their time performing emissions inspections:.....  inspectors

26-50% of their time performing emissions inspections:.....  inspectors

0-25% of their time performing emissions inspections:.....  inspectors

- 15** How do you typically pay your emissions inspectors? What is the current average hourly wage and/or per test amount paid?
- Hourly wage or salary → \$       per hour
- Per emissions test → \$      per test
- Hourly wage or salary + per emissions test (Please enter dollar amounts in the corresponding spaces above.)

- 16** How many emissions inspectors receive benefits (e.g., health care, paid leave, etc.)?
- Full-time emissions inspectors
- Part-time emissions inspectors

- 17** Do you incur costs specifically for training your employees to conduct emissions inspections?
- Yes →  Please describe the training costs you have incurred:
- No

## PART VI - EMISSIONS TESTING EQUIPMENT, BUILDING AND OTHER COSTS

- 18** Please tell us about the certified emissions testing analyzers that you currently have at this station. For each one, please indicate the number of years it has been owned and provide your best estimate of the cost, including installation. Please also identify the option that best describes how the purchase was financed.

Equipment Type	Number of Years Owned	Approximate Cost, including Installation	How did you finance the purchase?	If lease or loan...	
				Lease/Loan term (years)	Interest rate (%)
TSI-OBD	<input type="text"/> years	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	<input type="checkbox"/> Paid cash <input type="checkbox"/> Lease-to-purchase <input type="checkbox"/> Loan from bank	<input type="text"/>	<input type="text"/> %
TSI-OBD	<input type="text"/> years	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	<input type="checkbox"/> Paid cash <input type="checkbox"/> Lease-to-purchase <input type="checkbox"/> Loan from bank	<input type="text"/>	<input type="text"/> %
TSI-OBD	<input type="text"/> years	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	<input type="checkbox"/> Paid cash <input type="checkbox"/> Lease-to-purchase <input type="checkbox"/> Loan from bank	<input type="text"/>	<input type="text"/> %
TSI-OBD	<input type="text"/> years	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	<input type="checkbox"/> Paid cash <input type="checkbox"/> Lease-to-purchase <input type="checkbox"/> Loan from bank	<input type="text"/>	<input type="text"/> %
TSI-OBD	<input type="text"/> years	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	<input type="checkbox"/> Paid cash <input type="checkbox"/> Lease-to-purchase <input type="checkbox"/> Loan from bank	<input type="text"/>	<input type="text"/> %

- 19** Do you have a maintenance package for your emissions testing equipment?
- Yes. - Go to **19b**
- No. - Go to **20**

- 19b** What is the maintenance package cost for the emissions testing equipment? Please circle the time frame.
- \$   ,    .00 per month/quarter/year

- 20** During the last year, what costs did you incur for normal maintenance of the emissions testing equipment that were not covered by the service contract or maintenance package?
- \$   ,    .00

**21** Have you ever gotten rid of emissions testing equipment that you no longer needed?

Yes. - Go to **21b**

No. - Go to **22**

**21b** Please tell us about any certified emissions testing analyzers you have gotten rid of that you no longer needed. For each one, please indicate the number of years the equipment was owned and how you got rid of it. Please also indicate the revenue from its sale AND/OR the cost to dispose of it.

	Type of Analyzer No Longer Needed	# of Years Owned	If you got rid the analyzer for free	If you <b>SOLD</b> this analyzer, please indicate	If you <b>PAID</b> to get rid of this analyzer, please indicate
			Check here	YOUR REVENUE	YOUR COST
1	TSI-OBD	<input type="text"/>	<input type="checkbox"/>	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00
2	TSI-OBD	<input type="text"/>	<input type="checkbox"/>	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00
3	TSI-OBD	<input type="text"/>	<input type="checkbox"/>	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00
4	TSI-OBD	<input type="text"/>	<input type="checkbox"/>	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	\$ <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00

**22** Please tell us about the costs you have for tools, equipment, and related supplies specific to vehicle emissions inspections that have not been captured in previous questions.

Item	Cost	Frequency of expense (circle one)
a. Dedicated phone line or internet	\$ <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	Monthly / Annually / One-time
b. Calibration gases	\$ <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	Monthly / Annually / One-time
c. Wands/Probes	\$ <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	Monthly / Annually / One-time
d. Printer paper and ink/toner	\$ <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	Monthly / Annually / One-time
e. Other supplies or replacement parts	\$ <input type="text"/> <input type="text"/> <input type="text"/> , <input type="text"/> <input type="text"/> <input type="text"/> .00	Monthly / Annually / One-time
<div style="border: 1px solid black; padding: 5px; min-height: 50px;"> <i>Please describe</i> </div>		

**23** Did you ever add or acquire building space (i.e., bay space) in order to perform vehicle emissions testing at this station?

Yes.

No.

**24** Did you purchase or do you rent/lease the building space for this station?

Purchase. What was the approximate purchase price? \$  ,    ,    .00

Rent/Lease. What is the approximate monthly rent? \$  ,    ,    .00

**25** Other than free retests on vehicles that failed previously at your station, do you ever offer emissions tests at no charge OR charge less than \$11.50 for an emissions test? **Mark  ALL that apply.**

No - Go to **26**

Yes, we sometimes offer emissions tests for **FREE**. - Go to **25b**

Yes, we sometimes offer emissions tests for **less than \$11.50**. - Go to **25c**

**25b** This station offers emissions tests at no charge for: **Mark  ALL that apply.**

Friends and Family.

Employees.

Active or Veteran Military personnel.

Members of our customer loyalty program.

Customers getting retests just outside 15 days of their initial failed inspection.

Customers who failed an emissions test at another station and had repairs performed at THIS station.

Customers who cannot afford an inspection.

General customer satisfaction at owner's or manager's discretion.

Other reasons – please describe.

**25c** What is the lowest fee that you charge for an emissions test?

\$   .

**26** In your opinion, does the \$11.50 fee cover your costs of offering emissions testing at this station?

Yes. **Survey Complete**

No. - Go to **26b**

**26b** Please tell us the extent to which you agree or disagree with the following statements?

Strongly Agree  
 Agree  
 Neither Agree  
 nor Disagree  
 Disagree  
 Strongly Disagree  
 N/A

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	N/A
I do not conduct enough emissions inspections because there are too many stations performing inspections.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I pay for emissions inspection bay/building space, but it is underutilized for emissions testing or cannot easily be used for other purposes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I must pay an emissions inspector to be on site, and it is costly because it is difficult to task them with other work when they are not performing inspections.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I must pay my inspectors a high salary/rate because their primary job function is one that demands a higher salary than emissions inspectors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My testing equipment is frequently in need of repair, and the downtime hurts my ability to break even.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The extra time I spend with customers during emissions inspections is costly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Costs associated with testing have increased over the years and now our costs exceed the revenue from the test fee.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All the costs simply add up to more than the fee, but I decide to offer testing because it is important to my business in other ways.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please describe any other reasons that the emissions inspection fee does not cover your costs.

**END**

**Thank you for completing this survey.**

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

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.