# APPENDIX C

# DEVELOPMENT OF 2008 ANNUAL AND OZONE SEASON DAILY EMISSIONS INVENTORIES AND ACTIVITY DATA FOR NON-ROAD SOURCES WITHIN THE TEXAS NONROAD MODEL (TEXN)

2013-016-SIP-NR

Adoption
July 2, 2014

# DEVELOPMENT OF 2008 ANNUAL AND OZONE SEASON DAILY EMISSIONS INVENTORIES AND ACTIVITY DATA FOR NON-ROAD SOURCES WITHIN THE TEXAS NONROAD MODEL (TEXN)

This appendix provides the detailed documentation of methods and procedures used in developing the Texas NONROAD model emissions inventory.

Eastern Research Group, Inc.

# Development of 2008 Annual and Ozone Season Daily Emissions Inventories and Activity Data for Non-Road Sources within the Texas NONROAD Model (TexN)

## Final Report

**Prepared for:**

**Texas Commission on Environmental Quality**

**August 14, 2009**

www.erg.com

ERG No.: 0230.02.007.001

# Development of 2008 Annual and Ozone Season Daily Emissions Inventories and Activity Data for Non-Road Sources within the Texas Nonroad Model (TexN)

Final Report

Prepared for:

Air Quality Division
Texas Commission on Environmental Quality

Prepared by:

Diane Preusse
Richard Billings
Rick Baker
Eastern Research Group, Inc.
5608 Parkcrest Drive Suite 100
Austin, TX 78731

August 14, 2009

## Table of Contents


1.0 INTRODUCTION ..... 1-1
1.1 Background ..... 1-2
1.2 2008 Ozone Season Day and Annual Emissions Summaries ..... 1-3
2.0 Data Sources and Calculation Procedures ..... 2-1
2.1 Accommodation of Construction Equipment Subcategories ..... 2-1
2.2 Development of Texas-Specific Data Files ..... 2-6
2.2.1 TexN Fuel Specification Data ..... 2-7
2.2.2 TexN Climate Data ..... 2-15
2.2.3 Population, Activity, and Allocation Data ..... 2-17
2.2.4 Development of Population Files by Analysis Year ..... 2-27
2.2.5 Forecasting and Back-Casting Equipment Populations ..... 2-28
2.3 Data Processing ..... 2-37
2.3.1 TexN Data Management Tools and Processes ..... 2-37
2.3.2 Post-Processing Adjustments ..... 2-40
2.3.3 Calculation of Ammonia Emissions ..... 2-48
3.0 TexN Emission Calculation Example ..... 3-1
4.0 Incorporation of NONROAD2008 and Quality Assurance ..... 4-1
4.1 Incorporation of NONROAD2008 into TexN ..... 4-1
4.2 New Small SI and Recreational Marine Rules ..... 4-2
4.3 Fuel Inputs ..... 4-2
4.4 Changes in Technology Types and Implications for Ammonia Emissions Estimates ..... 4-2
4.5 Changes in Emission Factors and Other NONROAD Model Inputs ..... 4-3
4.6 Updates to Average Horsepower and Useful Life ..... 4-4
5.0 EIS CERS Activity Data Submittal ..... 5-1
5.1 Update of the NCD Tables ..... 5-1
5.2 Update of the NONROAD External Files ..... 5-3
References ..... 1

Appendix A County Level Fuel Specifications from TexN for the Year 2008
Appendix B TexN Climate Data for 2008 [7]
Appendix C Population Growth Surrogates
Appendix D 2008 TexN v.1.3 Statewide Equipment Population by SCC
Appendix E TexN Ground Cover Adjustment Factors
Appendix F TexN Soil Adjustment Factors
Appendix G TexN Altitude Adjustment Factors
Appendix H 2008 TexN v.1.3 Statewide Equipment Activity Data
Appendix I Daily Activity Allocation
Appendix J Monthly Activity Allocation

## List of Tables

Table 1-1. 2008 OSD Criteria Emissions by Equipment Classification (Tons/Day) .....1-4
Table 1-2. 2008 Annual Criteria Emissions by Equipment Classification (Tons/Year).....1-4
Table 1-3. 2008 OSD Criteria Emissions by Selected Area (Tons/Day) .....1-4
Table 1-4. 2008 Annual Criteria Emissions by Selected Area (Tons/Year) .....1-5
Table 1-5. 2008 OSD Criteria Emissions by County (Tons/Day) .....1-5
Table 1-6. 2008 Annual Criteria Emissions by County (Tons/Year) .....1-10
Table 1-7. 2008 Austin Area OSD Criteria Emissions (Tons/Day).....1-16
Table 1-8. 2008 Austin Area Annual Criteria Emissions (Tons/Year).....1-16
Table 1-9. 2008 Beaumont-Port Arthur Area OSD Criteria Emissions (Tons/Day) .....1-16
Table 1-10. 2008 Beaumont-Port Arthur Area Annual Criteria Emissions (Tons/Year).....1-16
Table 1-11. 2008 Dallas-Fort Worth Area OSD Criteria Emissions (Tons/Day).....1-17
Table 1-12. 2008 Dallas-Fort Worth Area Annual Criteria Emissions (Tons/Year).....1-17
Table 1-13. 2008 El Paso OSD Criteria Emissions (Tons/Day).....1-17
Table 1-14. 2008 El Paso Annual Criteria Emissions (Tons/Year) .....1-17
Table 1-15. 2008 Houston-Galveston-Brazoria Area OSD Criteria Emissions (Tons/Day) .1-18
Table 1-16. 2008 Houston-Galveston-Brazoria Area Annual Criteria Emissions (Tons/Year) .....1-18
Table 1-17. 2008 San Antonio Area OSD Criteria Emissions (Tons/Day).....1-18
Table 1-18. 2008 San Antonio Area Annual Criteria Emissions (Tons/Year).....1-19
Table 1-19. 2008 Tyler-Longview Area OSD Criteria Emissions (Tons/Day).....1-19
Table 1-20. 2008 Tyler-Longview Area Annual Criteria Emissions (Tons/Year) .....1-19
Table 2-1. DCE Type by Subsector .....2-4
Table 2-2. Federal and State Fuels Controls in Texas During Summer Season Period.....2-8
Table 2-3. Historical Fuel Survey Data Included in TexN Update.....2-9
Table 2-4. Summary for Off-Highway Diesel Fuel Sulfur Content (wt %).....2-10
Table 2-5. NIPER Summer Gasoline Specifications .....2-11
Table 2-6. NIPER Winter Gasoline Specifications.....2-13
Table 2-7. Fuel Data Sources.....2-14
Table 2-8. Weather Stations Providing Daily Climate Data [7].....2-16
Table 2-9. Sources of Equipment Population Data.....2-18
Table 2-10. Spatial Allocation Surrogates for Diesel Construction Equipment.....2-20
Table 2-11. Sources of Geographic Allocation Data (Non-DCE) .....2-22
Table 2-12. Sources of Equipment Activity Data.....2-23
Table 2-13. Activity Surrogates for Construction Equipment.....2-25
Table 2-14. Sources of Temporal Allocation Factors .....2-26
Table 2-15. EIIP Non-road Growth Indicator Recommendations .....2-29
Table 2-16. Growth Factor Surrogates.....2-30
Table 2-17. Construction Sector NAICS Codes .....2-35
Table 2-18. DCE Sectors Utilizing Economy.com Growth Surrogates.....2-36
Table 2-19. Required Number of NONROAD OPT Files and Model Runs for Selected Modeling Scenarios .....2-39
Table 2-20. Site Condition Activity Adjustments .....2-41
Table 2-21. Earthwork Weighting Factors for Soil Adjustments .....2-44

Table 2-22. Ratio of Turbo to Naturally-Aspirated Models for Diesel Engines by hp and Model Year ....2-46
Table 2-23. Engine and Technology Types with Associated Ammonia Emission Factors ...2-49
Table 2-24. Technology Types with 3-Way Catalysts....2-50
Table 3-1. Default Scrappage Curve Expressed in Years of Age (Trenchers)....3-3
Table 3-2. Remaining Fraction of Engines by Age ....3-7
Table 3-3. Sales Adjustment Factors by Age ....3-8
Table 3-4. 2050 (Age 1) Sales Totals by HP Bin ....3-9
Table 3-5. Model Year Distribution by HP Bin....3-9
Table 3-6. Zero-Hour $NO_X$ Diesel Emission Factors (2050) ....3-9
Table 3-7. $NO_X$ Deterioration Factors by Model Year (2050 Scenario)....3-10
Table 3-8. $NO_X$ Emission Factors by Model Year (g/hp-hr)....3-10
Table 3-9. $NO_X$ Emissions from Diesel Trenchers (Tons per Ozone-Season Weekday, 2050 Scenario) ....3-11
Table 5-1. NCD Tables and Associated Updates ....5-2
Table 5-2. Updates to NONROAD2008 External Files....5-3
Table A-1. TexN 2008 Summer Fuel Specifications....A-1
Table A-2. TexN 2008 Winter Fuel Specifications ....A-8
Table B-1. County Level Assignments to Weather Stations....B-1
Table B-2. Seasonal Climate Data by Weather Station and Year ....B-7
Table B-3. Atmospheric Pressure by Meteorological Station ....B-8
Table C-1. Land in Farms by County (acres) ....C-1
Table C-2. County Level Single Family Housing Permit Data, 1980 – 1994....C-7
Table C-2 continued. County Level Single Family Housing Permit Data, 1995 - 2006 ..... C-14
Table C-3. Housing Unit Starts, U.S. South Region, 1970 – 1980.... C-21
Table C-4. Texas County Highway Construction and Maintenance Annual Expenditures, 1998 – 2006 (1998 Dollars) .... C-22
Table C-5. Historical Census Population by County (1970 / 80 / 90 / 2000).... C-29
Table C-6. Landscaping Sector Output by County, 1999 – 2013 (TX REMI – millions of $1996) .... C-35
Table C-7. Scrap/Recycling Sector Output by County, 1999 – 2013 (TX REMI – millions of $1996) .... C-43

## List of Figures

Figure 2-1. Annual Skid Steer Loader Sales, 9-County DFW Area (1990-2004).... 2-34
Figure 2-2. County Level Weighted Average Soil Adjustment Factors .... 2-43

## Acronyms

| | |
|---|---|
| ARB | California Air Resources Board |
| BPA | Beaumont/Port Arthur Area |
| CI | Compression Ignition |
| CO | Carbon Monoxide |
| CO2 | Carbon Dioxide |
| CPI | Consumer Price Index |
| DCE | Diesel Construction Equipment |
| DFW | Dallas/Fort Worth |
| EIS CERS | Emission Inventory System Consolidated Emissions Reporting Schema |
| ETBE | Ethyl Tertiary Butyl Ether |
| EtOH | Ethanol |
| GSE | Ground Support Equipment |
| GUI | Graphical User Interface |
| HGA | Houston/Galveston Area |
| hp | Horsepower |
| LPG | Liquefied Petroleum Gas |
| MTBE | Methyl Tertiary Butyl Ether |
| NAICS | North American Industry Classification System |
| NH3 | Ammonia |
| NIPER | National Institute for Petroleum and Energy Research |
| NMIM | National Mobile Inventory Model |
| NOx | Nitrogen oxide |
| OPT | NONROAD Model Options Input File |
| OSD | Ozone Season Daily |
| OTAQ | EPA Office of Transportation and Air Quality |
| PM10-PRI | Particulate Matter Less Than 10 Microns in Diameter |
| PM2.5-PRI | Particulate Matter Less Than 2.5 Microns in Diameter |
| ppm | parts per million |
| psi | pounds per square inch |
| QA | Quality Assurance |
| RFG | Reformulated Gasoline |
| RH | Relative humidity |
| RVP | Reid Vapor Pressure |
| SCC | Source Classification Code |
| SD/I | sterndrive and inboard |
| SI | Spark Ignition |
| SO2 | Sulfur Dioxide |
| Stds | Standards |
| TAME | Tertiary Amyl Methyl Ether |
| TERP | Texas Emission Reduction Program |
| TexAER | Texas Air Emissions Repository |
| TexN | Texas NONROAD Model |
| TWC | Three-way catalyst |
| TxDOT | Texas Department of Transportation |
| TxLED | Texas Low Emission Diesel |
| VOC | Volatile Organic Compound |

# 1.0 INTRODUCTION

Eastern Research Group, Inc. (ERG) developed a 2008 criteria emissions inventory for non-road categories included in the Texas NONROAD (TexN) model, which covers all non-road activities except those associated with rail operations, aircraft operations, and commercial marine vessels. This report constitutes the deliverable under Task 9 of Work Order Number 582-7-84004-FY09-07 to Contract Agreement 582-7-84003.

This emissions inventory was produced using the Texas NONROAD (TexN) model version 1.3 (released June 2009). TexN was developed by ERG to facilitate the development of highly-resolved emissions inventories reflecting the detailed data collection efforts the TCEQ has invested in over the last several years. As the TCEQ continues to collect data and as the EPA reporting requirements change, updates to TexN become necessary in order to produce the most accurate emissions inventories available. This report details the data sources and calculation methodology used by TexN to calculate the 2008 emissions inventory.

TexN provides emissions estimates for a large number of non-road equipment categories operating in Texas. Non-road equipment is defined by the United States Environmental Protection Agency (U.S. EPA) as self-propelled or portable equipment that is moved to a different location at least once a year on average, and is not registered for on-road operation. The TexN model calculates emissions estimates for the same equipment categories included in the EPA's NONROAD model. Common examples include excavators, generator sets, forklifts, various recreational and lawn and garden equipment. Aircraft, locomotives, and commercial marine vessels are not included in either model.

The TexN model incorporates the NONROAD2008 model to generate its core emission estimates, utilizing region-specific adjustment factors in order to refine the NONROAD outputs for Texas. TexN provides the same types of outputs as the NONROAD model, including emissions estimates by the following categories:

- County or region;
- Time period (typical ozone season weekday/weekend, seasonal, annual);
- Analysis year (1970 – 2050); and,
- Equipment/fuel type (e.g., gasoline powered pressure washers) or category (e.g., construction equipment).

The model also incorporates geographic and equipment-specific improvements to the NONROAD model, reflecting the efforts of numerous TCEQ studies. The following document

provides detailed information on the sources and uses of data developed for the TCEQ as supplements and improvements to the default NONROAD model.

## 1.1 Background

The U.S. EPA's NONROAD2008 emission factor model provides a powerful tool for estimating emissions from a broad array of non-road mobile sources. Relying on default equipment population and activity parameters, the NONROAD model can easily generate detailed emissions estimates for different equipment/fuel types, at various temporal and geographic levels of resolution. The model uses generalized surrogates to allocate national and/or state level equipment population and activity profiles to the county level. For example, county-level recreational marine engine activity is assumed to be proportional to the fraction of water body surface area in a county relative to the state as a whole. The EPA readily acknowledges the limitations of such "top-down" approaches to emissions estimation, and encourages states and other entities to use equipment population and activity profiles based on surveys or other local data sources.

Numerous emission inventory studies have been conducted in Texas in recent years to improve upon the default data available in the NONROAD model. These studies have focused on various equipment categories operating in different areas of the state, including transportation refrigeration units and LPG forklifts operating in the Dallas/Fort Worth area, diesel powered cranes in the Houston region, and diesel construction equipment operating across the entire state, among others. Modification of the NONROAD data files is usually a straightforward process involving a standard text editor. However, developing statewide, county level emissions estimates for one or more analysis years can become cumbersome and highly time consuming. Given the NONROAD model's structure, it is not possible to create a single set of equipment population/activity/allocation files that incorporates all of the regional updates developed for Texas. For example, equipment activity data has been collected specific to certain regions of the state (such as the Houston area), but this data cannot be used easily because the NONROAD model structure assumes a single activity value for the state as a whole. For this reason, estimating county level, statewide emissions requires large numbers of NONROAD model runs to accommodate the different equipment profiles. Substantial resources are also required to undertake even relatively simple baseline assessment and sensitivity analyses for the different ozone nonattainment regions in the state, due to the patchwork of different equipment population and activity data sets involved.

In order to facilitate the development of non-road emission inventories, an integrated calculation and data management system was developed for estimating emissions from all sources included in the NONROAD model for Texas. The TexN model includes several features that greatly expand the flexibility and power of the existing NONROAD model. First, a modified Graphical User Interface (GUI) allows for easy retrieval and modification of specific NONROAD data files. Second, the file management process permits highly complex batching of hundreds or even thousands of NONROAD runs within a single user-defined "scenario". TexN runs the NONROAD2008 model in the background for single or multiple runs, as needed. Third, a back-end database maintains the various equipment population and activity profile updates developed for the different equipment types and regions of the state, as well as any user-defined updates. The database performs automated run aggregations as well as post-processing adjustments for county-specific factors such as ambient temperature and humidity, soil conditions (for construction earthwork activities), and regional fuel parameters, among others. Additional emission factors have been integrated into TexN to estimate ammonia emissions for the different engine/fuel types. Finally, NONROAD's Microsoft Access Reporting Utility has been modified to provide additional standardized queries and output formats. The resulting system allows the user to develop baseline or revised non-road emission inventory estimates using highly resolved data in much less time than it would take using the standard NONROAD model alone. The following sections detail the data sources and calculation methodology used by TexN to create the 2008 emissions inventory.

## 1.2 2008 Ozone Season Day and Annual Emissions Summaries

The 2008 criteria emissions estimates produced by TexN are summarized in Tables 1-1 through 1-6. In addition to the emissions summaries presented here, detailed emissions estimates have been delivered to the TCEQ in NIF3.0, a format suitable for loading into the Texas Air Emissions Repository (TexAER).

## Table 1-1. 2008 OSD Criteria Emissions by Equipment Classification (Tons/Day)

| | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Agricultural Equipment | 303.23 | 17,534.27 | 11.83 | 167.46 | 16.94 | 16.43 | 3.14 | 24.19 |
| Commercial Equipment | 901.95 | 4,301.43 | 1.34 | 25.51 | 2.55 | 2.44 | 0.43 | 44.78 |
| Construction and Mining Equipment | 251.74 | 22,074.21 | 1.25 | 167.96 | 17.78 | 17.21 | 4.70 | 29.04 |
| Industrial Equipment | 320.64 | 7,501.84 | 7.06 | 74.68 | 2.55 | 2.48 | 0.76 | 17.63 |
| Lawn and Garden Equipment (Com) | 254.53 | 969.08 | 0.07 | 4.37 | 2.20 | 2.03 | 0.08 | 23.47 |
| Lawn and Garden Equipment (Res) | 614.02 | 1,411.71 | 0.03 | 3.52 | 0.77 | 0.71 | 0.03 | 50.44 |
| Logging Equipment | 12.16 | 288.13 | 0.02 | 1.77 | 0.24 | 0.23 | 0.06 | 1.13 |
| Pleasure Craft | 194.24 | 1,097.81 | 0.01 | 4.44 | 0.97 | 0.89 | 0.03 | 71.53 |
| Railroad Equipment | 0.69 | 77.08 | 0.00 | 0.89 | 0.11 | 0.11 | 0.02 | 0.16 |
| Recreational Equipment | 276.66 | 991.58 | 0.02 | 1.90 | 2.42 | 2.23 | 0.03 | 81.49 |
| Grand Total | 3,129.85 | 56,247.14 | 21.64 | 452.49 | 46.52 | 44.76 | 9.26 | 343.85 |

## Table 1-2. 2008 Annual Criteria Emissions by Equipment Classification (Tons/Year)

| | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Agricultural Equipment | 66,585 | 4,277,995 | 2,869 | 42,833 | 4,153 | 4,028 | 777 | 5,819 |
| Commercial Equipment | 273,337 | 1,356,796 | 493 | 8,710 | 803 | 769 | 136 | 14,014 |
| Construction and Mining Equipment | 67,538 | 6,021,800 | 613 | 49,013 | 4,849 | 4,694 | 1,285 | 7,968 |
| Industrial Equipment | 90,983 | 2,285,827 | 2,893 | 22,825 | 844 | 822 | 252 | 5,093 |
| Lawn and Garden Equipment (Com) | 66,313 | 254,761 | 33 | 1,217 | 633 | 586 | 20 | 6,591 |
| Lawn and Garden Equipment (Res) | 220,419 | 524,439 | 10 | 1,457 | 301 | 277 | 10 | 16,778 |
| Logging Equipment | 3,733 | 90,883 | 6 | 601 | 76 | 72 | 18 | 354 |
| Pleasure Craft | 93,285 | 532,879 | 6 | 2,267 | 469 | 432 | 15 | 30,443 |
| Railroad Equipment | 201 | 22,512 | 0 | 261 | 33 | 32 | 5 | 46 |
| Recreational Equipment | 89,519 | 327,996 | 9 | 685 | 796 | 733 | 8 | 26,387 |
| Grand Total | 971,912 | 15,695,887 | 6,933 | 129,869 | 12,956 | 12,444 | 2,527 | 113,494 |

## Table 1-3. 2008 OSD Criteria Emissions by Selected Area (Tons/Day)

| | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Austin | 166.73 | 3,197.40 | 0.80 | 23.74 | 2.44 | 2.35 | 0.53 | 15.68 |
| Beaumont-Port Arthur | 42.90 | 678.40 | 0.20 | 5.07 | 0.56 | 0.54 | 0.13 | 3.42 |
| Corpus Christi | 61.06 | 954.42 | 0.47 | 7.00 | 0.83 | 0.80 | 0.15 | 9.00 |
| Dallas-Fort Worth | 737.89 | 9,603.78 | 3.17 | 76.17 | 7.09 | 6.81 | 1.44 | 59.68 |
| El Paso | 64.28 | 930.91 | 0.34 | 7.47 | 0.68 | 0.65 | 0.15 | 4.41 |
| Houston-Galveston-Brazoria | 610.20 | 8,652.01 | 2.94 | 67.75 | 5.96 | 5.72 | 1.51 | 53.04 |
| San Antonio | 177.99 | 2,503.29 | 0.60 | 18.20 | 2.04 | 1.95 | 0.46 | 18.24 |
| Tyler-Longview | 65.65 | 1,348.14 | 0.31 | 10.63 | 0.97 | 0.94 | 0.18 | 6.45 |
| Victoria | 12.02 | 227.26 | 0.10 | 1.76 | 0.19 | 0.19 | 0.04 | 1.08 |

## Table 1-4. 2008 Annual Criteria Emissions by Selected Area (Tons/Year)

| | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Austin | 49,743 | 882,999 | 299 | 6,864 | 673 | 647 | 144 | 4,853 |
| Beaumont-Port Arthur | 12,859 | 190,164 | 80 | 1,508 | 157 | 151 | 36 | 1,041 |
| Corpus Christi | 19,547 | 266,611 | 130 | 2,009 | 236 | 225 | 39 | 3,224 |
| Dallas-Fort Worth | 219,823 | 2,775,464 | 1,273 | 22,822 | 2,038 | 1,956 | 411 | 17,851 |
| El Paso | 19,475 | 262,067 | 119 | 2,173 | 189 | 182 | 43 | 1,367 |
| Houston-Galveston-Brazoria | 211,938 | 2,694,625 | 1,221 | 21,616 | 1,905 | 1,826 | 457 | 20,348 |
| San Antonio | 54,380 | 705,970 | 231 | 5,365 | 575 | 550 | 127 | 5,869 |
| Tyler-Longview | 19,814 | 373,151 | 124 | 3,068 | 268 | 258 | 50 | 1,999 |
| Victoria | 3,509 | 60,794 | 29 | 490 | 52 | 50 | 11 | 335 |

## Table 1-5. 2008 OSD Criteria Emissions by County (Tons/Day)

| | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Anderson | 5.48 | 126.01 | 0.02 | 1.02 | 0.12 | 0.12 | 0.01 | 0.66 |
| Andrews | 1.74 | 50.60 | 0.02 | 0.46 | 0.05 | 0.05 | 0.01 | 0.13 |
| Angelina | 13.14 | 173.99 | 0.05 | 1.26 | 0.14 | 0.13 | 0.02 | 1.91 |
| Aransas | 13.30 | 83.08 | 0.00 | 0.38 | 0.10 | 0.09 | 0.01 | 3.95 |
| Archer | 3.04 | 110.46 | 0.08 | 1.03 | 0.11 | 0.10 | 0.02 | 0.31 |
| Armstrong | 1.55 | 78.81 | 0.06 | 0.77 | 0.08 | 0.07 | 0.02 | 0.12 |
| Atascosa | 4.94 | 216.03 | 0.03 | 1.75 | 0.16 | 0.15 | 0.05 | 0.60 |
| Austin | 5.28 | 156.10 | 0.04 | 1.29 | 0.15 | 0.14 | 0.03 | 0.60 |
| Bailey | 2.66 | 105.44 | 0.09 | 1.03 | 0.10 | 0.10 | 0.01 | 0.19 |
| Bandera | 7.74 | 50.81 | 0.00 | 0.26 | 0.09 | 0.09 | 0.01 | 2.32 |
| Bastrop | 5.95 | 184.58 | 0.03 | 1.46 | 0.16 | 0.16 | 0.03 | 0.48 |
| Baylor | 3.84 | 111.81 | 0.13 | 1.06 | 0.10 | 0.10 | 0.02 | 0.46 |
| Bee | 3.27 | 130.99 | 0.06 | 1.11 | 0.12 | 0.12 | 0.02 | 0.26 |
| Bell | 28.54 | 527.34 | 0.18 | 4.04 | 0.43 | 0.42 | 0.10 | 3.67 |
| Bexar | 140.78 | 1,818.94 | 0.41 | 13.00 | 1.42 | 1.36 | 0.33 | 12.71 |
| Blanco | 1.66 | 28.74 | 0.01 | 0.23 | 0.03 | 0.03 | 0.00 | 0.32 |
| Borden | 0.57 | 34.03 | 0.02 | 0.31 | 0.03 | 0.03 | 0.01 | 0.09 |
| Bosque | 5.30 | 142.71 | 0.03 | 1.15 | 0.14 | 0.13 | 0.03 | 1.11 |
| Bowie | 13.18 | 200.85 | 0.07 | 1.62 | 0.17 | 0.17 | 0.03 | 1.62 |
| Brazoria | 28.67 | 484.97 | 0.16 | 3.79 | 0.37 | 0.36 | 0.09 | 3.52 |
| Brazos | 16.40 | 233.56 | 0.07 | 1.74 | 0.21 | 0.20 | 0.04 | 1.59 |
| Brewster | 1.78 | 36.57 | 0.00 | 0.28 | 0.04 | 0.04 | 0.01 | 0.33 |
| Briscoe | 1.57 | 71.76 | 0.06 | 0.71 | 0.07 | 0.07 | 0.01 | 0.14 |
| Brooks | 2.84 | 47.00 | 0.01 | 0.34 | 0.08 | 0.07 | 0.01 | 0.79 |
| Brown | 7.62 | 272.06 | 0.05 | 2.11 | 0.23 | 0.22 | 0.04 | 1.08 |
| Burleson | 4.54 | 113.95 | 0.04 | 0.94 | 0.11 | 0.11 | 0.02 | 0.76 |
| Burnet | 12.56 | 161.17 | 0.02 | 0.97 | 0.18 | 0.17 | 0.02 | 3.25 |
| Caldwell | 4.49 | 93.99 | 0.03 | 0.78 | 0.10 | 0.09 | 0.02 | 0.73 |
| Calhoun | 17.79 | 189.39 | 0.07 | 1.26 | 0.16 | 0.15 | 0.02 | 5.24 |
| Callahan | 2.89 | 83.61 | 0.03 | 0.75 | 0.09 | 0.08 | 0.02 | 0.41 |
| Cameron | 49.07 | 572.02 | 0.22 | 3.95 | 0.53 | 0.51 | 0.07 | 8.45 |

| | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Camp | 3.18 | 42.69 | 0.01 | 0.32 | 0.05 | 0.05 | 0.01 | 0.81 |
| Carson | 2.93 | 116.51 | 0.12 | 1.16 | 0.11 | 0.11 | 0.02 | 0.20 |
| Cass | 5.48 | 104.48 | 0.02 | 0.80 | 0.09 | 0.09 | 0.02 | 0.94 |
| Castro | 4.83 | 207.17 | 0.19 | 2.06 | 0.19 | 0.18 | 0.02 | 0.34 |
| Chambers | 5.88 | 114.25 | 0.04 | 0.93 | 0.08 | 0.08 | 0.02 | 1.15 |
| Cherokee | 5.93 | 147.07 | 0.04 | 1.20 | 0.13 | 0.12 | 0.02 | 0.50 |
| Childress | 1.77 | 64.18 | 0.05 | 0.61 | 0.06 | 0.06 | 0.01 | 0.13 |
| Clay | 2.97 | 105.52 | 0.05 | 0.97 | 0.10 | 0.10 | 0.02 | 0.47 |
| Cochran | 1.79 | 94.10 | 0.09 | 0.93 | 0.09 | 0.09 | 0.01 | 0.14 |
| Coke | 1.13 | 34.46 | 0.01 | 0.28 | 0.03 | 0.03 | 0.00 | 0.17 |
| Coleman | 3.18 | 98.86 | 0.05 | 0.90 | 0.10 | 0.10 | 0.01 | 0.47 |
| Collin | 79.63 | 1,062.58 | 0.28 | 8.25 | 0.88 | 0.85 | 0.17 | 7.07 |
| Collingsworth | 1.88 | 86.94 | 0.07 | 0.84 | 0.09 | 0.08 | 0.01 | 0.14 |
| Colorado | 5.96 | 264.51 | 0.06 | 1.90 | 0.20 | 0.20 | 0.06 | 0.85 |
| Comal | 19.73 | 305.07 | 0.05 | 2.04 | 0.27 | 0.26 | 0.06 | 3.72 |
| Comanche | 3.30 | 115.69 | 0.02 | 1.02 | 0.11 | 0.11 | 0.02 | 0.36 |
| Concho | 2.13 | 69.23 | 0.06 | 0.66 | 0.07 | 0.07 | 0.01 | 0.34 |
| Cooke | 9.70 | 211.44 | 0.08 | 1.81 | 0.19 | 0.19 | 0.04 | 1.60 |
| Coryell | 4.58 | 143.68 | 0.05 | 1.24 | 0.13 | 0.13 | 0.03 | 0.38 |
| Cottle | 0.94 | 46.62 | 0.03 | 0.44 | 0.05 | 0.05 | 0.01 | 0.08 |
| Crane | 0.30 | 8.89 | 0.00 | 0.08 | 0.01 | 0.01 | 0.00 | 0.03 |
| Crockett | 1.63 | 43.20 | 0.01 | 0.38 | 0.05 | 0.05 | 0.01 | 0.32 |
| Crosby | 2.46 | 141.02 | 0.11 | 1.29 | 0.12 | 0.12 | 0.01 | 0.22 |
| Culberson | 0.44 | 29.87 | 0.00 | 0.27 | 0.03 | 0.03 | 0.01 | 0.05 |
| Dallam | 5.98 | 279.88 | 0.23 | 2.78 | 0.27 | 0.26 | 0.06 | 0.46 |
| Dallas | 349.28 | 4,009.36 | 1.44 | 31.63 | 2.88 | 2.76 | 0.57 | 25.82 |
| Dawson | 3.46 | 163.14 | 0.15 | 1.59 | 0.15 | 0.15 | 0.01 | 0.26 |
| De Witt | 3.39 | 129.70 | 0.05 | 1.13 | 0.12 | 0.12 | 0.03 | 0.27 |
| Deaf Smith | 3.28 | 118.23 | 0.03 | 1.10 | 0.12 | 0.12 | 0.03 | 0.26 |
| Delta | 5.56 | 253.24 | 0.17 | 2.40 | 0.22 | 0.21 | 0.05 | 0.82 |
| Denton | 53.90 | 748.44 | 0.19 | 5.61 | 0.57 | 0.55 | 0.12 | 5.33 |
| Dickens | 0.77 | 40.95 | 0.02 | 0.39 | 0.04 | 0.04 | 0.01 | 0.07 |
| Dimmit | 2.25 | 34.53 | 0.01 | 0.24 | 0.04 | 0.04 | 0.01 | 0.54 |
| Donley | 1.82 | 51.17 | 0.03 | 0.47 | 0.06 | 0.06 | 0.01 | 0.34 |
| Duval | 1.33 | 54.72 | 0.01 | 0.42 | 0.05 | 0.05 | 0.01 | 0.11 |
| Eastland | 4.35 | 127.66 | 0.03 | 1.11 | 0.12 | 0.12 | 0.02 | 0.55 |
| Ector | 17.30 | 202.34 | 0.05 | 1.48 | 0.15 | 0.14 | 0.02 | 1.12 |
| Edwards | 0.48 | 24.46 | 0.01 | 0.23 | 0.03 | 0.03 | 0.00 | 0.05 |
| El Paso | 64.28 | 930.91 | 0.34 | 7.47 | 0.68 | 0.65 | 0.15 | 4.41 |
| Ellis | 18.91 | 417.78 | 0.16 | 3.69 | 0.28 | 0.27 | 0.06 | 1.85 |
| Erath | 5.39 | 173.64 | 0.04 | 1.52 | 0.16 | 0.16 | 0.03 | 0.43 |
| Falls | 4.04 | 187.98 | 0.11 | 1.69 | 0.17 | 0.16 | 0.04 | 0.31 |
| Fannin | 5.28 | 193.33 | 0.08 | 1.76 | 0.18 | 0.18 | 0.04 | 0.44 |
| Fayette | 7.89 | 206.01 | 0.04 | 1.58 | 0.19 | 0.18 | 0.04 | 1.51 |
| Fisher | 1.47 | 82.37 | 0.05 | 0.77 | 0.08 | 0.08 | 0.02 | 0.13 |
| Floyd | 4.19 | 177.42 | 0.19 | 1.73 | 0.16 | 0.16 | 0.01 | 0.29 |
| Foard | 1.97 | 67.23 | 0.09 | 0.66 | 0.06 | 0.06 | 0.01 | 0.12 |
| Fort Bend | 37.32 | 622.14 | 0.18 | 4.86 | 0.49 | 0.47 | 0.12 | 2.79 |

| | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Franklin | 1.60 | 49.72 | 0.01 | 0.44 | 0.05 | 0.05 | 0.01 | 0.21 |
| Freestone | 3.31 | 257.34 | 0.03 | 2.17 | 0.18 | 0.18 | 0.05 | 0.43 |
| Frio | 2.80 | 71.35 | 0.04 | 0.62 | 0.07 | 0.07 | 0.01 | 0.39 |
| Gaines | 4.80 | 237.79 | 0.22 | 2.33 | 0.22 | 0.21 | 0.02 | 0.37 |
| Galveston | 26.25 | 445.09 | 0.08 | 3.20 | 0.32 | 0.31 | 0.09 | 3.97 |
| Garza | 1.07 | 52.17 | 0.02 | 0.48 | 0.05 | 0.05 | 0.00 | 0.14 |
| Gillespie | 4.16 | 97.91 | 0.02 | 0.75 | 0.09 | 0.09 | 0.02 | 0.52 |
| Glasscock | 1.11 | 68.10 | 0.06 | 0.65 | 0.06 | 0.06 | 0.01 | 0.09 |
| Goliad | 1.79 | 82.93 | 0.02 | 0.70 | 0.08 | 0.08 | 0.02 | 0.20 |
| Gonzales | 4.13 | 131.82 | 0.03 | 1.14 | 0.13 | 0.13 | 0.03 | 0.51 |
| Gray | 4.27 | 113.30 | 0.08 | 1.06 | 0.10 | 0.10 | 0.02 | 0.29 |
| Grayson | 24.32 | 348.15 | 0.14 | 2.73 | 0.31 | 0.30 | 0.06 | 4.59 |
| Gregg | 18.24 | 215.86 | 0.10 | 1.67 | 0.14 | 0.14 | 0.02 | 1.15 |
| Grimes | 4.72 | 132.84 | 0.04 | 1.12 | 0.13 | 0.12 | 0.02 | 0.61 |
| Guadalupe | 13.88 | 250.83 | 0.11 | 2.03 | 0.22 | 0.21 | 0.05 | 1.53 |
| Hale | 7.49 | 251.12 | 0.24 | 2.41 | 0.22 | 0.22 | 0.02 | 0.52 |
| Hall | 1.35 | 66.93 | 0.05 | 0.65 | 0.07 | 0.07 | 0.01 | 0.12 |
| Hamilton | 2.27 | 98.60 | 0.03 | 0.90 | 0.10 | 0.10 | 0.02 | 0.19 |
| Hansford | 3.87 | 128.56 | 0.15 | 1.28 | 0.12 | 0.12 | 0.03 | 0.26 |
| Hardeman | 2.46 | 73.16 | 0.07 | 0.66 | 0.07 | 0.07 | 0.01 | 0.36 |
| Hardin | 5.14 | 143.69 | 0.02 | 1.15 | 0.14 | 0.14 | 0.03 | 0.47 |
| Harris | 462.51 | 6,229.73 | 2.31 | 49.42 | 4.06 | 3.91 | 1.04 | 35.86 |
| Harrison | 10.05 | 400.98 | 0.05 | 3.22 | 0.26 | 0.25 | 0.08 | 1.56 |
| Hartley | 4.18 | 189.03 | 0.18 | 1.89 | 0.18 | 0.17 | 0.04 | 0.30 |
| Haskell | 4.24 | 154.96 | 0.19 | 1.51 | 0.14 | 0.14 | 0.03 | 0.34 |
| Hays | 11.92 | 210.59 | 0.04 | 1.56 | 0.18 | 0.17 | 0.03 | 1.46 |
| Hemphill | 1.27 | 57.00 | 0.02 | 0.54 | 0.06 | 0.06 | 0.01 | 0.11 |
| Henderson | 16.41 | 221.52 | 0.04 | 1.63 | 0.22 | 0.21 | 0.02 | 3.50 |
| Hidalgo | 64.39 | 874.57 | 0.28 | 5.95 | 0.78 | 0.74 | 0.11 | 8.75 |
| Hill | 9.81 | 278.36 | 0.14 | 2.35 | 0.26 | 0.25 | 0.05 | 1.73 |
| Hockley | 4.22 | 168.88 | 0.14 | 1.62 | 0.16 | 0.15 | 0.01 | 0.33 |
| Hood | 5.33 | 140.57 | 0.02 | 0.99 | 0.10 | 0.10 | 0.03 | 0.63 |
| Hopkins | 5.73 | 301.05 | 0.05 | 2.63 | 0.23 | 0.22 | 0.07 | 0.52 |
| Houston | 4.08 | 128.71 | 0.03 | 1.08 | 0.13 | 0.12 | 0.02 | 0.53 |
| Howard | 4.18 | 101.27 | 0.07 | 0.91 | 0.10 | 0.09 | 0.02 | 0.50 |
| Hudspeth | 1.37 | 55.04 | 0.01 | 0.48 | 0.06 | 0.06 | 0.01 | 0.31 |
| Hunt | 11.27 | 217.72 | 0.08 | 1.84 | 0.20 | 0.19 | 0.04 | 1.58 |
| Hutchinson | 3.95 | 113.93 | 0.07 | 1.04 | 0.10 | 0.10 | 0.02 | 0.31 |
| Irion | 0.40 | 17.48 | 0.01 | 0.16 | 0.02 | 0.02 | 0.00 | 0.04 |
| Jack | 1.84 | 85.81 | 0.01 | 0.71 | 0.08 | 0.07 | 0.02 | 0.23 |
| Jackson | 5.65 | 168.48 | 0.12 | 1.48 | 0.15 | 0.14 | 0.03 | 0.81 |
| Jasper | 5.01 | 82.30 | 0.02 | 0.62 | 0.06 | 0.06 | 0.02 | 0.47 |
| Jeff Davis | 1.01 | 31.38 | 0.00 | 0.26 | 0.04 | 0.04 | 0.01 | 0.28 |
| Jefferson | 28.34 | 407.21 | 0.13 | 2.99 | 0.32 | 0.31 | 0.08 | 1.93 |
| Jim Hogg | 0.73 | 36.51 | 0.01 | 0.30 | 0.05 | 0.05 | 0.01 | 0.09 |
| Jim Wells | 4.51 | 112.53 | 0.07 | 0.93 | 0.10 | 0.10 | 0.02 | 0.32 |
| Johnson | 12.78 | 317.64 | 0.08 | 2.58 | 0.26 | 0.25 | 0.06 | 1.03 |
| Jones | 5.56 | 226.68 | 0.16 | 1.90 | 0.18 | 0.17 | 0.05 | 0.61 |

| | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Karnes | 2.35 | 95.37 | 0.03 | 0.83 | 0.09 | 0.09 | 0.02 | 0.19 |
| Kaufman | 12.47 | 302.67 | 0.08 | 2.48 | 0.26 | 0.25 | 0.05 | 1.16 |
| Kendall | 7.13 | 73.58 | 0.01 | 0.49 | 0.09 | 0.08 | 0.01 | 1.45 |
| Kenedy | 1.00 | 27.46 | 0.01 | 0.22 | 0.03 | 0.03 | 0.00 | 0.26 |
| Kent | 0.60 | 27.26 | 0.01 | 0.26 | 0.03 | 0.03 | 0.01 | 0.05 |
| Kerr | 13.89 | 117.22 | 0.02 | 0.67 | 0.17 | 0.16 | 0.02 | 3.70 |
| Kimble | 1.44 | 32.94 | 0.01 | 0.27 | 0.04 | 0.03 | 0.00 | 0.30 |
| King | 0.45 | 27.67 | 0.01 | 0.26 | 0.03 | 0.03 | 0.00 | 0.04 |
| Kinney | 0.39 | 15.65 | 0.00 | 0.14 | 0.02 | 0.02 | 0.00 | 0.04 |
| Kleberg | 6.35 | 116.26 | 0.07 | 0.91 | 0.12 | 0.11 | 0.02 | 1.37 |
| Knox | 3.54 | 117.57 | 0.15 | 1.14 | 0.11 | 0.10 | 0.02 | 0.22 |
| La Salle | 1.26 | 33.94 | 0.01 | 0.26 | 0.04 | 0.04 | 0.01 | 0.29 |
| Lamar | 8.80 | 240.42 | 0.11 | 2.15 | 0.22 | 0.21 | 0.05 | 0.75 |
| Lamb | 5.02 | 216.77 | 0.21 | 2.12 | 0.20 | 0.19 | 0.02 | 0.36 |
| Lampasas | 2.66 | 106.52 | 0.01 | 0.77 | 0.08 | 0.08 | 0.02 | 0.42 |
| Lavaca | 3.86 | 137.07 | 0.04 | 1.18 | 0.13 | 0.13 | 0.03 | 0.30 |
| Lee | 3.76 | 246.23 | 0.03 | 2.02 | 0.17 | 0.16 | 0.05 | 0.53 |
| Leon | 4.33 | 393.86 | 0.04 | 3.32 | 0.26 | 0.26 | 0.08 | 0.52 |
| Liberty | 6.17 | 152.60 | 0.04 | 1.21 | 0.12 | 0.12 | 0.03 | 0.62 |
| Limestone | 5.22 | 212.00 | 0.05 | 1.66 | 0.17 | 0.16 | 0.04 | 0.92 |
| Lipscomb | 1.25 | 60.12 | 0.03 | 0.58 | 0.06 | 0.06 | 0.01 | 0.11 |
| Live Oak | 4.18 | 72.16 | 0.02 | 0.54 | 0.07 | 0.07 | 0.01 | 0.99 |
| Llano | 5.67 | 52.45 | 0.01 | 0.34 | 0.06 | 0.06 | 0.01 | 1.34 |
| Loving | 1.77 | 15.37 | 0.00 | 0.09 | 0.02 | 0.02 | 0.00 | 0.64 |
| Lubbock | 36.02 | 479.82 | 0.22 | 3.82 | 0.43 | 0.41 | 0.03 | 3.43 |
| Lynn | 2.64 | 155.24 | 0.14 | 1.53 | 0.15 | 0.14 | 0.01 | 0.22 |
| Madison | 1.68 | 67.33 | 0.01 | 0.58 | 0.07 | 0.07 | 0.01 | 0.14 |
| Marion | 3.08 | 48.17 | 0.01 | 0.35 | 0.04 | 0.04 | 0.01 | 0.71 |
| Martin | 1.51 | 84.29 | 0.07 | 0.83 | 0.08 | 0.08 | 0.01 | 0.13 |
| Mason | 1.38 | 29.05 | 0.01 | 0.24 | 0.03 | 0.03 | 0.01 | 0.30 |
| Matagorda | 21.28 | 237.33 | 0.09 | 1.63 | 0.22 | 0.21 | 0.03 | 6.09 |
| Maverick | 3.13 | 55.43 | 0.01 | 0.39 | 0.05 | 0.04 | 0.01 | 0.22 |
| McCulloch | 2.03 | 115.88 | 0.04 | 0.92 | 0.08 | 0.08 | 0.02 | 0.20 |
| McLennan | 29.35 | 487.11 | 0.22 | 3.90 | 0.40 | 0.39 | 0.08 | 2.63 |
| McMullen | 0.92 | 30.35 | 0.00 | 0.24 | 0.03 | 0.03 | 0.01 | 0.25 |
| Medina | 6.08 | 202.25 | 0.07 | 1.69 | 0.19 | 0.18 | 0.04 | 0.72 |
| Menard | 0.52 | 17.97 | 0.00 | 0.16 | 0.02 | 0.02 | 0.00 | 0.04 |
| Midland | 15.30 | 177.01 | 0.05 | 1.34 | 0.15 | 0.15 | 0.02 | 1.22 |
| Milam | 5.11 | 219.94 | 0.09 | 1.85 | 0.19 | 0.19 | 0.04 | 0.40 |
| Mills | 1.36 | 56.88 | 0.02 | 0.52 | 0.06 | 0.06 | 0.01 | 0.11 |
| Mitchell | 1.61 | 74.84 | 0.04 | 0.69 | 0.07 | 0.07 | 0.02 | 0.17 |
| Montague | 3.09 | 112.77 | 0.02 | 0.99 | 0.11 | 0.10 | 0.03 | 0.32 |
| Montgomery | 38.87 | 507.29 | 0.11 | 3.58 | 0.42 | 0.40 | 0.10 | 4.68 |
| Moore | 5.37 | 172.59 | 0.17 | 1.68 | 0.15 | 0.15 | 0.03 | 0.40 |
| Morris | 3.29 | 60.73 | 0.02 | 0.50 | 0.05 | 0.05 | 0.01 | 0.57 |
| Motley | 0.69 | 45.01 | 0.02 | 0.40 | 0.05 | 0.04 | 0.01 | 0.07 |
| Nacogdoches | 9.01 | 143.60 | 0.04 | 1.10 | 0.13 | 0.12 | 0.02 | 1.17 |
| Navarro | 11.42 | 278.24 | 0.09 | 2.20 | 0.24 | 0.23 | 0.05 | 2.21 |

| | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Newton | 3.09 | 42.91 | 0.01 | 0.27 | 0.04 | 0.04 | 0.01 | 0.61 |
| Nolan | 3.26 | 104.32 | 0.05 | 0.90 | 0.10 | 0.09 | 0.02 | 0.26 |
| Nueces | 46.01 | 676.87 | 0.31 | 4.90 | 0.58 | 0.56 | 0.10 | 5.80 |
| Ochiltree | 5.70 | 182.00 | 0.23 | 1.81 | 0.16 | 0.16 | 0.04 | 0.35 |
| Oldham | 1.40 | 99.22 | 0.03 | 0.85 | 0.09 | 0.08 | 0.02 | 0.13 |
| Orange | 9.41 | 127.50 | 0.05 | 0.93 | 0.10 | 0.10 | 0.02 | 1.02 |
| Palo Pinto | 4.70 | 139.90 | 0.03 | 1.09 | 0.11 | 0.11 | 0.03 | 0.74 |
| Panola | 5.33 | 299.77 | 0.03 | 2.29 | 0.20 | 0.19 | 0.07 | 0.91 |
| Parker | 10.32 | 277.85 | 0.04 | 2.07 | 0.23 | 0.22 | 0.05 | 1.23 |
| Parmer | 5.16 | 196.12 | 0.19 | 1.91 | 0.17 | 0.17 | 0.02 | 0.34 |
| Pecos | 3.46 | 65.09 | 0.01 | 0.51 | 0.08 | 0.08 | 0.01 | 0.84 |
| Polk | 8.91 | 112.13 | 0.02 | 0.77 | 0.10 | 0.10 | 0.02 | 1.87 |
| Potter | 18.42 | 255.60 | 0.06 | 1.89 | 0.23 | 0.22 | 0.05 | 2.42 |
| Presidio | 1.33 | 23.01 | 0.00 | 0.19 | 0.03 | 0.03 | 0.00 | 0.30 |
| Rains | 2.65 | 52.32 | 0.01 | 0.43 | 0.06 | 0.05 | 0.01 | 0.60 |
| Randall | 12.18 | 197.56 | 0.08 | 1.63 | 0.18 | 0.18 | 0.04 | 0.94 |
| Reagan | 0.92 | 36.42 | 0.03 | 0.35 | 0.04 | 0.04 | 0.00 | 0.07 |
| Real | 1.71 | 18.04 | 0.00 | 0.12 | 0.03 | 0.03 | 0.00 | 0.51 |
| Red River | 2.61 | 119.37 | 0.03 | 1.08 | 0.12 | 0.11 | 0.03 | 0.23 |
| Reeves | 2.74 | 49.46 | 0.01 | 0.36 | 0.04 | 0.04 | 0.01 | 0.72 |
| Refugio | 2.55 | 80.18 | 0.05 | 0.70 | 0.08 | 0.08 | 0.01 | 0.38 |
| Roberts | 0.60 | 35.52 | 0.01 | 0.34 | 0.04 | 0.04 | 0.01 | 0.06 |
| Robertson | 3.56 | 204.19 | 0.05 | 1.71 | 0.17 | 0.16 | 0.04 | 0.38 |
| Rockwall | 9.52 | 117.30 | 0.02 | 0.83 | 0.11 | 0.10 | 0.02 | 1.39 |
| Runnels | 5.21 | 159.10 | 0.15 | 1.52 | 0.14 | 0.14 | 0.02 | 0.66 |
| Rusk | 6.58 | 271.13 | 0.03 | 2.12 | 0.18 | 0.18 | 0.03 | 0.88 |
| Sabine | 11.62 | 89.46 | 0.01 | 0.45 | 0.08 | 0.07 | 0.01 | 3.79 |
| San Augustine | 4.24 | 47.69 | 0.00 | 0.30 | 0.04 | 0.04 | 0.01 | 1.20 |
| San Jacinto | 4.09 | 55.64 | 0.01 | 0.39 | 0.05 | 0.05 | 0.01 | 0.95 |
| San Patricio | 15.06 | 277.55 | 0.17 | 2.10 | 0.25 | 0.24 | 0.04 | 3.20 |
| San Saba | 1.46 | 51.85 | 0.02 | 0.44 | 0.05 | 0.05 | 0.01 | 0.11 |
| Schleicher | 0.65 | 30.87 | 0.01 | 0.29 | 0.03 | 0.03 | 0.00 | 0.06 |
| Scurry | 3.41 | 86.36 | 0.04 | 0.77 | 0.09 | 0.08 | 0.02 | 0.48 |
| Shackelford | 1.15 | 75.84 | 0.02 | 0.62 | 0.06 | 0.06 | 0.02 | 0.11 |
| Shelby | 3.24 | 89.90 | 0.02 | 0.74 | 0.08 | 0.07 | 0.02 | 0.27 |
| Sherman | 4.12 | 161.27 | 0.19 | 1.62 | 0.15 | 0.14 | 0.03 | 0.27 |
| Smith | 27.35 | 378.89 | 0.12 | 2.93 | 0.31 | 0.30 | 0.03 | 2.57 |
| Somervell | 3.95 | 68.99 | 0.01 | 0.44 | 0.07 | 0.07 | 0.01 | 1.14 |
| Starr | 4.00 | 171.15 | 0.05 | 1.34 | 0.17 | 0.16 | 0.03 | 0.38 |
| Stephens | 2.11 | 51.06 | 0.01 | 0.45 | 0.05 | 0.05 | 0.01 | 0.29 |
| Sterling | 0.35 | 14.26 | 0.00 | 0.13 | 0.02 | 0.02 | 0.00 | 0.03 |
| Stonewall | 0.97 | 44.82 | 0.03 | 0.43 | 0.05 | 0.04 | 0.01 | 0.08 |
| Sutton | 0.94 | 25.78 | 0.01 | 0.23 | 0.03 | 0.03 | 0.00 | 0.08 |
| Swisher | 3.71 | 159.13 | 0.14 | 1.57 | 0.15 | 0.15 | 0.01 | 0.28 |
| Tarrant | 185.75 | 2,209.60 | 0.86 | 18.03 | 1.53 | 1.46 | 0.31 | 14.18 |
| Taylor | 16.45 | 256.49 | 0.13 | 2.09 | 0.22 | 0.21 | 0.05 | 1.53 |
| Terrell | 0.26 | 15.50 | 0.00 | 0.14 | 0.02 | 0.02 | 0.00 | 0.03 |
| Terry | 4.15 | 184.18 | 0.19 | 1.80 | 0.17 | 0.16 | 0.01 | 0.30 |

| | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Throckmorton | 1.46 | 62.66 | 0.05 | 0.60 | 0.06 | 0.06 | 0.01 | 0.12 |
| Titus | 6.11 | 220.13 | 0.04 | 1.80 | 0.15 | 0.14 | 0.04 | 0.90 |
| Tom Green | 14.31 | 258.59 | 0.14 | 2.21 | 0.23 | 0.22 | 0.03 | 1.61 |
| Travis | 110.30 | 1,700.62 | 0.47 | 12.53 | 1.27 | 1.22 | 0.26 | 9.77 |
| Trinity | 6.32 | 62.28 | 0.01 | 0.40 | 0.08 | 0.08 | 0.01 | 1.81 |
| Tyler | 3.41 | 50.69 | 0.01 | 0.35 | 0.05 | 0.05 | 0.01 | 0.55 |
| Upshur | 3.43 | 81.27 | 0.02 | 0.69 | 0.07 | 0.07 | 0.02 | 0.29 |
| Upton | 0.81 | 24.67 | 0.01 | 0.23 | 0.03 | 0.03 | 0.00 | 0.06 |
| Uvalde | 7.81 | 108.84 | 0.05 | 0.83 | 0.13 | 0.13 | 0.02 | 1.89 |
| Val Verde | 7.25 | 93.65 | 0.01 | 0.65 | 0.10 | 0.09 | 0.02 | 1.63 |
| Van Zandt | 7.27 | 187.76 | 0.04 | 1.58 | 0.19 | 0.18 | 0.02 | 1.04 |
| Victoria | 12.02 | 227.26 | 0.10 | 1.76 | 0.19 | 0.19 | 0.04 | 1.08 |
| Walker | 7.48 | 107.02 | 0.02 | 0.77 | 0.11 | 0.10 | 0.02 | 1.33 |
| Waller | 4.53 | 95.92 | 0.03 | 0.76 | 0.09 | 0.09 | 0.02 | 0.46 |
| Ward | 0.93 | 27.55 | 0.00 | 0.21 | 0.02 | 0.02 | 0.00 | 0.08 |
| Washington | 6.43 | 142.39 | 0.04 | 1.16 | 0.14 | 0.13 | 0.03 | 0.90 |
| Webb | 20.58 | 422.63 | 0.06 | 3.00 | 0.39 | 0.38 | 0.08 | 1.82 |
| Wharton | 8.54 | 255.77 | 0.18 | 2.24 | 0.23 | 0.22 | 0.05 | 0.79 |
| Wheeler | 1.56 | 70.93 | 0.03 | 0.67 | 0.07 | 0.07 | 0.01 | 0.13 |
| Wichita | 18.32 | 311.14 | 0.19 | 2.57 | 0.24 | 0.23 | 0.06 | 1.74 |
| Wilbarger | 4.06 | 132.34 | 0.14 | 1.26 | 0.12 | 0.12 | 0.03 | 0.29 |
| Willacy | 4.24 | 152.72 | 0.13 | 1.35 | 0.14 | 0.14 | 0.02 | 0.55 |
| Williamson | 34.08 | 1,007.62 | 0.23 | 7.40 | 0.73 | 0.70 | 0.18 | 3.24 |
| Wilson | 3.59 | 128.45 | 0.04 | 1.13 | 0.12 | 0.12 | 0.03 | 0.29 |
| Winkler | 0.58 | 10.58 | 0.00 | 0.09 | 0.01 | 0.01 | 0.00 | 0.05 |
| Wise | 7.80 | 307.48 | 0.04 | 2.26 | 0.23 | 0.22 | 0.06 | 1.13 |
| Wood | 9.33 | 126.19 | 0.02 | 0.96 | 0.13 | 0.13 | 0.01 | 1.93 |
| Yoakum | 2.99 | 125.41 | 0.12 | 1.22 | 0.12 | 0.11 | 0.01 | 0.22 |
| Young | 5.14 | 103.12 | 0.06 | 0.90 | 0.11 | 0.10 | 0.02 | 0.77 |
| Zapata | 5.76 | 63.67 | 0.01 | 0.40 | 0.09 | 0.09 | 0.01 | 1.73 |
| Zavala | 1.12 | 43.10 | 0.02 | 0.36 | 0.04 | 0.04 | 0.01 | 0.09 |
| Grand Total | 3,129.85 | 56,247.14 | 21.64 | 452.49 | 46.52 | 44.76 | 9.26 | 343.85 |

**Table 1-6. 2008 Annual Criteria Emissions by County (Tons/Year)**

| | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Anderson | 1,649 | 33,414 | 8 | 283 | 32 | 31 | 4 | 204 |
| Andrews | 502 | 13,160 | 6 | 123 | 13 | 12 | 2 | 37 |
| Angelina | 4,350 | 52,065 | 21 | 385 | 42 | 40 | 7 | 683 |
| Aransas | 5,117 | 30,796 | 2 | 144 | 36 | 34 | 2 | 1,531 |
| Archer | 779 | 27,473 | 18 | 266 | 27 | 26 | 6 | 90 |
| Armstrong | 340 | 19,346 | 14 | 195 | 19 | 19 | 4 | 29 |
| Atascosa | 1,435 | 57,255 | 11 | 491 | 41 | 39 | 13 | 182 |
| Austin | 1,498 | 40,784 | 15 | 354 | 39 | 37 | 8 | 177 |
| Bailey | 651 | 25,980 | 20 | 262 | 25 | 24 | 2 | 50 |
| Bandera | 2,420 | 14,962 | 2 | 76 | 28 | 26 | 2 | 731 |
| Bastrop | 1,719 | 48,763 | 12 | 406 | 42 | 41 | 9 | 141 |
| Baylor | 1,001 | 27,788 | 28 | 270 | 26 | 25 | 6 | 147 |

| | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Bee | 882 | 33,104 | 15 | 296 | 30 | 29 | 6 | 74 |
| Bell | 8,734 | 145,108 | 57 | 1,139 | 120 | 115 | 26 | 1,189 |
| Bexar | 43,281 | 520,241 | 163 | 3,896 | 405 | 388 | 92 | 4,121 |
| Blanco | 495 | 7,617 | 2 | 62 | 9 | 9 | 1 | 98 |
| Borden | 165 | 8,673 | 4 | 82 | 9 | 8 | 2 | 30 |
| Bosque | 1,689 | 37,939 | 10 | 313 | 37 | 35 | 7 | 369 |
| Bowie | 4,159 | 56,465 | 24 | 463 | 48 | 46 | 9 | 542 |
| Brazoria | 10,580 | 154,797 | 63 | 1,243 | 122 | 116 | 28 | 1,410 |
| Brazos | 4,884 | 64,460 | 24 | 501 | 57 | 55 | 11 | 486 |
| Brewster | 539 | 9,865 | 2 | 78 | 11 | 10 | 2 | 100 |
| Briscoe | 376 | 17,608 | 13 | 179 | 18 | 17 | 3 | 38 |
| Brooks | 870 | 12,704 | 2 | 94 | 21 | 20 | 2 | 249 |
| Brown | 2,285 | 73,172 | 20 | 593 | 61 | 59 | 11 | 326 |
| Burleson | 1,416 | 30,001 | 11 | 255 | 30 | 29 | 5 | 260 |
| Burnet | 3,844 | 45,035 | 7 | 280 | 52 | 49 | 7 | 1,007 |
| Caldwell | 1,309 | 24,538 | 9 | 212 | 26 | 25 | 4 | 223 |
| Calhoun | 7,237 | 64,348 | 21 | 407 | 55 | 52 | 6 | 2,114 |
| Callahan | 807 | 21,285 | 9 | 198 | 22 | 22 | 4 | 121 |
| Cameron | 15,898 | 165,851 | 67 | 1,150 | 157 | 149 | 18 | 2,914 |
| Camp | 1,052 | 12,127 | 2 | 90 | 14 | 14 | 2 | 268 |
| Carson | 659 | 28,285 | 28 | 290 | 27 | 26 | 6 | 50 |
| Cass | 1,887 | 30,231 | 6 | 235 | 26 | 25 | 5 | 339 |
| Castro | 1,091 | 50,241 | 45 | 516 | 47 | 46 | 4 | 83 |
| Chambers | 2,887 | 40,858 | 17 | 325 | 32 | 30 | 6 | 628 |
| Cherokee | 1,763 | 39,568 | 16 | 337 | 33 | 32 | 4 | 155 |
| Childress | 440 | 15,955 | 12 | 157 | 16 | 15 | 2 | 34 |
| Clay | 886 | 27,145 | 13 | 256 | 26 | 26 | 6 | 155 |
| Cochran | 420 | 23,101 | 20 | 237 | 23 | 22 | 2 | 36 |
| Coke | 366 | 9,207 | 3 | 76 | 8 | 8 | 1 | 59 |
| Coleman | 867 | 24,939 | 13 | 237 | 26 | 25 | 4 | 139 |
| Collin | 23,455 | 302,922 | 103 | 2,449 | 251 | 240 | 49 | 2,121 |
| Collingsworth | 435 | 21,295 | 17 | 215 | 21 | 21 | 3 | 36 |
| Colorado | 1,687 | 69,226 | 18 | 521 | 53 | 52 | 15 | 253 |
| Comal | 6,052 | 85,627 | 21 | 599 | 79 | 75 | 15 | 1,198 |
| Comanche | 963 | 29,562 | 8 | 272 | 29 | 28 | 4 | 108 |
| Concho | 533 | 17,071 | 14 | 166 | 18 | 17 | 2 | 100 |
| Cooke | 3,028 | 56,949 | 26 | 497 | 52 | 50 | 11 | 529 |
| Coryell | 1,288 | 36,972 | 14 | 332 | 34 | 33 | 8 | 107 |
| Cottle | 224 | 11,543 | 7 | 115 | 12 | 12 | 2 | 20 |
| Crane | 92 | 2,412 | 1 | 22 | 3 | 3 | 0 | 8 |
| Crockett | 476 | 11,215 | 3 | 101 | 13 | 13 | 1 | 97 |
| Crosby | 622 | 35,430 | 24 | 337 | 31 | 30 | 3 | 59 |
| Culberson | 120 | 7,784 | 2 | 73 | 8 | 7 | 2 | 13 |
| Dallam | 1,356 | 69,266 | 54 | 711 | 67 | 65 | 15 | 114 |
| Dallas | 103,619 | 1,174,786 | 589 | 9,616 | 840 | 806 | 165 | 7,617 |
| Dawson | 867 | 40,329 | 34 | 410 | 38 | 37 | 3 | 69 |
| De Witt | 913 | 32,810 | 14 | 303 | 31 | 30 | 7 | 75 |
| Deaf Smith | 918 | 30,161 | 10 | 291 | 30 | 29 | 6 | 71 |
| Delta | 1,527 | 64,914 | 41 | 635 | 56 | 54 | 13 | 272 |
| Denton | 16,479 | 225,522 | 75 | 1,756 | 171 | 164 | 35 | 1,661 |

| | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Dickens | 195 | 10,203 | 5 | 102 | 11 | 11 | 2 | 19 |
| Dimmit | 690 | 9,273 | 2 | 68 | 12 | 11 | 2 | 170 |
| Donley | 515 | 13,041 | 7 | 123 | 15 | 14 | 2 | 102 |
| Duval | 383 | 14,093 | 3 | 117 | 13 | 13 | 3 | 33 |
| Eastland | 1,274 | 33,107 | 10 | 299 | 32 | 31 | 5 | 162 |
| Ector | 5,269 | 58,290 | 22 | 447 | 43 | 41 | 7 | 336 |
| Edwards | 127 | 6,184 | 2 | 61 | 7 | 7 | 1 | 13 |
| El Paso | 19,475 | 262,067 | 119 | 2,173 | 189 | 182 | 43 | 1,367 |
| Ellis | 5,527 | 115,784 | 66 | 1,059 | 77 | 75 | 18 | 547 |
| Erath | 1,532 | 44,776 | 14 | 410 | 41 | 40 | 9 | 119 |
| Falls | 1,001 | 46,801 | 27 | 437 | 42 | 40 | 10 | 81 |
| Fannin | 1,410 | 48,739 | 22 | 462 | 45 | 44 | 10 | 121 |
| Fayette | 2,556 | 55,335 | 15 | 437 | 51 | 49 | 10 | 524 |
| Fisher | 347 | 20,354 | 13 | 199 | 20 | 19 | 5 | 32 |
| Floyd | 959 | 43,221 | 42 | 437 | 40 | 39 | 3 | 71 |
| Foard | 416 | 16,126 | 19 | 165 | 15 | 15 | 2 | 30 |
| Fort Bend | 12,625 | 191,954 | 74 | 1,572 | 152 | 147 | 37 | 951 |
| Franklin | 490 | 12,943 | 3 | 117 | 13 | 12 | 3 | 68 |
| Freestone | 972 | 67,815 | 11 | 599 | 47 | 46 | 14 | 133 |
| Frio | 775 | 18,117 | 11 | 163 | 18 | 18 | 4 | 117 |
| Gaines | 1,138 | 58,393 | 49 | 596 | 55 | 53 | 5 | 94 |
| Galveston | 12,846 | 157,312 | 32 | 1,118 | 118 | 113 | 27 | 2,291 |
| Garza | 308 | 13,383 | 6 | 129 | 14 | 13 | 1 | 43 |
| Gillespie | 1,204 | 25,907 | 7 | 206 | 23 | 23 | 5 | 154 |
| Glasscock | 253 | 16,814 | 13 | 166 | 16 | 15 | 2 | 23 |
| Goliad | 501 | 21,019 | 7 | 188 | 20 | 19 | 4 | 63 |
| Gonzales | 1,169 | 33,642 | 11 | 305 | 34 | 32 | 7 | 151 |
| Gray | 1,162 | 28,976 | 21 | 279 | 26 | 25 | 6 | 80 |
| Grayson | 8,142 | 100,630 | 44 | 788 | 90 | 86 | 15 | 1,602 |
| Gregg | 5,441 | 62,304 | 39 | 501 | 41 | 39 | 5 | 343 |
| Grimes | 1,379 | 34,701 | 14 | 305 | 33 | 32 | 6 | 188 |
| Guadalupe | 4,051 | 67,599 | 35 | 568 | 59 | 57 | 12 | 468 |
| Hale | 1,913 | 62,544 | 56 | 622 | 56 | 54 | 5 | 137 |
| Hall | 344 | 16,684 | 11 | 169 | 17 | 17 | 3 | 30 |
| Hamilton | 602 | 24,613 | 9 | 235 | 24 | 24 | 5 | 50 |
| Hansford | 889 | 31,039 | 34 | 317 | 29 | 29 | 6 | 67 |
| Hardeman | 615 | 18,219 | 15 | 169 | 18 | 17 | 3 | 104 |
| Hardin | 1,526 | 39,524 | 9 | 341 | 39 | 37 | 9 | 138 |
| Harris | 154,042 | 1,901,395 | 964 | 15,480 | 1,267 | 1,216 | 312 | 12,542 |
| Harrison | 3,171 | 109,903 | 19 | 922 | 73 | 70 | 23 | 508 |
| Hartley | 911 | 45,654 | 41 | 471 | 44 | 43 | 10 | 71 |
| Haskell | 968 | 37,519 | 42 | 378 | 35 | 34 | 8 | 95 |
| Hays | 3,554 | 58,091 | 17 | 449 | 50 | 48 | 9 | 450 |
| Hemphill | 329 | 14,437 | 5 | 141 | 15 | 15 | 3 | 30 |
| Henderson | 5,551 | 64,257 | 15 | 474 | 64 | 61 | 5 | 1,206 |
| Hidalgo | 19,593 | 242,876 | 85 | 1,701 | 220 | 210 | 31 | 2,750 |
| Hill | 2,914 | 72,519 | 37 | 625 | 68 | 66 | 14 | 565 |
| Hockley | 1,111 | 42,285 | 32 | 421 | 40 | 39 | 3 | 87 |
| Hood | 1,684 | 38,367 | 6 | 282 | 27 | 26 | 7 | 208 |
| Hopkins | 1,623 | 78,599 | 17 | 723 | 59 | 57 | 17 | 147 |

| | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Houston | 1,177 | 33,214 | 11 | 291 | 32 | 31 | 6 | 158 |
| Howard | 1,217 | 26,448 | 17 | 244 | 26 | 25 | 5 | 149 |
| Hudspeth | 390 | 14,231 | 3 | 130 | 15 | 15 | 3 | 93 |
| Hunt | 3,519 | 58,895 | 24 | 508 | 54 | 52 | 10 | 523 |
| Hutchinson | 1,096 | 29,687 | 20 | 278 | 26 | 25 | 6 | 90 |
| Irion | 108 | 4,416 | 2 | 43 | 5 | 5 | 1 | 10 |
| Jack | 548 | 22,234 | 5 | 192 | 20 | 19 | 4 | 74 |
| Jackson | 1,703 | 43,662 | 32 | 392 | 39 | 37 | 8 | 292 |
| Jasper | 1,568 | 23,727 | 9 | 185 | 18 | 18 | 4 | 155 |
| Jeff Davis | 303 | 8,409 | 1 | 74 | 10 | 10 | 2 | 85 |
| Jefferson | 8,492 | 114,321 | 52 | 888 | 89 | 86 | 21 | 585 |
| Jim Hogg | 206 | 9,532 | 2 | 84 | 14 | 13 | 2 | 24 |
| Jim Wells | 1,270 | 28,790 | 18 | 250 | 26 | 25 | 5 | 92 |
| Johnson | 3,754 | 85,718 | 30 | 724 | 69 | 67 | 16 | 302 |
| Jones | 1,426 | 57,482 | 36 | 496 | 46 | 45 | 12 | 176 |
| Karnes | 635 | 23,899 | 9 | 219 | 23 | 23 | 4 | 52 |
| Kaufman | 3,559 | 80,821 | 28 | 692 | 67 | 65 | 14 | 338 |
| Kendall | 2,153 | 20,671 | 5 | 142 | 25 | 24 | 3 | 452 |
| Kenedy | 374 | 7,545 | 2 | 60 | 8 | 8 | 1 | 103 |
| Kent | 151 | 6,786 | 3 | 67 | 7 | 7 | 1 | 13 |
| Kerr | 4,280 | 33,754 | 6 | 197 | 50 | 47 | 5 | 1,146 |
| Kimble | 433 | 8,747 | 2 | 72 | 10 | 9 | 1 | 92 |
| King | 104 | 6,868 | 3 | 69 | 8 | 8 | 1 | 11 |
| Kinney | 111 | 4,009 | 1 | 37 | 4 | 4 | 1 | 10 |
| Kleberg | 2,116 | 31,716 | 16 | 250 | 33 | 31 | 5 | 495 |
| Knox | 782 | 28,329 | 33 | 286 | 26 | 25 | 4 | 52 |
| La Salle | 376 | 8,910 | 2 | 72 | 10 | 10 | 2 | 90 |
| Lamar | 2,490 | 62,116 | 34 | 576 | 55 | 53 | 12 | 222 |
| Lamb | 1,183 | 52,993 | 48 | 539 | 49 | 48 | 4 | 91 |
| Lampasas | 779 | 28,240 | 5 | 212 | 22 | 21 | 4 | 124 |
| Lavaca | 1,076 | 34,987 | 14 | 317 | 32 | 31 | 7 | 85 |
| Lee | 1,072 | 65,050 | 10 | 563 | 44 | 43 | 13 | 157 |
| Leon | 1,225 | 103,549 | 17 | 917 | 68 | 66 | 22 | 153 |
| Liberty | 2,183 | 48,367 | 17 | 404 | 40 | 38 | 10 | 229 |
| Limestone | 1,708 | 56,505 | 15 | 453 | 44 | 43 | 11 | 325 |
| Lipscomb | 303 | 14,915 | 8 | 150 | 16 | 15 | 3 | 27 |
| Live Oak | 1,499 | 20,591 | 6 | 155 | 21 | 20 | 3 | 380 |
| Llano | 1,970 | 16,161 | 2 | 104 | 18 | 17 | 2 | 465 |
| Loving | 791 | 5,951 | 0 | 34 | 6 | 6 | 0 | 252 |
| Lubbock | 10,689 | 131,743 | 61 | 1,084 | 118 | 113 | 9 | 1,022 |
| Lynn | 632 | 38,250 | 32 | 393 | 37 | 36 | 3 | 57 |
| Madison | 464 | 17,051 | 5 | 155 | 17 | 17 | 3 | 40 |
| Marion | 1,171 | 15,030 | 2 | 109 | 13 | 12 | 2 | 268 |
| Martin | 376 | 20,851 | 16 | 212 | 20 | 20 | 3 | 33 |
| Mason | 411 | 7,578 | 2 | 64 | 9 | 9 | 1 | 92 |
| Matagorda | 8,435 | 76,901 | 23 | 502 | 72 | 68 | 9 | 2,426 |
| Maverick | 971 | 15,219 | 3 | 114 | 12 | 12 | 3 | 69 |
| McCulloch | 539 | 30,073 | 11 | 246 | 22 | 21 | 5 | 58 |
| McLennan | 8,645 | 132,929 | 72 | 1,095 | 109 | 105 | 22 | 803 |
| McMullen | 355 | 8,472 | 2 | 71 | 8 | 8 | 2 | 99 |

| | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Medina | 1,711 | 52,065 | 21 | 455 | 48 | 46 | 11 | 216 |
| Menard | 151 | 4,644 | 1 | 44 | 5 | 5 | 1 | 12 |
| Midland | 4,643 | 49,919 | 16 | 391 | 42 | 41 | 6 | 365 |
| Milam | 1,357 | 56,038 | 27 | 493 | 48 | 47 | 11 | 108 |
| Mills | 365 | 14,205 | 5 | 136 | 14 | 14 | 2 | 30 |
| Mitchell | 432 | 18,806 | 11 | 180 | 18 | 17 | 4 | 50 |
| Montague | 894 | 29,089 | 8 | 268 | 27 | 27 | 7 | 92 |
| Montgomery | 15,161 | 168,549 | 43 | 1,210 | 143 | 136 | 29 | 2,122 |
| Moore | 1,350 | 43,094 | 41 | 429 | 39 | 37 | 8 | 109 |
| Morris | 1,137 | 17,591 | 9 | 145 | 14 | 13 | 3 | 209 |
| Motley | 177 | 11,382 | 4 | 107 | 11 | 11 | 2 | 18 |
| Nacogdoches | 2,879 | 40,785 | 16 | 322 | 35 | 34 | 6 | 398 |
| Navarro | 3,761 | 76,099 | 27 | 609 | 66 | 63 | 13 | 775 |
| Newton | 955 | 12,571 | 2 | 84 | 13 | 13 | 2 | 191 |
| Nolan | 886 | 26,985 | 14 | 242 | 25 | 24 | 6 | 71 |
| Nueces | 14,423 | 189,105 | 88 | 1,417 | 164 | 157 | 28 | 2,024 |
| Ochiltree | 1,284 | 43,869 | 51 | 449 | 41 | 40 | 9 | 87 |
| Oldham | 343 | 25,296 | 8 | 225 | 22 | 21 | 6 | 33 |
| Orange | 2,840 | 36,320 | 20 | 278 | 29 | 28 | 6 | 318 |
| Palo Pinto | 1,571 | 38,262 | 10 | 307 | 30 | 29 | 7 | 258 |
| Panola | 1,618 | 80,869 | 12 | 657 | 54 | 52 | 17 | 283 |
| Parker | 3,062 | 74,681 | 14 | 582 | 62 | 59 | 15 | 368 |
| Parmer | 1,206 | 48,089 | 45 | 483 | 43 | 42 | 4 | 85 |
| Pecos | 1,052 | 17,475 | 4 | 141 | 22 | 21 | 2 | 258 |
| Polk | 3,150 | 34,557 | 8 | 238 | 32 | 30 | 5 | 683 |
| Potter | 5,602 | 71,815 | 23 | 547 | 65 | 62 | 12 | 740 |
| Presidio | 404 | 6,204 | 1 | 51 | 8 | 8 | 1 | 91 |
| Rains | 880 | 14,291 | 3 | 119 | 15 | 15 | 3 | 205 |
| Randall | 3,520 | 52,972 | 23 | 450 | 49 | 48 | 10 | 271 |
| Reagan | 238 | 9,062 | 6 | 90 | 9 | 9 | 1 | 18 |
| Real | 527 | 4,997 | 1 | 34 | 8 | 8 | 0 | 159 |
| Red River | 705 | 30,335 | 11 | 287 | 29 | 28 | 6 | 62 |
| Reeves | 1,081 | 15,034 | 3 | 108 | 13 | 12 | 2 | 274 |
| Refugio | 687 | 20,057 | 12 | 181 | 21 | 20 | 4 | 113 |
| Roberts | 143 | 8,844 | 3 | 89 | 10 | 10 | 2 | 15 |
| Robertson | 995 | 52,605 | 14 | 466 | 42 | 41 | 11 | 114 |
| Rockwall | 3,076 | 34,473 | 6 | 250 | 31 | 30 | 5 | 489 |
| Runnels | 1,448 | 40,179 | 36 | 390 | 37 | 35 | 4 | 218 |
| Rusk | 2,029 | 73,184 | 13 | 606 | 49 | 47 | 8 | 284 |
| Sabine | 4,976 | 34,854 | 2 | 176 | 31 | 29 | 2 | 1,515 |
| San Augustine | 1,743 | 16,249 | 2 | 101 | 14 | 13 | 2 | 479 |
| San Jacinto | 1,580 | 17,373 | 2 | 119 | 15 | 14 | 2 | 371 |
| San Patricio | 5,124 | 77,506 | 42 | 591 | 72 | 68 | 11 | 1,200 |
| San Saba | 395 | 13,161 | 5 | 117 | 12 | 12 | 2 | 31 |
| Schleicher | 172 | 7,795 | 3 | 76 | 8 | 8 | 1 | 15 |
| Scurry | 1,003 | 22,408 | 11 | 206 | 23 | 22 | 5 | 145 |
| Shackelford | 293 | 19,324 | 6 | 166 | 16 | 16 | 4 | 30 |
| Shelby | 967 | 24,220 | 9 | 208 | 20 | 20 | 4 | 82 |
| Sherman | 889 | 38,707 | 42 | 402 | 37 | 36 | 8 | 64 |
| Smith | 8,150 | 106,148 | 47 | 850 | 86 | 82 | 10 | 778 |

| | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Somervell | 1,245 | 19,157 | 3 | 125 | 20 | 19 | 3 | 360 |
| Starr | 1,134 | 44,569 | 15 | 363 | 44 | 42 | 7 | 110 |
| Stephens | 678 | 13,668 | 4 | 122 | 13 | 13 | 2 | 100 |
| Sterling | 97 | 3,654 | 1 | 35 | 4 | 4 | 0 | 9 |
| Stonewall | 221 | 10,981 | 8 | 111 | 11 | 11 | 2 | 19 |
| Sutton | 267 | 6,687 | 2 | 61 | 7 | 7 | 1 | 21 |
| Swisher | 880 | 39,439 | 32 | 404 | 38 | 37 | 3 | 71 |
| Tarrant | 55,608 | 642,391 | 354 | 5,412 | 442 | 424 | 88 | 4,200 |
| Taylor | 4,840 | 69,282 | 35 | 581 | 60 | 58 | 13 | 452 |
| Terrell | 71 | 4,024 | 1 | 39 | 5 | 5 | 1 | 9 |
| Terry | 990 | 45,174 | 42 | 460 | 42 | 41 | 4 | 77 |
| Throckmorton | 340 | 15,322 | 11 | 152 | 16 | 15 | 4 | 31 |
| Titus | 1,832 | 59,562 | 16 | 509 | 40 | 38 | 12 | 279 |
| Tom Green | 4,279 | 69,833 | 40 | 607 | 61 | 59 | 7 | 500 |
| Travis | 33,235 | 479,940 | 186 | 3,703 | 359 | 344 | 73 | 3,052 |
| Trinity | 2,160 | 18,767 | 3 | 119 | 25 | 23 | 2 | 618 |
| Tyler | 1,101 | 14,890 | 3 | 107 | 14 | 14 | 3 | 185 |
| Upshur | 1,022 | 21,612 | 6 | 190 | 19 | 19 | 4 | 86 |
| Upton | 223 | 6,281 | 3 | 60 | 7 | 6 | 1 | 16 |
| Uvalde | 2,334 | 28,982 | 13 | 225 | 37 | 35 | 5 | 586 |
| Val Verde | 2,479 | 27,572 | 5 | 194 | 29 | 28 | 4 | 565 |
| Van Zandt | 2,147 | 48,840 | 13 | 427 | 48 | 46 | 5 | 317 |
| Victoria | 3,509 | 60,794 | 29 | 490 | 52 | 50 | 11 | 335 |
| Walker | 2,377 | 30,289 | 8 | 224 | 31 | 29 | 5 | 438 |
| Waller | 1,616 | 31,392 | 11 | 264 | 30 | 29 | 7 | 175 |
| Ward | 286 | 7,503 | 1 | 59 | 6 | 6 | 1 | 23 |
| Washington | 1,987 | 38,157 | 14 | 322 | 36 | 34 | 7 | 300 |
| Webb | 6,354 | 117,225 | 22 | 892 | 107 | 103 | 23 | 579 |
| Wharton | 2,279 | 64,433 | 47 | 587 | 59 | 57 | 12 | 229 |
| Wheeler | 408 | 17,806 | 8 | 175 | 18 | 17 | 3 | 35 |
| Wichita | 5,459 | 85,630 | 54 | 725 | 67 | 64 | 16 | 541 |
| Wilbarger | 969 | 32,570 | 31 | 322 | 30 | 29 | 7 | 76 |
| Willacy | 1,184 | 38,489 | 31 | 348 | 36 | 35 | 5 | 187 |
| Williamson | 9,926 | 271,666 | 76 | 2,093 | 196 | 189 | 49 | 988 |
| Wilson | 995 | 32,504 | 12 | 302 | 31 | 30 | 7 | 83 |
| Winkler | 178 | 2,890 | 0 | 25 | 3 | 3 | 0 | 14 |
| Wise | 2,417 | 82,449 | 15 | 630 | 60 | 58 | 16 | 367 |
| Wood | 3,035 | 35,586 | 9 | 271 | 38 | 36 | 3 | 642 |
| Yoakum | 721 | 30,867 | 26 | 312 | 30 | 29 | 3 | 57 |
| Young | 1,473 | 26,624 | 16 | 238 | 28 | 26 | 5 | 236 |
| Zapata | 2,057 | 19,533 | 2 | 121 | 28 | 27 | 2 | 616 |
| Zavala | 299 | 10,895 | 6 | 97 | 10 | 10 | 2 | 25 |
| Grand Total | 971,912 | 15,695,887 | 6,933 | 129,869 | 12,956 | 12,444 | 2,527 | 113,494 |

The following tables summarize the ozone daily and annual emissions by county for each area of interest.

**Table 1-7. 2008 Austin Area OSD Criteria Emissions (Tons/Day)**

| COUNTY | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Bastrop | 5.95 | 184.58 | 0.03 | 1.46 | 0.16 | 0.16 | 0.03 | 0.48 |
| Caldwell | 4.49 | 93.99 | 0.03 | 0.78 | 0.1 | 0.09 | 0.02 | 0.73 |
| Hays | 11.92 | 210.59 | 0.04 | 1.56 | 0.18 | 0.17 | 0.03 | 1.46 |
| Travis | 110.3 | 1,700.62 | 0.47 | 12.53 | 1.27 | 1.22 | 0.26 | 9.77 |
| Williamson | 34.08 | 1,007.62 | 0.23 | 7.4 | 0.73 | 0.7 | 0.18 | 3.24 |
| **OSD Total** | **166.74** | **3,197.4** | **0.8** | **23.73** | **2.44** | **2.34** | **0.52** | **15.68** |

**Table 1-8. 2008 Austin Area Annual Criteria Emissions (Tons/Year)**

| COUNTY | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Bastrop | 1,719 | 48,763 | 12 | 406 | 42 | 41 | 9 | 141 |
| Caldwell | 1,309 | 24,538 | 9 | 212 | 26 | 25 | 4 | 223 |
| Hays | 3,554 | 58,091 | 17 | 449 | 50 | 48 | 9 | 450 |
| Travis | 33,235 | 479,940 | 186 | 3,703 | 359 | 344 | 73 | 3,052 |
| Williamson | 9,926 | 271,666 | 76 | 2,093 | 196 | 189 | 49 | 988 |
| **Annual Total** | **49,743** | **882,998** | **300** | **6,863** | **673** | **647** | **144** | **4,854** |

**Table 1-9. 2008 Beaumont-Port Arthur Area OSD Criteria Emissions (Tons/Day)**

| COUNTY | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Hardin | 5.14 | 143.69 | 0.02 | 1.15 | 0.14 | 0.14 | 0.03 | 0.47 |
| Jefferson | 28.34 | 407.21 | 0.13 | 2.99 | 0.32 | 0.31 | 0.08 | 1.93 |
| Orange | 9.41 | 127.5 | 0.05 | 0.93 | 0.1 | 0.1 | 0.02 | 1.02 |
| **OSD Total** | **42.89** | **678.4** | **0.2** | **5.07** | **0.56** | **0.55** | **0.13** | **3.42** |

**Table 1-10. 2008 Beaumont-Port Arthur Area Annual Criteria Emissions (Tons/Year)**

| COUNTY | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Hardin | 1,526 | 39,524 | 9 | 341 | 39 | 37 | 9 | 138 |
| Jefferson | 8,492 | 114,321 | 52 | 888 | 89 | 86 | 21 | 585 |
| Orange | 2,840 | 36,320 | 20 | 278 | 29 | 28 | 6 | 318 |
| **Annual Total** | **12,858** | **190,165** | **81** | **1,507** | **157** | **151** | **36** | **1,041** |

### Table 1-11. 2008 Dallas-Fort Worth Area OSD Criteria Emissions (Tons/Day)

| COUNTY | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Collin | 79.63 | 1,062.58 | 0.28 | 8.25 | 0.88 | 0.85 | 0.17 | 7.07 |
| Dallas | 349.28 | 4,009.36 | 1.44 | 31.63 | 2.88 | 2.76 | 0.57 | 25.82 |
| Denton | 53.9 | 748.44 | 0.19 | 5.61 | 0.57 | 0.55 | 0.12 | 5.33 |
| Ellis | 18.91 | 417.78 | 0.16 | 3.69 | 0.28 | 0.27 | 0.06 | 1.85 |
| Hood | 5.33 | 140.57 | 0.02 | 0.99 | 0.1 | 0.1 | 0.03 | 0.63 |
| Johnson | 12.78 | 317.64 | 0.08 | 2.58 | 0.26 | 0.25 | 0.06 | 1.03 |
| Kaufman | 12.47 | 302.67 | 0.08 | 2.48 | 0.26 | 0.25 | 0.05 | 1.16 |
| Parker | 10.32 | 277.85 | 0.04 | 2.07 | 0.23 | 0.22 | 0.05 | 1.23 |
| Rockwall | 9.52 | 117.3 | 0.02 | 0.83 | 0.11 | 0.1 | 0.02 | 1.39 |
| Tarrant | 185.75 | 2,209.60 | 0.86 | 18.03 | 1.53 | 1.46 | 0.31 | 14.18 |
| **OSD Total** | **737.89** | **9,603.79** | **3.17** | **76.16** | **7.1** | **6.81** | **1.44** | **59.69** |

### Table 1-12. 2008 Dallas-Fort Worth Area Annual Criteria Emissions (Tons/Year)

| COUNTY | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Collin | 23,455 | 302,922 | 103 | 2,449 | 251 | 240 | 49 | 2,121 |
| Dallas | 103,619 | 1,174,786 | 589 | 9,616 | 840 | 806 | 165 | 7,617 |
| Denton | 16,479 | 225,522 | 75 | 1,756 | 171 | 164 | 35 | 1,661 |
| Ellis | 5,527 | 115,784 | 66 | 1,059 | 77 | 75 | 18 | 547 |
| Hood | 1,684 | 38,367 | 6 | 282 | 27 | 26 | 7 | 208 |
| Johnson | 3,754 | 85,718 | 30 | 724 | 69 | 67 | 16 | 302 |
| Kaufman | 3,559 | 80,821 | 28 | 692 | 67 | 65 | 14 | 338 |
| Parker | 3,062 | 74,681 | 14 | 582 | 62 | 59 | 15 | 368 |
| Rockwall | 3,076 | 34,473 | 6 | 250 | 31 | 30 | 5 | 489 |
| Tarrant | 55,608 | 642,391 | 354 | 5,412 | 442 | 424 | 88 | 4,200 |
| **Annual Total** | **219,823** | **2,775,465** | **1,271** | **22,822** | **2,037** | **1,956** | **412** | **17,851** |

### Table 1-13. 2008 El Paso OSD Criteria Emissions (Tons/Day)

| COUNTY | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| El Paso | 64.28 | 930.91 | 0.34 | 7.47 | 0.68 | 0.65 | 0.15 | 4.41 |

### Table 1-14. 2008 El Paso Annual Criteria Emissions (Tons/Year)

| COUNTY | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| El Paso | 19,475 | 262,067 | 119 | 2,173 | 189 | 182 | 43 | 1,367 |

## Table 1-15. 2008 Houston-Galveston-Brazoria Area OSD Criteria Emissions (Tons/Day)

| COUNTY | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Brazoria | 28.67 | 484.97 | 0.16 | 3.79 | 0.37 | 0.36 | 0.09 | 3.52 |
| Chambers | 5.88 | 114.25 | 0.04 | 0.93 | 0.08 | 0.08 | 0.02 | 1.15 |
| Fort Bend | 37.32 | 622.14 | 0.18 | 4.86 | 0.49 | 0.47 | 0.12 | 2.79 |
| Galveston | 26.25 | 445.09 | 0.08 | 3.2 | 0.32 | 0.31 | 0.09 | 3.97 |
| Harris | 462.51 | 6,229.73 | 2.31 | 49.42 | 4.06 | 3.91 | 1.04 | 35.86 |
| Liberty | 6.17 | 152.6 | 0.04 | 1.21 | 0.12 | 0.12 | 0.03 | 0.62 |
| Montgomery | 38.87 | 507.29 | 0.11 | 3.58 | 0.42 | 0.4 | 0.1 | 4.68 |
| Waller | 4.53 | 95.92 | 0.03 | 0.76 | 0.09 | 0.09 | 0.02 | 0.46 |
| **OSD Total** | **610.2** | **8,651.99** | **2.95** | **67.75** | **5.95** | **5.74** | **1.51** | **53.05** |

## Table 1-16. 2008 Houston-Galveston-Brazoria Area Annual Criteria Emissions (Tons/Year)

| COUNTY | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Brazoria | 10,580 | 154,797 | 63 | 1,243 | 122 | 116 | 28 | 1,410 |
| Chambers | 2,887 | 40,858 | 17 | 325 | 32 | 30 | 6 | 628 |
| Fort Bend | 12,625 | 191,954 | 74 | 1,572 | 152 | 147 | 37 | 951 |
| Galveston | 12,846 | 157,312 | 32 | 1,118 | 118 | 113 | 27 | 2,291 |
| Harris | 154,042 | 1,901,395 | 964 | 15,480 | 1,267 | 1,216 | 312 | 12,542 |
| Liberty | 2,183 | 48,367 | 17 | 404 | 40 | 38 | 10 | 229 |
| Montgomery | 15,161 | 168,549 | 43 | 1,210 | 143 | 136 | 29 | 2,122 |
| Waller | 1,616 | 31,392 | 11 | 264 | 30 | 29 | 7 | 175 |
| **Annual Total** | **211,940** | **2,694,624** | **1,221** | **21,616** | **1,904** | **1,825** | **456** | **20,348** |

## Table 1-17. 2008 San Antonio Area OSD Criteria Emissions (Tons/Day)

| COUNTY | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Bexar | 140.78 | 1,818.94 | 0.41 | 13 | 1.42 | 1.36 | 0.33 | 12.71 |
| Comal | 19.73 | 305.07 | 0.05 | 2.04 | 0.27 | 0.26 | 0.06 | 3.72 |
| Guadalupe | 13.88 | 250.83 | 0.11 | 2.03 | 0.22 | 0.21 | 0.05 | 1.53 |
| Wilson | 3.59 | 128.45 | 0.04 | 1.13 | 0.12 | 0.12 | 0.03 | 0.29 |
| **OSD Total** | **177.98** | **2,503.29** | **0.61** | **18.2** | **2.03** | **1.95** | **0.47** | **18.25** |

### Table 1-18. 2008 San Antonio Area Annual Criteria Emissions (Tons/Year)

| COUNTY | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Bexar | 43,281 | 520,241 | 163 | 3,896 | 405 | 388 | 92 | 4,121 |
| Comal | 6,052 | 85,627 | 21 | 599 | 79 | 75 | 15 | 1,198 |
| Guadalupe | 4,051 | 67,599 | 35 | 568 | 59 | 57 | 12 | 468 |
| Wilson | 995 | 32,504 | 12 | 302 | 31 | 30 | 7 | 83 |
| **Annual Total** | **5,4379** | **705,971** | **231** | **5,365** | **574** | **550** | **126** | **5,870** |

### Table 1-19. 2008 Tyler-Longview Area OSD Criteria Emissions (Tons/Day)

| COUNTY | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Gregg | 18.24 | 215.86 | 0.1 | 1.67 | 0.14 | 0.14 | 0.02 | 1.15 |
| Harrison | 10.05 | 400.98 | 0.05 | 3.22 | 0.26 | 0.25 | 0.08 | 1.56 |
| Rusk | 6.58 | 271.13 | 0.03 | 2.12 | 0.18 | 0.18 | 0.03 | 0.88 |
| Smith | 27.35 | 378.89 | 0.12 | 2.93 | 0.31 | 0.3 | 0.03 | 2.57 |
| Upshur | 3.43 | 81.27 | 0.02 | 0.69 | 0.07 | 0.07 | 0.02 | 0.29 |
| **OSD Total** | **65.65** | **1,348.13** | **0.32** | **10.63** | **0.96** | **0.94** | **0.18** | **6.45** |

### Table 1-20. 2008 Tyler-Longview Area Annual Criteria Emissions (Tons/Year)

| COUNTY | CO | CO2 | NH3 | $NO_X$ | PM10-PRI | PM25-PRI | SO2 | VOC |
|---|---|---|---|---|---|---|---|---|
| Gregg | 5,441 | 62,304 | 39 | 501 | 41 | 39 | 5 | 343 |
| Harrison | 3,171 | 109,903 | 19 | 922 | 73 | 70 | 23 | 508 |
| Rusk | 2,029 | 73,184 | 13 | 606 | 49 | 47 | 8 | 284 |
| Smith | 8,150 | 106,148 | 47 | 850 | 86 | 82 | 10 | 778 |
| Upshur | 1,022 | 21,612 | 6 | 190 | 19 | 19 | 4 | 86 |
| **Annual Total** | **19,813** | **373,151** | **124** | **3,069** | **268** | **257** | **50** | **1,999** |

# 2.0 Data Sources and Calculation Procedures

This section provides a detailed overview of TexN data sources, functionality, and processing methodology, focusing on those features not included in the standard NONROAD modeling package.

## 2.1 Accommodation of Construction Equipment Subcategories

Diesel construction equipment (DCE) is usually the largest single emitter of nitrogen oxide (NOx) emissions in urban areas. DCE is also used in a wide variety of different tasks, with different activity and emissions profiles. Accordingly, the DCE emissions inventory has been highly disaggregated for Texas, characterizing construction equipment use for 24 sectors, including highway, commercial building, residential, utility, and other distinct construction activities or specialty equipment profiles. Each of the 24 DCE sectors is listed below.

- Agricultural Activities
- Boring and Drilling Equipment
- Brick and Stone Operations
- City and County Road Construction
- Commercial Construction
- Concrete Operations
- County-Owned Construction Equipment
- Cranes
- Heavy Highway Construction
- Landfill Operations
- Landscaping Activities
- Manufacturing Operations
- Municipal-Owned Construction Equipment
- Transportation/Sales/Services
- Residential Construction
- Rough Terrain Forklifts
- Scrap/Recycling Operations
- Skid Steer Loaders
- Special Trades Construction
- Trenchers
- TxDOT Construction Equipment
- Utility Construction
- Mining and Quarry Operation
- Off-Road Tractors, Miscellaneous Equipment, and all Equipment under 25 horsepower

The TexN modeling system was designed to calculate emissions for each of these sectors individually.

Three factors were considered when defining the DCE categories for Texas. First, the categories are fundamentally different in their equipment use requirements (e.g., the tasks required for highway and residential projects are quite different). Second, available population and activity surrogates for each project category should be clearly associated with actual equipment use to the extent possible[1]. Third, all categories, when considered together, cover the vast majority of DCE use in the State.

In a previous study completed for the Houston Advanced Research Center titled Ozone Science and Air Modeling Research Project H43T163: Diesel Construction Equipment Activity and Emissions Estimates for the Dallas/Ft. Worth Region, experts from various construction sectors and technical representatives from the TCEQ were solicited for their opinions regarding the distinct types of construction project categories, the likely relative contribution of the different categories, and the availability of appropriate surrogate data for each category. Based on this input it was determined that there are two fundamentally different types of DCE categories – those that have significant earthwork and surfacing requirements and those that do not. Earthwork project categories include:

- Highway construction (state highway and bridge work, and city/county roads);
- Utility installation (sewer, water, gas, power, and communication line installation and repair);
- Single Family housing (residential developments/subdivisions); and,
- Commercial structures.

Exhaust emissions are directly related to the hp-hours of work output by an engine. The hp-hours are in turn associated with the amount of work performed for a given task. While the engine work performed during non-earthwork tasks may be difficult to quantify (e.g., pothole patching or the amount of lifting performed by cranes), earthwork and surfacing tasks are reasonably straightforward to quantify and link to available physical quantity surrogates. Therefore, by developing equipment activity profiles directly in terms of physical quantities such as cubic yards of earth moved, it became possible to develop more precise correlates for equipment activity for the earthwork categories listed above.

[1] While it is not possible to directly estimate hours of equipment use for all DCE categories, certain correlates of activity have been identified and collected for the different project categories, such as the linear feet of utility line installation per year.

Non-earthwork project categories may also involve the use of DCE. Equipment use for these categories may involve specialized activities (e.g., landfill compacting). In other cases the work performed may involve earthmoving and/or surfacing, but cannot be determined from available surrogates (e.g. for mining activities, where production data is considered confidential business information).

The following lists the non-earthwork DCE categories used in Texas:

- Road or utility maintenance/repair activities performed by municipalities/counties/state agencies;
- Landfill operations;
- Surface mining – including stone/quarry operations, sand/aggregate pits; and,
- Boring/drilling operations, including water wells, deep foundation work (piles/piers), and utility pole installation/repair.

A database of DCE purchases in the Dallas- Fort Worth area was obtained to help identify other industry sectors that are also significant users of DCE. These include:

- Special construction trades (e.g., performing post-earthwork activities such as concrete, electrical, heating and air conditioning installation, and other tasks);
- Landscaping companies;
- Agricultural entities;
- Scrap handling and recycling facilities;
- Concrete product manufacturers;
- Brick and stone product manufacturers;
- General manufacturing operations; and,
- Transportation/Wholesale and Retail Sales/Services.

Other DCE categories were also found to be inadequately characterized by the earthwork profiles. These equipment types are numerous and therefore potentially significant emitters, but were often difficult to link to available earthwork or surfacing surrogates. These included:

- Cranes;
- Rough terrain forklifts;
- Skid steer loaders; and,
- Trenchers.

Population data for these equipment types were derived from an equipment sales database, with activity estimates provided by industry experts, for both earthwork and non-earthwork project categories.

Table 2-1 summarizes the equipment types found within each of the 24 DCE subsectors.

## Table 2-1. DCE Type by Subsector

| Equipment Description | SCC | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pavers | 2270002003 | | | | x | x | x | x | | x | | | | x | | x | | | | x | | x | x | x | x |
| Tampers/Rammers | 2270002006 | | | | | | | | | | | | | | | | | | | | | | | | x |
| Plate Compactors | 2270002009 | | | | | | | | | | | | | | | | | | | | | | | | x |
| Rollers | 2270002015 | | | | x | x | x | x | | x | x | x | | x | x | x | | | | x | | x | x | | x |
| Scrapers | 2270002018 | x | | | x | x | | x | | x | x | x | | x | x | x | | | | x | | x | x | x | |
| Paving Equipment | 2270002021 | | | | | | | x | | x | | | | x | x | | | | | | | x | | | x |
| Surfacing Equipment | 2270002024 | | | | | | x | x | | x | | x | | | x | x | | | | x | | | | | x |
| Signal Boards/Light Plants | 2270002027 | | | | | | | | | | | | | | | | | | | | | | | | x |
| Trenchers | 2270002030 | | | | | | | | | | | | | | | | | | | | x | | | | x |
| Bore/Drill Rigs | 2270002033 | | x | | | | | | | | | | | | | | | | | | | | | | x |
| Excavators | 2270002036 | x | | x | x | x | x | x | | x | x | x | x | x | x | x | | x | | x | | x | x | x | x |
| Concrete/Industrial Saws | 2270002039 | | | | | | | | | | | | | | | | | | | | | | | | x |
| Cement & Mortar Mixers | 2270002042 | | | | | | | | | | | | | | | | | | | | | | | | x |
| Cranes | 2270002045 | | | | | | | | x | | | | | | | | | | | | | | | | x |
| Graders | 2270002048 | x | | x | x | x | x | x | | x | x | x | | x | x | x | | | | x | | x | x | x | |
| Off-highway Trucks | 2270002051 | x | | | | x | x | x | | x | x | | x | x | x | | | | | x | | | | x | |
| Crushing/Proc. Equipment | 2270002054 | | | | | | | | | | | | | | | | | | | | | | | x | x |
| Rough Terrain Forklifts | 2270002057 | | | | | | | | | | | | | | | | x | | | | | | | | x |
| Rubber Tire Loaders | 2270002060 | x | | x | x | x | x | x | | x | x | x | x | x | x | x | | x | | x | | x | x | x | x |
| Tractors/Loaders/Backhoes | 2270002066 | x | | x | x | x | x | x | | x | x | x | x | x | x | x | | x | | x | | x | x | x | x |
| Crawler Tractor/Dozers | 2270002069 | x | | x | x | x | x | x | | x | x | x | x | x | x | x | | x | | x | | x | x | x | |
| Skid Steer Loaders | 2270002072 | | | | | | | | | | | | | | | | | | x | | | | | | x |
| Off-Highway Tractors | 2270002075 | | | | | | | | | | | | | | | | | | | | | | | x | x |
| Dumpers/Tenders | 2270002078 | | | | | | | | | | | | | | | | | | | | | | | | x |
| Other Construction Equipment | 2270002081 | | | | | | | | | | | | | | | | | | | | | | | | x |

**Subsector Key:**

1) Agricultural Activities
2) Boring/Drilling Equipment
3) Brick and Stone Operations
4) City and County Road Construction
5) Commercial Construction
6) Concrete Operations
7) County-Owned Construction Equipment
8) Cranes
9) Heavy-Highway Construction
10) Landfill Operations
11) Landscaping Activities
12) Manufacturing Operations
13) Municipal Owned Construction Equipment
14) Transportation/Sales/Services
15) Residential Construction
16) Rough Terrain Forklifts
17) Scrap/Recycling Operations
18) Skid Steer Loaders
19) Special Trades Contractors
20) Trenchers
21) TxDOT Equipment
22) Utility Construction
23) Mining and Quarry Operations
24) Off-road Tractors, Misc. Equipment, and all Equipment < 25 hp

## 2.2 Development of Texas-Specific Data Files

TexN was designed to develop emission estimates (including ammonia) that are consistent with the latest emission inventory data available for all counties in Texas, for all SCCs included in the NONROAD model. The resulting emission factors are combined with hp-hr and fuel consumption estimates to calculate mass emission estimates at the county level, for different evaluation years and time periods.

In order to develop the required Texas-specific data files, ERG developed, compiled, and organized the NONROAD model files needed to generate the most up-to-date county-level non-road mobile emissions inventories for the state. These data included area-specific equipment population, activity, growth, and temporal allocation files as appropriate. Base years for these data included 1999, 2000, 2002, and 2004.

ERG then developed and populated baseline and projected inventory lookup tables, reflecting variations in fuel properties, temperature, and selected control strategies, at the county and SCC level. Look-up tables for county-specific diesel activity adjustment factors were also compiled for altitude, ground cover, and soil properties. Note these adjustment factors are not input directly into the model, but are applied as linear corrections during the post-processing of output files.

Using the files described above, TexN can produce emissions estimates of VOC, NOx, SO2, CO, PM10, and PM2.5 for any county and time period of interest. For ammonia estimates, selected ammonia emission factors are applied to the adjusted NONROAD output files for each county and SCC and for each base year. The NONROAD output files are then post-processed to aggregate by model year and technology groups and fuel types. Emission factors are then combined with the NONROAD output data, using the appropriate aggregated hp-hr and/or fuel consumption estimates to obtain mass emissions estimates for ammonia.

The most recent available data was identified and collected in order to populate the following NONROAD model files, for each county and SCC combination, for the possible range of analysis years (1970 – 2050). File naming conventions are provided in parentheses.

- Option file (*.opt - temperature and fuel specification data)
- Equipment Population by hp bin (*.pop – equipment counts by hp bin)
- Activity (activity.dat - hr/yr)
- Temporal allocation (season.dat - weekday/weekend, and seasonal)

In addition, extensive data were also collected to estimate equipment population growth and geographic allocation. However, due to the calculation methodology employed within TexN which uses unique population files for each county and analysis year, the corresponding growth (*.grw) and geographic allocation (*.alo) files used in NONROAD are effectively bypassed in the TexN application. [2]

Several NONROAD files have not been revised, largely due to the difficulty in collecting the required data. In these cases NONROAD default files were used for emissions estimation. These default files include:

- Emission factors (*.emf)
- Deterioration factors (*.det files)
- Engine technology phase-in schedule (tech.dat)

### 2.2.1 TexN Fuel Specification Data

The NONROAD2008 model requires inputs for the following fields, in order to generate the primary input file (known as the OPT or Options file).

- Gasoline Reid Vapor Pressure (RVP)
- Gasoline oxygen weight percent
- Gasoline sulfur weight percent
- Diesel sulfur weight percent
- Recreational marine diesel sulfur weight percent
- CNG/LPG sulfur weight percent
- Ethanol blend market share
- Volume percent ethanol

General summer fuel specifications developed for the TCEQ for on-road modeling for Texas are summarized in Table 2-2.

[2] Unlike NONROAD which uses one state-level population file, which is in turn allocated to the county level using the *.alo files, TexN contains unique population files for all 254 counties in the state. Therefore the additional allocation step employed by NONROAD is not required within TexN. In addition, separate population files have been developed for every possible Episode Year, utilizing county and SCC-specific growth factors, as discussed in Section 4.2.3. While NONROAD's default growth file is retained within TexN to establish model year distributions, it is not used to forecast or back-cast actual equipment populations.

## Table 2-2. Federal and State Fuels Controls in Texas During Summer Season Period[3]

| Program | Start Year | Control/Standard | Geographic Coverage |
|---|---|---|---|
| Federal Controls on Gasoline Volatility[1] | 1992 | Max RVP, 7.8 pounds per square inch (psi)<br>Max RVP, 9.0 psi | One-hour ozone nonattainment counties[2]<br>Remainder of state |
| Federal Reformulated Gasoline (RFG[3]) | 1995 | Performance standard reductions: VOC, NOx, Toxics | One-hour ozone nonattainment counties for HGA, DFW |
| El Paso Low-RVP Gasoline[4] | 1996 | Max RVP, 7.0 psi | El Paso County |
| Regional Low-RVP Gasoline[5] | 2000 | Max RVP, 7.8 psi | 95 central and eastern Texas counties6 |
| Tier 2 Low-Sulfur Gasoline | 2005 | Refinery average 30 parts per million (ppm) gasoline sulfur content | National |
| Federal Low-Sulfur Highway Diesel[7, 8] | 1993/2006 | 500 ppm maximum sulfur content<br><br>15 ppm maximum sulfur content | National |
| Texas Low-Emission Diesel[9] | 2005/2006 | 500 ppm maximum sulfur<br>15 ppm maximum sulfur<br><br>Low aromatic HC and high cetane number to control NOx | 110 counties: 95 central and eastern Texas counties6 and the 15 HGA, BPA, and DFW one-hour ozone nonattainment counties |

1. 40 CFR § 80.27. Controls and Prohibitions on Gasoline Volatility.
2. The 16 Texas one-hour ozone nonattainment areas and respective counties are: Beaumont/Port Arthur (BPA): Hardin, Jefferson, Orange; Dallas/Fort Worth (DFW): Collin, Denton, Dallas, Tarrant; Houston/Galveston (HGA): Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, Waller; and El Paso County.
3. 40 CFR § 80.41 Standards and Requirements for Compliance (federal RFG).
4. 30 TAC §§ 115.252. Control Requirements (for gasoline RVP).
5. 30 TAC § 114.301. Control Requirements For Reid Vapor Pressure.
6. Anderson, Angelina, Aransas, Atascosa, Austin, Bastrop, Bee, Bell, Bexar, Bosque, Bowie, Brazos, Burleson, Caldwell, Calhoun, Camp, Cass, Cherokee, Colorado, Comal, Cooke, Coryell, De Witt, Delta, Ellis, Falls, Fannin, Fayette, Franklin, Freestone, Goliad, Gonzales, Grayson, Gregg, Grimes, Guadalupe, Harrison, Hays, Henderson, Hill, Hood, Hopkins, Houston, Hunt, Jackson, Jasper, Johnson, Karnes, Kaufman, Lamar, Lavaca, Lee, Leon, Limestone, Live Oak, Madison, Marion, Matagorda, McLennan, Milam, Morris, Nacogdoches, Navarro, Newton, Nueces, Panola, Parker, Polk, Rains, Red River, Refugio, Robertson, Rockwall, Rusk, Sabine, San Jacinto, San Patricio, San Augustine, Shelby, Smith, Somervell, Titus, Travis, Trinity, Tyler, Upshur, Van Zandt, Victoria, Walker, Washington, Wharton, Williamson, Wilson, Wise, and Wood.
7. 1993 sulfur limit source: "Regulatory Impact Analysis: Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements." EPA, December 2000 (EPA420-R-00-026).
8. 2006 sulfur limit source: heavy-duty 2007 rule.
9. 30 TAC § 114.312. Low Emission Diesel (LED) Standards.

[3] Texas Transportation Institute, Development of On-Road, Mobile Source, 1999 Through 2035 Emissions Trends for all 254 Counties, prepared for the TCEQ, August 2004.

No Texas-specific data was identified for recreational marine diesel and CNG/LPG sulfur levels, so NONROAD default values were retained; 0.2637 percent and 0.003 percent, respectively. [2] However, detailed, site-specific historical gasoline and diesel fuel sampling data collected for the TCEQ was used to populate the fuel specification table within TexN. Gasoline data were collected in different regions across the state for summertime fuel in 2001, 2003, 2004, 2005, 2007, and 2008 [3, 4, 5, 6, 27, 28]. Diesel samples were collected in 2003, 2004, and 2005 [3, 4, 5]. In addition, one set of wintertime gasoline sampling was performed in 2006 [6]. In each of the studies fuel samples were collected at randomly selected retail stations in each of the 25 Texas Department of Transportation (TxDOT) regions of the state. In order to obtain county level specificity, each county in the state was assigned to one of the 25 TxDOT regions. This data provided gasoline RVP, oxygen weight and volume percent, and gasoline as well as diesel sulfur weight percent for all locations.

For other years, as shown in Table 2-3, historical survey data from the National Institute for Petroleum and Energy Research (NIPER) [4] were obtained from the TCEQ for the following years.

**Table 2-3. Historical Fuel Survey Data Included in TexN Update**

| Calendar Year | Gasoline - Summer | Gasoline - Winter | Diesel |
|---|---|---|---|
| 1989 | | | X |
| 1990 | X | | X |
| 1991 | X | X | X |
| 1992 | X | X | X |
| 1993 | | | X |
| 1994 | X | X | X |
| 1995 | X | X | X |
| 1996 | X | X | X |
| 1997 | X | | X |
| 1998 | X | X | |
| 1999 | X | X | |
| 2000 | X | | |
| 2001 | | X | |
| 2002 | X | | |

NIPER diesel fuel samples were collected for broad regions of the U.S. Texas counties were assigned to one of three NIPER regions (Southern, Central, and Rocky Mountain) by ERG, using the regional map provided in the NIPER documentation. County assignments have been provided electronically to the TCEQ under the TCEQ Work Order No. 582-7-84004-FY09-10.

[4] Became known as TRW Petroleum Technologies Survey in 1998.

Average diesel sulfur levels were determined for off-highway fuel for each of the three Texas regions, as summarized in Table 2-4.

**Table 2-4. Summary for Off-Highway Diesel Fuel Sulfur Content (wt percent)**

| Year | Southern | Central | Rocky Mountain |
|---|---|---|---|
| 1989 | 0.261 | 0.264 | 0.330 |
| 1990 | 0.295 | 0.284 | 0.327 |
| 1991 | 0.336 | 0.330 | 0.353 |
| 1992 | 0.311 | 0.295 | 0.343 |
| 1993 | 0.283 | 0.249 | 0.276 |
| 1994 | 0.420 | 0.203 | 0.315 |
| 1995 | 0.391 | 0.302 | 0.302* |
| 1996 | 0.489 | 0.246 | 0.246* |
| 1997 | 0.430 | 0.249 | 0.249* |

* No sample data available – gap-filled using Central Region data

In consultation with the TCEQ it was determined that off-road diesel fuel meeting the 3,400 ppm sulfur specification should be assumed through the 2006 calendar year. Accordingly, the average sulfur content values between 1989 and 1997 were assumed for each county for the 1998 – 2006 periods (~3,000 ppm when averaged across all counties). In this way an estimate is included for real-world compliance values (~400 ppm compared to the 3,400 ppm specification.)

Again in consultation with the TCEQ it was determined that low-sulfur diesel fuel should be assumed for the 2007 – 2009 period, reflecting the federal off-road diesel fuel mandates. To reflect real-world compliance margins, ERG used on-road low sulfur diesel fuel sampling data collected for the TCEQ from 2003 – 2005. [5] Statewide averages saw a compliance margin of about 175 ppm below the 500 ppm specification during this time. Sulfur levels for 2010 and beyond are assumed to equal 0.0015 wt percent, based on the Federal rule for off-road diesel implemented in 2010.

NIPER gasoline sampling covered six regions across Texas, including:

- Dallas
- Houston
- San Antonio
- Amarillo
- El Paso

[5] Eastern Research Group, "SAMPLING AND LABORATORY ANALYSIS OF RETAIL GASOLINE AND DIESEL FUEL FOR SELECTED TEXAS CITIES – SUMMER 2003/4/5" (one report for each year).

- Midland

ERG assigned each county in the state to one of these six sampling regions.[6] Reformulated gasoline was introduced into the 4-county DFW and 8-county HGB nonattainment areas in 1995. Accordingly, the Dallas and Houston area NIPER sampling regions only applied to these counties from 1995 onward. The other counties assigned to the Dallas and Houston sampling regions prior to 1995 were re-assigned to the San Antonio sampling regions from 1995 onward.

RVP and fuel sulfur data were averaged across each region for the available summer and winter NIPER gasoline tables.

The averaged NIPER fuel parameter data are presented by season, calendar year, and sampling region in Tables 2-5 and 2-6. Gap-filled calendar years are noted below the table.

**Table 2-5. NIPER Summer Gasoline Specifications**

| 1990 | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 8.10 | 0.0162 |
| Dallas | 8.00 | 0.0154 |
| El Paso | 7.61 | 0.0269 |
| Houston | 8.39 | 0.0293 |
| Midland | 7.67 | 0.0273 |
| San Antonio | 8.26 | 0.0135 |

| 1996 | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 8.31 | 0.0127 |
| Dallas | 7.10 | 0.0314 |
| El Paso | 6.72 | 0.0162 |
| Houston | 7.07 | 0.0229 |
| Midland | 8.11 | 0.0397 |
| San Antonio | 8.36 | 0.0159 |

| 1991* | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 8.10 | 0.0162 |
| Dallas | 8.00 | 0.0154 |
| El Paso | 7.61 | 0.0269 |
| Houston | 8.39 | 0.0293 |
| Midland | 7.67 | 0.0273 |
| San Antonio | 8.26 | 0.0135 |

*Missing - set equal to 1990

| 1997 | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 8.35 | 0.0115 |
| Dallas | 6.91 | 0.0259 |
| El Paso | 6.81 | 0.0162 |
| Houston | 7.14 | 0.0235 |
| Midland | 8.22 | 0.0394 |
| San Antonio | 8.44 | 0.0168 |

| 1992 | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 8.26 | 0.0086 |
| Dallas | 7.11 | 0.0174 |

| 1998 | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 8.36 | 0.0121 |
| Dallas | 7.02 | 0.0164 |

[6] County cross-walk provided electronically to the TCEQ under the TCEQ Work Order No. 582-7-84004-FY09-10.

| | | |
|---|---|---|
| El Paso | 6.95 | 0.0212 |
| Houston | 7.25 | 0.0267 |
| Midland | 7.81 | 0.0171 |
| San Antonio | 8.15 | 0.0168 |

| | | |
|---|---|---|
| El Paso | 6.51 | 0.0178 |
| Houston | 6.90 | 0.0171 |
| Midland | 8.20 | 0.0332 |
| San Antonio | 8.13 | 0.0199 |

| **1993*** | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 8.26 | 0.0086 |
| Dallas | 7.11 | 0.0174 |
| El Paso | 6.95 | 0.0212 |
| Houston | 7.25 | 0.0267 |
| Midland | 7.81 | 0.0171 |
| San Antonio | 8.15 | 0.0168 |

*Missing - set equal to 1992

| **1999** | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 8.26 | 0.0157 |
| Dallas | 6.96 | 0.0190 |
| El Paso | 6.65 | 0.0207 |
| Houston | 6.91 | 0.0144 |
| Midland | 8.34 | 0.0358 |
| San Antonio | 7.59 | 0.0260 |

| **1994** | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 8.33 | 0.0129 |
| Dallas | 7.46 | 0.0226 |
| El Paso | 7.19 | 0.0266 |
| Houston | 7.35 | 0.0251 |
| Midland | 8.10 | 0.0284 |
| San Antonio | 8.45 | 0.0095 |

| **2000** | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 8.47 | 0.0122 |
| Dallas | 6.73 | 0.0121 |
| El Paso | 6.57 | 0.0183 |
| Houston | 6.82 | 0.0118 |
| Midland | 8.23 | 0.0260 |
| San Antonio | 7.49 | 0.0230 |

| **1995** | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 8.49 | 0.0123 |
| Dallas | 6.80 | 0.0073 |
| El Paso | 6.89 | 0.0263 |
| Houston | 6.99 | 0.0191 |
| Midland | 7.97 | 0.0230 |
| San Antonio | 8.38 | 0.0052 |

| **2002** | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 8.36 | 0.0161 |
| Dallas | 6.75 | 0.0130 |
| El Paso | 6.68 | 0.0175 |
| Houston | 6.86 | 0.0103 |
| Midland | 8.51 | 0.0275 |
| San Antonio | 7.41 | 0.0126 |

## Table 2-6. NIPER Winter Gasoline Specifications

| 1991 | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 12.52 | 0.0062 |
| Dallas | 12.24 | 0.0180 |
| El Paso | 11.04 | 0.0216 |
| Houston | 12.69 | 0.0370 |
| Midland | 11.51 | 0.0251 |
| San Antonio | 12.13 | 0.0163 |

| 1992 | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 12.40 | 0.0089 |
| Dallas | 11.80 | 0.0168 |
| El Paso | 11.58 | 0.0133 |
| Houston | 12.31 | 0.0234 |
| Midland | 11.10 | 0.0246 |
| San Antonio | 12.46 | 0.0181 |

| 1993 | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 12.40 | 0.0089 |
| Dallas | 11.80 | 0.0168 |
| El Paso | 11.58 | 0.0133 |
| Houston | 12.31 | 0.0234 |
| Midland | 11.10 | 0.0246 |
| San Antonio | 12.46 | 0.0181 |

| 1994 | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 10.87 | 0.0127 |
| Dallas | 11.44 | 0.0139 |
| El Paso | 10.13 | 0.0243 |
| Houston | 10.63 | 0.0160 |
| Midland | 10.99 | 0.0219 |
| San Antonio | 12.15 | 0.0074 |

| 1995 | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 12.29 | 0.0113 |

| 1997 | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 12.41 | 0.0155 |
| Dallas | 11.64 | 0.0231 |
| El Paso | 11.76 | 0.0203 |
| Houston | 11.78 | 0.0231 |
| Midland | 12.17 | 0.0299 |
| San Antonio | 12.46 | 0.0273 |

| 1998 | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 12.41 | 0.0155 |
| Dallas | 11.64 | 0.0231 |
| El Paso | 11.76 | 0.0203 |
| Houston | 11.78 | 0.0231 |
| Midland | 12.17 | 0.0299 |
| San Antonio | 12.46 | 0.0273 |

| 1999 | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 11.68 | 0.0144 |
| Dallas | 11.42 | 0.0209 |
| El Paso | 12.34 | 0.0152 |
| Houston | 11.90 | 0.0160 |
| Midland | 10.61 | 0.0145 |
| San Antonio | 12.14 | 0.0249 |

| 2000 | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 11.68 | 0.0144 |
| Dallas | 11.42 | 0.0209 |
| El Paso | 12.34 | 0.0152 |
| Houston | 11.90 | 0.0160 |
| Midland | 10.61 | 0.0145 |
| San Antonio | 12.14 | 0.0249 |

| 2002 | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 11.70 | 0.0142 |

| | | |
|---|---|---|
| Dallas | 11.88 | 0.0102 |
| El Paso | 11.54 | 0.0185 |
| Houston | 11.91 | 0.0166 |
| Midland | 12.17 | 0.0126 |
| San Antonio | 12.39 | 0.0038 |

| | | |
|---|---|---|
| Dallas | 11.88 | 0.0222 |
| El Paso | 12.54 | 0.0195 |
| Houston | 11.74 | 0.0137 |
| Midland | 11.45 | 0.0184 |
| San Antonio | 12.37 | 0.0165 |

| 1996 | | |
|---|---|---|
| **Region** | **RVP** | **Sulfur** |
| Amarillo | 12.29 | 0.0113 |
| Dallas | 11.88 | 0.0102 |
| El Paso | 11.54 | 0.0185 |
| Houston | 11.91 | 0.0166 |
| Midland | 12.17 | 0.0126 |
| San Antonio | 12.39 | 0.0038 |

ERG also made updates to TexN's fuel oxygenate weight percent, bringing it more in-line with the way the EPA's National Mobile Inventory Model (NMIM) calculates oxygenate weight percent. To this end, ERG exported oxygenate market share information from the countymonthyear table in NMIM. This table contains market share information for ethanol (EtOH), MTBE, ETBE, and TAME by county, year, and month. ERG averaged the market share for these oxygenates to obtain average market share by county, year, and season, in order to make it compatible with TexN. The months May through October constitute summer months, while November through April were assigned as winter months.

Next, oxygenate percent volume information was compiled using a combination of NIPER data and ERG sampling data collected over various years for the TCEQ. The source of each year's fuel data is identified by season in Table 2-7.

**Table 2-7. Fuel Data Sources**

| | Summer | | Winter | |
|---|---|---|---|---|
| **Year(s)** | **RVP/Sulfur** | **Oxygenates** | **RVP/Sulfur** | **Oxygenates** |
| 1991 and earlier | 1990 NIPER | 1994 NIPER | 1991 NIPER | 1994 NIPER |
| 1992 | 1992 NIPER | 1994 NIPER | 1992 NIPER | 1994 NIPER |
| 1993 | 1992 NIPER | 1994 NIPER | 1993 NIPER | 1994 NIPER |
| 1994 | 1994 NIPER | 1994 NIPER | 1994 NIPER | 1994 NIPER |
| 1995 | 1995 NIPER | 1995 NIPER | 1995 NIPER | 1995 NIPER |
| 1996 | 1996 NIPER | 1996 NIPER | 1995 NIPER | 1995 NIPER |
| 1997 | 1997 NIPER | 1997 NIPER | 1998 NIPER | 1998 NIPER |
| 1998 | 1998 NIPER | 1998 NIPER | 1998 NIPER | 1998 NIPER |
| 1999 | 1999 NIPER | 1999 NIPER | 1999 NIPER | 1999 NIPER |
| 2000 | 2000 NIPER | 2000 NIPER | 1999 NIPER | 1999 NIPER |
| 2001 | 2001 ERG | 2000 NIPER | 2002 NIPER | 2002 NIPER |

| | Summer | | Winter | |
|---|---|---|---|---|
| **Year(s)** | **RVP/Sulfur** | **Oxygenates** | **RVP/Sulfur** | **Oxygenates** |
| 2002 | 2002 NIPER | 2002 NIPER | 2002 NIPER | 2002 NIPER |
| 2003 | 2003 ERG | 2003 ERG | TCEQ* | 2002 NIPER |
| 2004 | 2004 ERG | 2004 ERG | TCEQ* | 2002 NIPER |
| 2005 | 2005 ERG | 2005 ERG | TCEQ* | 2002 NIPER |
| 2006 | 2005 ERG | 2005 ERG | 2006 ERG | 2006 ERG |
| 2007 | 2007 ERG | 2007 ERG | TCEQ* | 2002 NIPER |
| 2008 | 2008 ERG | 2008 ERG | TCEQ* | 2002 NIPER |

*Default values were provided by the TCEQ.

Once this information was compiled, the oxygenate weight percent was updated according to the following formula, which is consistent with how NMIM calculates oxygenate weight percent.

oxywtpct = (etohvolume*0.3448*etohmktshare) + (mtbevolume*0.1786*mtbemktshare) + (tamevolume*0.1636*tamemktshare) + (etbevolume*0.1533*etbemktshare)

Where:

Oxywtpct = Oxygen weight percent
Etohvolume = Percent volume ethanol (EtOH)
Etohmktshare = Ethanol market share (averaged)
Mtbevolume = Percent volume MTBE
Mtbemktshare = MTBE market share (averaged)
Tamevolume = Percent volume TAME
Tamemktshare = TAME market share (averaged)
Etbevolume = Percent volume ETBE
Etbemktshare = ETBE market share (averaged)
0.3448, 0.1786, 0.1636, and 0.1533 = Constants to convert percent volume to percent weight

### 2.2.2 TexN Climate Data

NONROAD uses daily high, low and average temperature data, primarily to calculate evaporative emissions from gasoline engines. These data are required as part of NONROAD's OPT file. In addition, related data on relative humidity and atmospheric pressure are also used during TexN's post-processing of NONROAD model outputs to adjust diesel NOx emissions for temperature and humidity effects. Ideally, these data should be specific to each county and episode day of interest. Although meteorological data were not available at this level for all counties, daily temperature, relative humidity, and atmospheric pressure information was available for 17 weather stations across the state, from the Texas A&M Energy Systems Laboratory [7, 9]. The 17 weather stations with available data are presented in Table 2-8. These values are used as inputs by TexN for NONROAD modeling as well as post-processing

adjustments for NOx. Assignments relating specific counties to representative weather stations are provided in Appendix B.

**Table 2-8. Weather Stations Providing Daily Climate Data [7]**

| No. | Weather Station | City | County | Location |
|---|---|---|---|---|
| 1 | ABI | Abilene | TAYLOR | Abilene Regional Airport |
| 2 | AMA | Amarillo | POTTER | Amarillo International Airport |
| 3 | ATT | Austin | TRAVIS | Austin Camp Mabry |
| 4 | BRO | Brownsville | CAMERON | Brownsville S. Padre Island International |
| 5 | CRP | Corpus Christi | NUECES | Corpus Christi International Airport |
| 6 | ELP | El Paso | EL PASO | El Paso International Airport |
| 7 | DFW | Fort Worth | TARRANT | Dallas - Fort Worth International |
| 8 | IAH | Houston | HARRIS | Houston Bush |
| 9 | LBB | Lubbock | LUBBOCK | Lubbock International Airport |
| 10 | GGG | Lufkin | ANGELINA | Longview E Texas Regional Airport |
| 11 | MAF | Midland | MIDLAND | Midland International Airport |
| 12 | BPT | Port Arthur | JEFFERSON | Port Arthur SE Texas Regional Airport |
| 13 | SJT | San Angelo | TOM GREEN | San Angelo Mathis Field |
| 14 | SAT | San Antonio | BEXAR | San Antonio International Airport |
| 15 | VCT | Victoria | VICTORIA | Victoria Regional |
| 16 | ACT | Waco | MCLENNAN | Waco Regional Airport |
| 17 | SPS | Wichita Falls | WICHITA | Wichita Falls Municipal Airport |

Hourly temperature and relative humidity data had been previously obtained for each of these weather stations for 1999, 2000, and 2002, as well as an averaged "typical meteorological year". Additional data for 2001, 2003, and 2004 were obtained. From the hourly data ERG extracted the daily minimum, maximum, and average temperatures, and average relative humidity. These values were then sorted into four seasonal groups: winter (December – February), spring (March – May), summer (June – August), and fall (September – November). For each of these seasonal groupings, and for each of the calendar years, averages were calculated for daily minimum, maximum, and average temperatures, as well as averages for relative humidity.

Five of the 17 weather stations did not have data posted for the 2003 and 2004 calendar years. Data for these stations and years was gap-filled using data from the nearest station with data for that year. [7] The missing stations and their gap-filling assignments are:

[7] Distances between all stations were obtained from www.mapquest.com

- ABI – SPS
- AMA – SPS
- LBB – SPS
- MAF – SPS
- SJT – SAT

ERG also added additional meteorological data for the 2008 calendar year to the TexN model. Data fields included minimum, maximum, and average temperatures as well as average relative humidity, by season and county, for the state as a whole. The 2008 weather station data was provided by the TCEQ in the same format and level of detail as ERG used to generate meteorological data for other calendar years within TexN.[8] As such, the daily data was aggregated to the season level, with unique counties assigned to each weather station in the same manner as for other years.

### 2.2.3 Population, Activity, and Allocation Data

The NONROAD model uses equipment population and activity data specific to each region of the country, allowing the user to characterize equipment emissions at the county level for past and future years, at different temporal scales (i.e., daily, seasonal, and annual emissions). The default values developed by the EPA are based on national level population and activity data. The model allocates equipment counts and activity to the county level using readily available surrogates, such as census population for lawn and garden equipment, and dollar value of construction projects for construction equipment.

The TCEQ and others have conducted several studies over the years to collect region-specific population and activity data for selected non-road engine categories, in order to improve upon NONROAD default estimates. Working with the TCEQ staff, ERG compiled a comprehensive list of the most recent data developed for different equipment types and regions of the State for inclusion in the TexN model. Population estimates for ground support equipment and other oil field equipment have been set to zero, as the TCEQ estimates emissions for these equipment types outside of the TexN model. Agricultural equipment population and allocation data were updated for this 2008 inventory [30]. The sources of the data for each equipment type and region are presented in Tables 2-9 through 2-14. The methods used to estimate equipment populations and activity levels can be quite complex; in depth discussions of the various methodologies used are provided in the referenced studies.

[8] Weather station data provided electronically by Ron Wells of the TCEQ, 3-24-09.

## Table 2-9. Sources of Equipment Population Data

| Equipment Types | Region | Data Source |
|---|---|---|
| Diesel Construction Equipment > 25 hp | Dallas-Fort Worth (DFW) 9-county nonattainment area [9] | Eastern Research Group, Ozone Science and Air Modeling Research Project H43T163: Diesel Construction Equipment Activity and Emissions Estimates for the Dallas/Ft. Worth Region, prepared for The Houston Advanced Research Center, August 31, 2005 [8] |
| Diesel Construction Equipment > 25 hp, except HGB[10] cranes | Statewide excluding 9-county DFW area | Eastern Research Group, Non-road Ammonia Emissions Inventory Development, prepared for Texas Commission on Environmental Quality, November 24, 2006 [14] |
| Diesel Cranes | Houston-Galveston-Brazoria (HGB) nonattainment area | Eastern Research Group, Non-road Mobile Source Emissions Inventory Development for the Houston-Galveston-Brazoria Area, submitted to the Houston-Galveston Area Council, July 28, 2006 [10] |
| LPG Forklifts | DFW 9-county area and HGB nonattainment areas | Eastern Research Group, Data Collection, Sampling and Emissions Inventory Preparation Plan for Selected Commercial and Industrial Equipment: Phase II, Final Report, prepared for the Texas Commission on Environmental Quality, August 31, 2005 [11] |
| Terminal Tractors and Transportation Refrigeration Units | DFW 9-county nonattainment area | Eastern Research Group, Data Collection, Sampling and Emissions Inventory Preparation Plan for Selected Commercial and Industrial Equipment: Phase II, Final Report, prepared for the Texas Commission on Environmental Quality, August 31, 2005 [11] |
| Transportation Refrigeration Units | HGB nonattainment area | Eastern Research Group, Non-road Mobile Source Emissions Inventory Development for the Houston-Galveston-Brazoria Area, submitted to the Houston-Galveston Area Council, July 28, 2006 [10] |

[9] Includes Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, and Tarrant Counties.
[10] Includes Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties.

| Equipment Types | Region | Data Source |
|---|---|---|
| Commercial Lawn and Garden | Statewide | Eastern Research Group, Development of Commercial Lawn and Garden Emissions Estimates for the State of Texas and Selected Metropolitan Areas, prepared for Texas Commission on Environmental Quality, November 24, 2003 [12] |
| Recreational Marine | Statewide | Eastern Research Group, Recreational Marine Emissions Inventory, prepared for the Texas Commission on Environmental Quality, August 28, 2002 [13] |
| Agricultural Equipment | Statewide | Development of Emissions Inventory of Agricultural Equipment in All Texas Counties Phase Two [30] |
| All remaining equipment –see below | See below | NONROAD defaults - User's Guide for the Final NONROAD2005 Model, EPA420-R-05-013, December 2005 [1] |

Equipment population estimates were taken from NONROAD defaults for the following equipment categories.

- Agricultural – all equipment/fuel types
- Commercial – all equipment/fuel types
- Logging – all equipment/fuel types
- Railroad – all equipment/fuel types
- Recreational vehicles – all equipment/fuel types
- Residential lawn and garden – all equipment/fuel types
- Industrial – all equipment/fuel types excluding LPG forklifts in DFW and HGB, Transportation Refrigeration Units and Terminal Tractors in DFW
- Construction and Mining – all gasoline, LPG, CNG
- Construction and Mining – diesel < 25 hp
- Construction and Mining – diesel > 25 hp for:
  - ◊ Tampers/Rammers
  - ◊ Plate Compactors
  - ◊ Signal Boards/Light Plants
  - ◊ Concrete/Industrial Saws
  - ◊ Crushing/Processing Equipment
  - ◊ Cement/Mortar Mixers
  - ◊ Dumpers/Tenders
  - ◊ Off-Highway Tractors
  - ◊ Other Construction Equipment

Population data was then spatially allocated across the state according to the allocation surrogates discussed in Tables 2-10 and 2-11.

**Table 2-10. Spatial Allocation Surrogates for Diesel Construction Equipment**

| Sector | Surrogate |
|---|---|
| Agricultural | Dollar value outputs from Texas Regional Economic Models, Inc. (REMI) model* |
| Boring and Drilling Equipment | EDA data and dollar value outputs from TX REMI model* |
| Brick and Stone Operations | Dollar value outputs from TX REMI model* |
| City and County Road Construction | Project Dollar Value from Reed Construction Data |
| Commercial Construction | Building footprint data from McGraw Hill Corporation (MHC) |
| Concrete Operations | Dollar value outputs from TX REMI model* |
| County-Owned Construction Equipment | County level census projections |
| Cranes | EDA data and dollar value outputs from TX REMI model* |
| Heavy Highway Construction | Project lane-mile data by county from TxDOT |
| Landfill Operations | Landfill disposal volumes from the TCEQ |
| Landscaping Activities | Dollar value outputs from TX REMI model* |

| Sector | Surrogate |
|---|---|
| Manufacturing Operations | Dollar value outputs from TX REMI model* |
| Municipal-Owned Construction Equipment | County level census projections |
| Transportation Sales/Services | Dollar value outputs from TX REMI model* |
| Residential Construction | Historical housing permit records and population growth rates from county-level census projections |
| Rough Terrain Forklifts | EDA data and dollar value outputs from TX REMI model* |
| Scrap/Recycling Operations | Dollar value outputs from TX REMI model* |
| Skid Steer Loaders | EDA data and dollar value outputs from TX REMI model* |
| Special Trades Construction | Dollar value outputs from TX REMI model* |
| Trenchers | EDA data and dollar value outputs from TX REMI model* |
| TxDOT Construction Equipment | None – TxDOT provided complete county-level population data |
| Utility Construction | Project Dollar value from Reed Construction Data and MHC |

* State level extrapolation and county allocation using 9-county DFW population as basis.

**Table 2-11. Sources of Geographic Allocation Data (Non-DCE)**

| Equipment Types | Region | Data Source |
|---|---|---|
| LPG Forklifts | 9-county DFW area and HGB nonattainment areas | Eastern Research Group, Data Collection, Sampling and Emissions Inventory Preparation Plan for Selected Commercial and Industrial Equipment: Phase II, Final Report, prepared for the Texas Commission on Environmental Quality, August 31, 2005 [11] |
| Terminal Tractors and Transportation Refrigeration Units | 9-county DFW nonattainment area | Eastern Research Group, Data Collection, Sampling and Emissions Inventory Preparation Plan for Selected Commercial and Industrial Equipment: Phase II, Final Report, prepared for the Texas Commission on Environmental Quality, August 31, 2005 [11] |
| Transportation Refrigeration Units | HGB nonattainment area | Eastern Research Group, Non-road Mobile Source Emissions Inventory Development for the Houston-Galveston-Brazoria Area, submitted to the Houston-Galveston Area Council, July 28, 2006 [10] |
| Commercial Lawn and Garden | Statewide | Eastern Research Group, Development of Commercial Lawn and Garden Emissions Estimates for the State of Texas and Selected Metropolitan Areas, prepared for Texas Commission on Environmental Quality, November 24, 2003 [12] |
| Recreational Marine | Statewide | Eastern Research Group, Recreational Marine Emissions Inventory, prepared for the Texas Commission on Environmental Quality, August 28, 2002 [13] |
| Recreational Marine | HGB nonattainment area | Development of 2007 Recreational Marine Emissions Inventory: Spatial and Temporal Allocation in the Houston-Galveston-Brazoria 8-County Area [29] |
| Agricultural Equipment | Statewide | Development of Emissions Inventory of Agricultural Equipment in All Texas Counties Phase Two [30] |
| All remaining equipment – see below | See below | NONROAD defaults - User's Guide for the Final NONROAD2005 Model, EPA420-R-05-013, December 2005 [1] |

Geographic allocation surrogates were taken from NONROAD defaults for the following equipment categories.

- Agricultural – all equipment
- Commercial – all equipment
- Logging – all equipment
- Railroad – all equipment
- Recreational vehicles – all equipment
- Residential lawn and garden – all equipment
- Industrial – all equipment/fuel types excluding LPG forklifts in DFW and HGB, TRUs and Terminal Tractors in DFW

**Table 2-12. Sources of Equipment Activity Data**

| Equipment Types | Region | Data Source |
|---|---|---|
| Diesel Cranes | HGB nonattainment area | Eastern Research Group, Non-road Mobile Source Emissions Inventory Development for the Houston-Galveston-Brazoria Area, submitted to the Houston-Galveston Area Council, July 28, 2006 [10] |
| Diesel Construction Equipment > 25 hp | 9-county DFW nonattainment area | Eastern Research Group, Ozone Science and Air Modeling Research Project H43T163: Diesel Construction Equipment Activity and Emissions Estimates for the Dallas/Ft. Worth Region, prepared for The Houston Advanced Research Center, August 31, 2005 [8] |
| Diesel Construction Equipment > 25 hp | Remainder of State, except HGB cranes | Eastern Research Group, Non-road Ammonia Emissions Inventory Development, prepared for Texas Commission on Environmental Quality, November 24, 2006 [14] |
| LPG Forklifts | 9-county DFW and HGB nonattainment areas | Eastern Research Group, Data Collection, Sampling and Emissions Inventory Preparation Plan for Selected Commercial and Industrial Equipment: Phase II, Final Report, prepared for the Texas Commission on Environmental Quality, August 31, 2005 [11] |

| Equipment Types | Region | Data Source |
|---|---|---|
| Terminal Tractors and Transportation Refrigeration Units | 9-county DFW nonattainment area | Eastern Research Group, Data Collection, Sampling and Emissions Inventory Preparation Plan for Selected Commercial and Industrial Equipment: Phase II, Final Report, prepared for the Texas Commission on Environmental Quality, August 31, 2005 [11] |
| Transportation Refrigeration Units | HGB nonattainment area | Eastern Research Group, Non-road Mobile Source Emissions Inventory Development for the Houston-Galveston-Brazoria Area, submitted to the Houston-Galveston Area Council, July 28, 2006 [10] |
| Commercial Lawn and Garden | Statewide | Eastern Research Group, Development of Commercial Lawn and Garden Emissions Estimates for the State of Texas and Selected Metropolitan Areas, prepared for Texas Commission on Environmental Quality, November 24, 2003 [12] |
| All remaining equipment – see equipment population list above | See equipment population list above | NONROAD defaults - User's Guide for the Final NONROAD2005 Model, EPA420-R-05-013, December 2005 [1] |

## Table 2-13. Activity Surrogates for Construction Equipment

| Sector | Estimation Method |
|---|---|
| Agricultural | Industry expert profiles |
| Boring and Drilling Equipment | Industry expert profiles |
| Brick and Stone Operations | Industry expert profiles |
| City and County Road Construction | Reed Construction profile |
| Commercial Construction | Square feet of installed building space from MHC |
| Concrete Operations | Industry expert profiles |
| County-Owned Construction Equipment | Survey findings from HARC study |
| Cranes | Industry expert profiles |
| Heavy Highway Construction | Survey findings from H-GAC study |
| Landfill Operations | Survey profile from the TCEQ study |
| Landscaping Activities | Industry expert profiles |
| Manufacturing Operations | Industry expert profiles |
| Municipal-Owned Construction Equipment | Survey findings from HARC study |
| Transportation Sales/Services | Industry expert profiles |
| Residential Construction | Single family housing construction profile |
| Rough Terrain Forklifts | Industry expert profiles |
| Scrap/Recycling Operations | Industry expert profiles |
| Skid Steer Loaders | Industry expert profiles |
| Special Trades Construction | Industry expert profiles |
| Trenchers | Industry expert profiles |
| TxDOT Construction Equipment | Engine clock hours provided by TxDOT |
| Utility Construction | Linear feet installed from Reed Construction Data |

## Table 2-14. Sources of Temporal Allocation Factors

| Equipment Types | Region | Data Source |
|---|---|---|
| Diesel Construction Equipment > 25 hp | 9-county DFW nonattainment area | Eastern Research Group, Ozone Science and Air Modeling Research Project H43T163: Diesel Construction Equipment Activity and Emissions Estimates for the Dallas/Ft. Worth Region, prepared for The Houston Advanced Research Center, August 31, 2005 [8] |
| Diesel Construction Equipment > 25 hp | Statewide excluding 9-county DFW area | Eastern Research Group, Non-road Ammonia Emissions Inventory Development, prepared for Texas Commission on Environmental Quality, November 24, 2006 [14] |
| LPG Forklifts | 9-county DFW and HGB nonattainment areas | Eastern Research Group, Data Collection, Sampling and Emissions Inventory Preparation Plan for Selected Commercial and Industrial Equipment: Phase II, Final Report, prepared for the Texas Commission on Environmental Quality, August 31, 2005 [11] |
| Recreational Marine | HGB nonattainment area | Development of 2007 Recreational Marine Emissions Inventory: Spatial and Temporal Allocation in the Houston-Galveston-Brazoria 8-County Area [29] |
| Agricultural Equipment | Statewide | Development of Emissions Inventory of Agricultural Equipment in All Texas Counties Phase Two [30] |
| All remaining equipment – see equipment population list above | See equipment population list above | NONROAD defaults - User's Guide for the Final NONROAD2005 Model, EPA420-R-05-013, December 2005 [1] |

Once identified, data was obtained for inclusion in the TexN data files. Most of the required data was available in electronic format at ERG.

### 2.2.4 Development of Population Files by Analysis Year

Upon review of the above data sets, the commercial, utility, and heavy-highway sectors for diesel construction equipment were found to have highly variable population surrogate values from one year to the next. The variability was most pronounced for certain rural counties where the amount of project work can change dramatically from year to year. Accordingly, the surrogates used as growth indicators for these sectors (dollar value of construction for commercial, linear feet of installation for utility, and lane-miles of construction for heavy-highway), can also vary dramatically from one year to the next in these locations.

In these instances equipment activity does not increase or decrease relatively smoothly from year to year, as assumed by the NONROAD model, reflecting regional economic patterns. In actuality, contractors increase the equipment population as needed to complete projects, subsequently removing them upon project completion. In counties containing large metropolitan areas, project-specific fluctuations are usually not noticeable, and changes in overall equipment population will likely follow economic factors for the most part, as assumed by NONROAD. However, in some rural counties project-specific fluctuations can be the dominant factor in determining overall activity levels. In these cases, the yearly change in activity does not follow a smooth, relatively small annual increase or decrease, but more closely resembles a step function up or down. Such step functions create discontinuities in the NONROAD growth algorithm, and can result in anomalously large equipment population estimates for these construction sectors.

For example, the data on lane-miles of construction clearly indicate that a relatively large highway project was performed in Blanco County in 2002-2003. If this data were used without adjustment in the NONROAD growth files, the model would assume a several-fold increase in the county's highway equipment population beginning in 2002. More importantly, the model would assume that this equipment remained operating in the county in subsequent years, even as growth factors drop back down dramatically in 2004 and beyond. This is because the growth factors only impact the assumed incremental equipment purchases in the county for that year. In order to properly account for a drastic reduction in equipment population after completion of a large project in these counties, the NONROAD model's scrap curve would have to be altered for each county and year, for each construction sector.

Therefore, in order to correct for these "project-induced" discontinuities, separate population files were developed for every possible Analysis Year, for each county and

equipment category. To this end, growth factors were applied to the base year equipment population files, forecasting population totals for each SCC through 2050, and back-casting estimates to 1970. In this way, TexN bypasses NONROAD's growth algorithm, effectively running base year equipment profiles for every scenario. (The default NONROAD growth file, nation.grw, is retained within TexN though, and is used to develop model year distributions for any given analysis year.)

### 2.2.5 Forecasting and Back-Casting Equipment Populations

A variety of growth indicators or surrogates may be used to forecast and back-cast non-road equipment population and activity estimates, depending upon the equipment type. The Emissions Inventory Improvement Program (EIIP) recommends several options, as shown in Table 2-15.

**Table 2-15. EIIP Non-road Growth Indicator Recommendations[11]**

| Engine Category | Growth Indicators | Information Sources[a] |
|---|---|---|
| Aircraft - Commercial | landings & takeoffs | local airport authorities, commercial carriers, FAA |
| Aircraft - General | landings & takeoffs | local airport authorities |
| Aircraft - Military | landings & takeoffs | local airport authorities, appropriate military agencies |
| Railroads | fuel consumption, revenue ton-miles (if revenue-ton-miles are used, changes in fuel and engine efficiency should be considered) | American Association of Railroads, local carriers. |
| Commercial Marine Vessels | cargo tonnage | local port authorities, U.S. Maritime Administration, U.S. Army Corps of Engineers |
| Recreational Marine Vessels | equipment population, general population | local MPO, NONROAD model |
| Recreational Vehicles | equipment population, general population | local MPO, NONROAD model |
| Construction Equipment | equipment population, construction GSP, earnings, employment | local MPO, NONROAD model |
| Industrial Equipment | equipment population, industrial GSP, earnings, employment | local MPO, NONROAD model |
| Lawn & Garden Equipment | equipment population, single-unit housing, general population | local MPO, NONROAD model |
| Farm Equipment | equipment population, agricultural land use, farm GSP, earnings, employment | local MPO, NONROAD model, Census of Agriculture |
| Light Commercial Equipment | equipment population, commercial GSP, earnings, employment, population | local MPO, NONROAD model |
| Logging Equipment | equipment population, logging industry GSP, earnings, employment | local MPO, NONROAD model |
| Airport Service Equipment | equipment population, LTOs, airport GSP, earnings, employment | local airport authority, commercial carriers, NONROAD model, FAA Emission Dispersion Modeling System (EDMS) |

[a]E-GAS and BEA are additional data sources for value-added, GSP, earnings, and employment data.

The previous version of the TexN model projected emissions from 1999 through 2013, utilizing the most appropriate available surrogates for each DCE subsector. This section documents the efforts ERG made to update the TexN model to accommodate emissions projections for the entire NONROAD model reporting period, from 1970-2050. Activity projections for TexN equipment categories with non-default values were developed from existing data, consistent with current projection methodologies to the extent possible.

The TexN model contains 24 distinct "sectors" with distinct equipment population and activity profiles. Twenty-three of these sectors involve diesel construction equipment (DCE)

[11] GSP = Gross State Product; LTO = Landing/Take-Off cycle.

profiles developed specifically for the TCEQ and the TexN model. A summary of the growth factor surrogates selected for each sector is presented in the Table 2-16

**Table 2-16. Growth Factor Surrogates**

| Equipment Sector | Growth Factor Surrogates |
|---|---|
| Non-DCE | Default NONROAD005 |
| Agricultural DCE | Texas Agricultural Census for land in farms, forecast and back-cast using total county acreage as a constraint to projections |
| Commercial Construction | Economy.com output projections for non-residential construction sectors |
| Heavy-Highway | TxDOT Annual Expenditures (1998 - 2006), forecast and back-cast using Economy.Com projections for highway construction sector |
| Residential | 1970 - 1979 based on state-level growth rates from Comptroller's Office; 1980 - 2006 from housing permits by county from Texas AM Real Estate Center; 2007 - 2009 from statewide Comptroller Fall Economic Forecast (2007 publication); 2010 - 2040 from Texas State Data Center Population Growth Estimates, 2041-2050 no growth assumed |
| Skid Steer Loaders | 1990 - 2004 from DFW area sales data; no growth assumed before 1990 (no significant market presence before this time); 2005+ from Economy.com projections for all construction sectors (SIC 1500s - 1700s) |
| Transportation/Sales/Services | Economy.com projections for corresponding SIC groups |
| Bore/Drill Rigs, Cranes, Rough Terrain Forklifts, Trenchers | Economy.com projections for all construction sectors (SIC 1500s - 1700s) |
| Special Trades Construction | Economy.com projections for SIC 1700 series |
| Manufacturing | Economy.com projections for corresponding SIC series |
| Brick and Stone | Economy.com projections for corresponding SIC series |
| Concrete Operations | Economy.com projections for corresponding SIC series |
| Landscaping | TX REMI data and regression between 1999 and 2013, forecast and back-cast based on census population growth rates |
| Municipal and County Fleets, City and County Roads, Landfills | Based on Texas State Data Center census population projections through 2040, linear interpolation to 2050 |
| Utility Contractors | Economy.com projections for corresponding SIC codes |
| TxDOT Equipment | No growth assumed, all years, based on TxDOT purchasing cycles |

The following discusses how these growth factor surrogates were identified, selected, and processed for each of the 24 non-road equipment sectors. The resulting county-level growth factors have been provided to the TCEQ in electronic form for the 2004 base year for each of the sectors developed for TexN.

***NONROAD Default Categories***

The NONROAD model contains default growth factors covering the entire period from 1970 through 2050. These default factors were kept intact in the TexN model for two equipment sectors – "Non-DCE" equipment and "Other DCE" equipment. Non-DCE equipment refers to all equipment categories other than diesel construction. These include industrial, commercial, recreational, and other equipment categories. Alternative growth factors have not been developed for the TCEQ under previous studies.

Other DCE equipment includes those equipment categories for which non-default profiles have not been developed under other studies. These equipment types are not used in earthwork activities, and were not included in previous sales data purchases. They include off-highway tractors, crushing and processing equipment, signal boards and light plants, concrete/industrial saws, cement and mortar mixers, plate compactors, dumpers/tenders, tampers/rammers, "other" construction equipment, as well as all DCE less than 25 hp. While the list is extensive, most of these categories are very low hp applications, and/or specialty pieces with low population numbers. As such, these equipment categories are responsible for a very small part of the DCE inventory (estimated to be 1 percent or less of NOx). Therefore default population, activity, and associated growth factors from NONROAD have been retained in the TexN model for these equipment.

***Agricultural DCE Applications***

DCE such as crawler tractors and loaders are used to a limited extent in agricultural applications. In the previous version of TexN, growth for agricultural other industry groups was based on historical and projected dollar outputs at the state level, from the Texas REMI model, for the period 1999 through 2013. Alternative growth surrogates for agricultural activity at the county level were developed from the reported amount of land in farms from the 2002 Texas Agricultural Census [15]. Given the volatile nature of crop yields and prices, it was deemed that the amount of land in production was a better surrogate for equipment activity than agriculture sector economic output. However, land in agricultural production was only available every five years, from 1987 through 2002, as shown in Table C-1 in Appendix C.

Linear regressions were performed using Microsoft Excel's Forecast function and above data to estimate land in farms at the county level for the entire modeling period. In the case of decreasing acreage, trend projections were capped at 0 acres. This was occasionally the case for highly urban counties. Increasing acreage trends were possible for highly rural counties, and projections were capped at the total available county size [17]. The forecast acreage values for each year were then divided by the 2004 value for each county to obtain county-level growth factors for a 2004 base year.

***Single Family Housing Construction***

In the previous version of TexN, growth for single family housing construction activity was based on statewide housing permit totals from 1999 through 2004, and projected through 2013 using linear regression. However, given the extreme downturn in the housing market over the last two years, alternative data sources were developed for this sector.

County-level housing permit data was determined to be the best source of data for this sector, available from the Texas A&M Real Estate Center for the years 1980 through 2006 [16]. This data set contained permit information for all but 23 of the 254 counties in the state, all of which were rural counties. Accordingly, ERG assumed zero single family housing developments for these counties for all years. Table C-2 in Appendix C presents the county-level housing permit data for this time period. The 23 rural counties without permit data are listed below.

| | | | | |
|---|---|---|---|---|
| Borden | Edwards | Jeff Davis | McMullen | Terrell |
| Briscoe | Glasscock | Jim Hogg | Mills | Throckmorton |
| Concho | Hartley | Kenedy | Roberts | Zapata |
| Crocket | Hudspeth | King | Sterling | |
| Duval | Irion | Loving | Stonewall | |

Data were missing from one or more years for 17 counties in the data set (again, all rural counties with very low housing construction activity). Gap filling for the missing years was performed by taking the county average for the years with actual data and is shown in green highlighting in Table C-2 in Appendix C.

Housing permits prior to 1980 were based on housing start totals for the southern region of the country obtained from the US Census Bureau, as shown in Table C-3 in Appendix C [17]. County level permit totals from 1980 were therefore back-cast to earlier years using annual ratios from these data.

Growth for the 2007 through 2009 period was based on state level forecasts for housing starts from the Texas Comptrollers Fall 2007 Forecast [18]. The housing start data for 2007, 2008, and 2009 from this source were 129,729; 108,056; and 129,393 respectively.[12]

Housing construction growth for 2010 and beyond was assumed to stabilize and follow long-term population projections. County level census projections were obtained from Texas State Data Center for the years 2010 through 2040 [19].[13] (The associated data file is quite large and is available from the TCEQ in electronic format.) 2009 housing permit estimates were projected forward using the annual county level population growth rates from this data set. Lacking other data sources, housing activity was assumed to equal 2040 estimates from 2041 through 2050.

Single family housing growth factors were developed for each county for the 2004 base year by dividing permit estimates for each year by the associated 2004 total.

***Heavy-Highway Activity***

The previous version of TexN used a combination of county level highway construction and maintenance budgets from the Texas Comptroller's Office and projected contract dollar values from McGraw Hill Construction to estimate the growth in highway construction activity. In order to expand the growth estimates for this sector to cover the target period, ERG first obtained an updated list of annual highway expenditures from the Texas Comptroller's Office, for the period 1998 through 2006 [20]. Expenditures were normalized to 1998 dollars using the Consumer Price Index (CPI) obtained from the Bureau of Labor Statistics, and are presented below in Table C-4 in Appendix C [21].

Attempts to extrapolate the Comptroller data using linear regression resulted in highly erratic, negative trends in key urban areas. Therefore highway construction activity prior to 1998 and after 2006 was obtained from the TCEQ staff who used the Economy.com database to derive the necessary factors for reporting activity [22]. Growth factors were derived at the county level for the 1978 – 2037 period using economic output (in real dollars) for NAICS code 2373, Highway Street and Bridge Construction.[14] Activity levels outside this period were assumed

[12] It was determined that Economy.com, a potential alternative source of surrogate data, showed essentially no downturn for this sector during the 2006 – 2008 time period. Therefore the Comptroller data was deemed more appropriate for this sector.
[13] Growth Scenario 0.5 was used based on Demographer recommendations from the web site.
[14] Data from the Economy.com database are considered confidential and are not presented here. All manipulation and processing of the Economy.com data were performed by authorized TCEQ personnel.

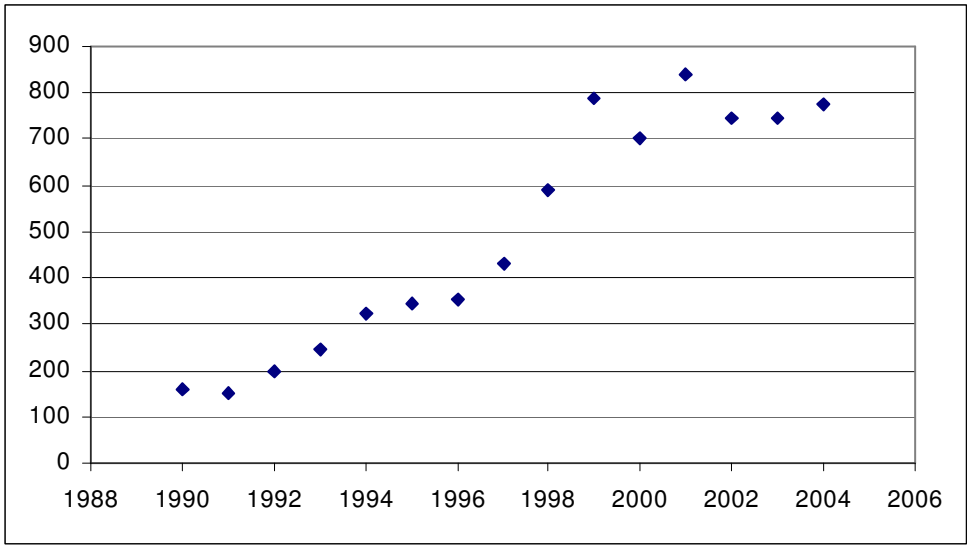
constant. Growth factors for the entire modeling period were then calculated as with the other sectors for the 2004 base year.

After development of these factors, it was brought to ERG's attention that highway construction and maintenance budgets have been significantly influenced by rapidly rising materials costs over the past few years [23]. Accordingly, using total budget dollars without adjusting for material cost increases will substantially overestimate highway activity growth in recent years. ERG provided an adjustment to the current growth factors for this sector to account for material cost inflation, using the TxDOT Highway Cost Index Report for May 2008.

***Skid Steer Loaders***

In the previous version of the TexN model, growth for skid steer loaders (and all other specialty equipment) was based on historical and projected dollar outputs at the state level, from the TX REMI model. However, a review of skid steer loader sales in the Dallas/Fort Worth area indicate that these equipment underwent a dramatic increase in popularity through the 1990s, with the increase in new sales leveling off only around 2002, as shown in Figure 2-1 [24].

**Figure 2-1. Annual Skid Steer Loader Sales, 9-County DFW Area (1990-2004)**




Source: Equipment Data Associates [24]

ERG used the above sales data as a surrogate for skid steer loader activity for the state as a whole for the 1990 – 2004 time period. Given the unique surge in popularity of these equipment, this surrogate was deemed preferable to other options such as economic output in associated industries during this time. Since skid steer loaders were uncommon before this time, ERG assumed earlier activity was equal to 1990 levels. Activity after 2004 was assumed to

follow gross output for all construction sectors. This data was obtained at the county level through 2037 by the TCEQ using the Economy.com database. County level output projections for each year through 2037 were summed across the NAICS industry codes shown in Table 2-17 (representing common users of this equipment type):

**Table 2-17. Construction Sector NAICS Codes**

| Sector | NAICS |
|---|---|
| Highway Construction | 2373 |
| Residential Building Construction | 2361 |
| Non-residential Building Construction | 2362 |
| Special Trades Contractors | 238B |
| Utility System Construction | 2371 |

Skid steer loader activity beyond 2037 was assumed to equal 2037 levels. Growth factors relative to the 2004 base year were calculated based on these data as described for other sectors above.

***Other Specialty Equipment – Bore/Drill Rigs, Cranes, Rough Terrain Forklifts, and Trenchers***

In the previous version of the TexN model, growth for other specialty equipment was based on historical and projected dollar outputs at the state level, from the TX REMI model. Unlike the skid steer loaders, the sales data available for the 9-county DFW area for these equipment types did not show a definitive trend. Therefore it was decided to use gross economic output for all construction sectors (as shown Table C-5 in Appendix C), for all available years in the Economy.com database (1978 – 2037). The TCEQ staff obtained and processed the associated data for these NAICS codes for all Texas counties during this period, which was then converted to growth factors with a 2004 base year. No growth was assumed prior to 1978 or after 2037.

***Municipal and County Fleets, City/County Road Construction, and Landfills***

County level census population projections were used in the previous version of TexN to forecast and back-cast DCE activity for these sectors for the 1999 – 2013 period. ERG concluded census population continues to be the best available surrogate for these sectors. ERG used the county-level census population estimates from the Texas State Data Center to develop growth factors for the period of interest [19]. Historical population was provided for decade years from 1970 – 2000, as shown in Appendix C. Population estimates for non-decade years were estimated using linear interpolation.

Census population estimates for 2000 through 2040 were based on the State Data Center's 0.5 Scenario, and have been provided to the TCEQ in electronic format. Populations for 2041 through 2050 were estimated by ERG by interpolation from 2039 and 2040 values.

***Other Construction Applications***

The previous version of TexN used project dollar values from different sources, such as the TX REMI model and McGraw-Hill Construction to forecast and back-cast equipment activity for a number of different DCE sectors, for the 1999 through 2013 period. For this effort gross economic output data from Economy.com was identified as the best, most consistent growth surrogate for these sectors, considering the broad range of projection years (1978 – 2037), and the geographic specificity (county level estimates). Table 2-18 lists the DCE sectors and associated NAICS codes for which Economy.com data was used.

**Table 2-18. DCE Sectors Utilizing Economy.com Growth Surrogates**

| Sector | NAICS |
|---|---|
| Commercial Building Construction | 2362 |
| Utility System Construction | 2371 |
| Special Trades Contractors | 238X |
| Manufacturing | 31XX – 33XX* |
| Cement and Concrete Product Manufacturing | 3273 |
| Clay Product and Refractory Manufacturing | 3271 |
| Transportation/Sales/Services | 42XX (wholesale), 44XX – 45XX (retail), 48 XX – 49XX (transportation and warehousing), 81XX (other services) |

* Less cement, concrete, and clay product manufacturing

The TCEQ staff obtained and processed the county level gross output data from Economy.com for the above NAICS codes, and provided the associated growth factors for the 2004 base year.

***Landscaping Services / Scrap and Recycling Facilities***

The previous TexN model used gross output for these sectors obtained from the TX REMI model for the 1999 through 2013 period. Landscaping services correspond to NAICS code 56173, and scrap-related activities to NAICS code 562920. Unlike the Other Construction Applications listed above, it was not possible to extend the growth surrogates for these sectors beyond this time period using the Economy.com data, since queries of the database could only be performed for 4-digit NAICS codes (or higher levels of aggregation). For this reason ERG used the TX REMI model outputs for the 1999 through 2013 period, extended by linear regression using Microsoft Excel's Forecast function for the scrap/recycling sector. Linear regression

resulted in unreasonable historical activity projections for the landscaping sector however (e.g., negative activity for certain counties in the 1970s and 1980s). Therefore census population was used for the remaining years for this sector, to develop growth factors for these sectors.

Tables C-6 and C-7 in Appendix C provide the TX REMI model outputs (in 1996 dollars) for the landscaping and scrap/recycling sectors, respectively.

***TxDOT Equipment***

TxDOT maintains a constant inventory of their non-road equipment fleet. As such, no growth (i.e., a constant equipment population) is assumed across all years for this DCE sector.

Once growth factors were obtained for all the equipment sectors, ERG applied these factors to the base year equipment populations for each sector/county combination in the TexN model. This calculation provided forecast and back-cast equipment population totals for every calendar year, from 1970 through 2050. The TexN model was then modified to store the population data for every possible analysis year, bypassing the need to modify growth factors in the future. The revised model will look up the correct population based on the analysis year directly input by the user, thereby avoiding recurring problems with SCCs that experience rapid fluctuations in their population levels.[15]

## 2.3 Data Processing

Given the large number of model years, hp bins, and SCCs included in the NONROAD output files, emissions estimation necessarily includes a large amount of data processing and post-processing. Therefore a set of data management tools have been developed including the GUI, a database for data table storage and retrieval, and a modified Access Reporting Utility. The following clearly documents the steps used to aggregate and combine the emission and activity data for each equipment category and fuel type within TexN.

### 2.3.1 TexN Data Management Tools and Processes

The TexN GUI was designed to incorporate more user-friendly features than the NONROAD model, accommodating the need for a finer level of emissions processing, and allowing for more detailed documentation of each run. The GUI interacts with a MySQL database, which enhances the user's ability to manage data, group runs, and document scenarios. The database was populated with all of the population and related activity data described above.

[15] The NONROAD model's scrappage algorithm is not capable of accurately modeling equipment populations with highly negative growth from year to year. This situation is common with certain types of transient activities, such as heavy-highway projects and boring/drilling activities.

The database is also used to automatically apply post-processing adjustments as appropriate, and create output files that can be imported into the modified Reporting Utility. A brief overview of the data management and emissions calculation process is discussed below.

The TexN GUI allows the user to group a large number of NONROAD input files and save them to the MySQL database as a single "scenario". For example, the modified GUI builds a NONROAD OPT file for each county the user selects. Should the user choose to estimate emissions for DCE, an OPT file is built for each county-DCE sector combination. By performing a separate NONROAD model run for each county and DCE sector combination it is possible to apply activity and post-processing adjustments at the county and DCE sector level to emissions estimates. However, this approach has substantial implications for the number of OPT files required to estimate emissions, as is discussed in the next section. The GUI, however, greatly facilitates building the numerous OPT files required for regional and statewide modeling tasks.

The GUI interacts with the MySQL database to dynamically generate an OPT file for each run required by a scenario. For example, by specifying a particular county, analysis year, and season, an OPT file can be constructed containing county specific fuel and temperature data (which are stored in the database). Similarly, data are pulled from the database to generate county and sector specific population and activity files as well. In this way the GUI populates the OPT and supporting files with the region-specific data necessary for the NONROAD model to execute. Once the OPT and related files are generated, the interface executes the NONROAD model for each OPT file contained within the scenario. Once the NONROAD model is launched, the interface tracks the progress of the current run and launches the next run sequentially. The GUI also checks for error messages generated by the NONROAD model. If a "warning" is reported, it is recorded in the message file, but does not affect processing. However, if an "error" is reported, the entire scenario is stopped and the user is presented with information on the error that occurred. All output files created by the NONROAD model are retained regardless of any warning or error messages generated.

Executing NONROAD to account for county- and SCC-specific data and post-processing adjustments can require a multitude of runs. Each county requires its own OPT file. In addition, DCE requires emission calculations at a sector level. There are 24 DCE sectors, each corresponding to a unique equipment activity profile. (As noted above, DCE sectors include commercial building construction, utility project work, and residential construction, among others.) Each county-DCE sector combination also requires its own OPT file. Furthermore, in order to appropriately apply temperature, humidity, and fuel property adjustments, seasonal

emissions must be calculated separately and summed together to estimate annual emissions. A summary of the number of the OPT files necessary for each model run within a scenario is presented in Table 2-19.

**Table 2-19. Required Number of NONROAD OPT Files and Model Runs for Selected Modeling Scenarios**

| User Selections | | | Number of Runs* | How the Number of Runs are Calculated |
|---|---|---|---|---|
| **Period** | **Region** | **Equipment** | | |
| OSD^ or One Season | One County | Non-Diesel Construction Equipment (Non-DCE) | 1 | One for the selected county [1 segment * 1 county] |
| Annual | One County | Non-DCE | 4 | One for each County and Season [1 segment * 1 county * 4 seasons] |
| OSD^ or One Season | Three Counties | Non-DCE | 3 | One for each selected county [1 segment * 3 counties] |
| OSD^ or One Season | One County | DCE | 24 | One for each of the 24 DCE sectors for the selected county [24 segments * 1 county] |
| Annual | One County | DCE | 96 | One for each of the 4 seasons and each of the 24 DCE sectors for the selected county [24 segments * 1 county * 4 seasons] |
| OSD^ or One Season | Three Counties | DCE | 72 | One for each of the 24 DCE sectors for each of the selected counties [24 segments * 3 counties] |
| Annual | Statewide | All | 25,400 | One for each of the DCE sectors and one for Non-DCE equipment for each county for each season [(24 + 1) SCC segments * 254 counties * 4 seasons] |

*Each run requires one option file and each of the associated input files (e.g., population, activity, etc.)
^Ozone season day

Once all of the runs for a scenario have executed successfully, the interface calls the post-processing driver. The post-processing driver imports all of the NONROAD output files into the MySQL database. The database then post-processes of all of the data, applying adjustment factors to the emissions estimates in the output file to generate the final criteria pollutant and ammonia emissions values. Post-processing applies county specific altitude, ground cover, and soil adjustments to emissions estimates for the appropriate SCCs. County and year specific temperature and humidity adjustments are also applied, along with adjustments to account for TxLED impacts in the appropriate counties, for diesel-fueled equipment. Once the post-processing adjustments are made, the database performs county-level aggregation of data by SCC and hp bin, summing population, activity, fuel-consumption, and emissions fields. Once completed, the database creates a single output file.

This output file is then ready to be imported into the modified Reporting Utility. The TexN Reporting Utility has all of the basic functionality of the NONROAD Reporting Utility, but has been modified to accommodate ammonia emissions estimates. In addition, the TexN Reporting Utility allows the user to generate more reports than the NONROAD version, including emission totals by county and SCC, as well as totals by hp bin and SCC.

### 2.3.2 Post-Processing Adjustments

Once all of the data edits have been completed and saved by the user, TexN will create the necessary Option and supporting data files for NONROAD, and batch the runs needed to model the prescribed scenario. Once the runs for a scenario have executed successfully, the GUI automatically calls the post-processing driver. The post-processing driver imports all of the NONROAD output files, generated at the by model year level of detail, into the MySQL database. The database then post-processes all of the data, applying adjustment factors to the emissions estimates in the output files to generate the final criteria pollutant and ammonia emissions values. Post-processing applies county-specific adjustments to emissions estimates for the appropriate SCCs. Depending upon the SCC and county, the following adjustments may be applied within the database:

- County and year specific temperature and humidity adjustments for NOx emissions;
- Adjustments for Texas Low Emission Diesel (TxLED) impacts;
- Altitude, correcting for decreased engine efficiency at increasing elevation;
- Soil compaction, reflecting relative ease or difficulty digging; and,
- Ground cover, reflecting relative ease or difficulty in land-clearing activity;

Once post-processing adjustments are made to the NONROAD output files, the database performs county-level aggregation of the data by SCC and hp range, summing population, activity, fuel-consumption, and emissions fields. Once completed, the database creates a single output file. The output file contained in the database is then ready to be imported into the Reporting Utility. The TexN Reporting Utility has all of the basic functionality of the original NONROAD utility, but has been modified to accommodate ammonia emissions estimates.

***Altitude Adjustments***

Altitude adjustments are applied to all pollutants, as well as equipment activity estimates (in hours per year), for all diesel powered equipment. In general, diesel engines are assumed to suffer a 1 percent penalty in power output, and therefore productivity, per 1,000 feet in altitude. In other words, an activity requiring 100 hours at sea level would require 101 hours at 1,000 feet

in elevation. Representative altitudes for each county were determined from GIS data containing altitude for each county seat [8]. For example, Anderson County has an altitude of 470 feet, and a corresponding adjustment factor of 0.47 percent, so all diesel equipment pollutant estimates for this county are multiplied by 1.0047 to reflect the altitude-induced increase in diesel equipment activity.

Given that the vast majority of the state is at relatively low altitude, TexN emission estimates are generally not sensitive to county altitude.

***Soil and Ground Cover Adjustments***

Substantial variations in construction equipment productivity, and therefore activity, can arise depending on soil and ground cover conditions in a given county. In a previous study, industry experts were consulted to develop activity adjustment factors to be applied to the DCE activity profiles, accounting for county specific conditions [8]. Adjustments for standard soil and ground cover conditions were based on field experience and engineering judgment, and are summarized in Table 2-20. (Note these factors are only applied to DCE earthwork categories within TexN.)

**Table 2-20. Site Condition Activity Adjustments**

| Ground Cover | Adjustment Factor (1.0=base conditions) |
|---|---|
| Wooded lot (dense/moderate) | 1.5 |
| Small trees, shrubs, and weed | 1.3 |
| Weed and Grass | 1.0 |
| Other | Varies |
| **Soil Type** | **Adjustment Factor** |
| Good common earth (loam) | 1.0 |
| Sand/Gravel | 1.0 |
| Easy digging (moist silt/clay) | 1.0 |
| Hard digging (dry clay) | 1.1 |
| Fragmented Rock | 1.2 |
| Intact Rock | 1.7 |
| Other | Varies |

The above factors represent the increase in the time required to complete a certain task, relative to base case conditions, (equivalent to an increase in work time, since engine load factors are assumed constant under all conditions). Ground cover adjustments are applicable to the Commercial and Residential DCE profiles, but only for equipment involved in land clearing activities (assumed to be crawler dozers). U.S. Geological Survey (USGS) data were used for determining ground cover characteristics [8, 26]. The ground cover categories provided in the

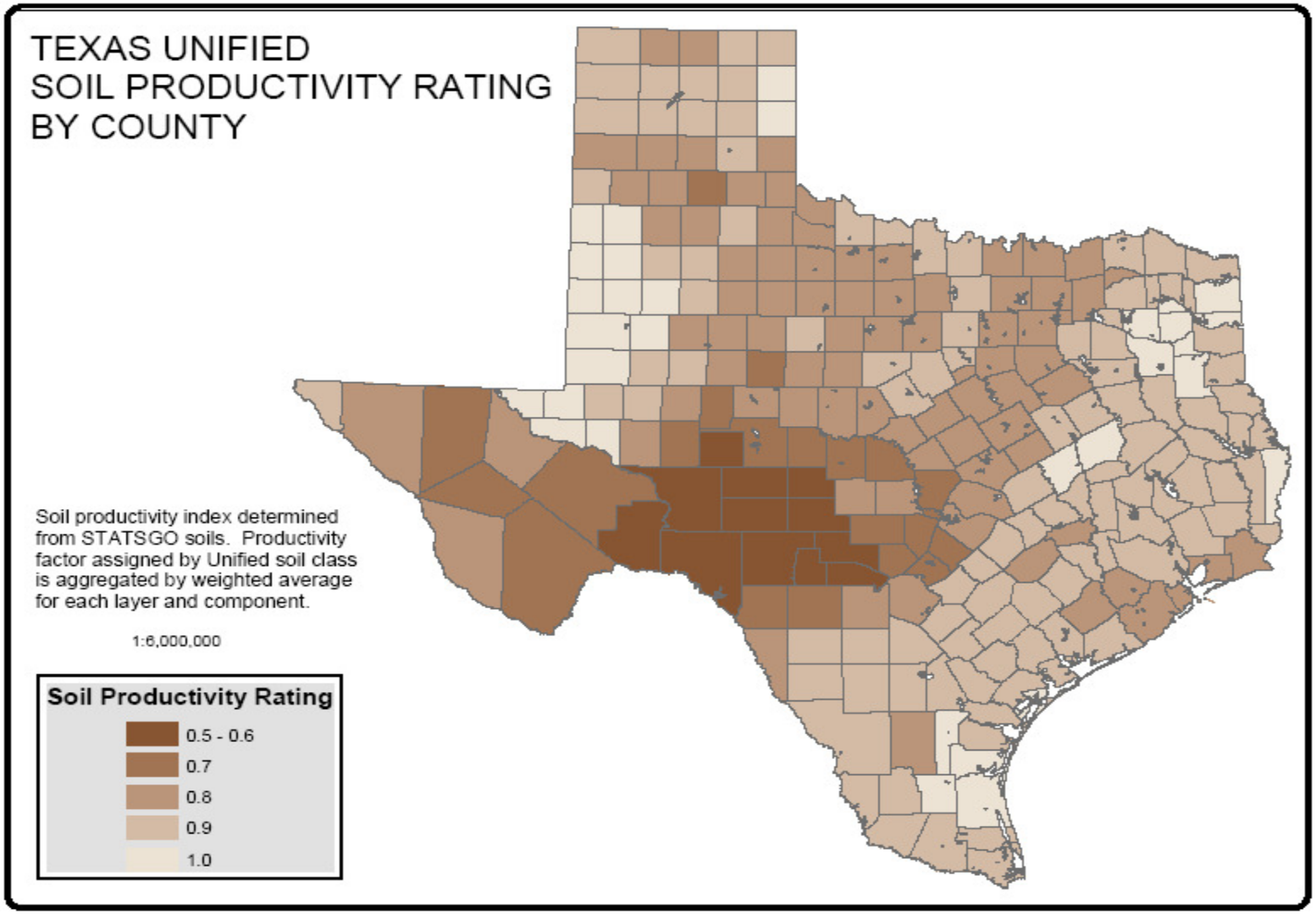
USGS data for Texas were mapped to one of the four standard classifications shown in Table 2-20.

Average values for ground cover characteristics were developed for each county, weighted by relative area. Areas designated as having water or impermeable/existing structures were excluded, and the relative areal extent of the remaining categories was renormalized. Weighted average adjustment factors specific to each county are then applied to the base case DCE profiles within TexN to account for area-specific conditions.

Soil type adjustments for productivity are applicable to equipment involved in earthwork operations as well as boring/drilling tasks. For example, excavation work in areas with fragmented rock will require an additional 20 percent increase in hp-hours compared to "easy digging" soil conditions. In order to characterize soil conditions across the State, the Soil Survey Geographic Database (SSURGO) was obtained from the U.S. Natural Resource Conservation Service [25]. Three soil layers were extracted from this database, including the surface layer, the layer found at 90 cm, and the layer found at 150 cm, near or at the maximum depth of the data set, to provide a cross-section for analysis. The classifications of these layers were then correlated with the standard soil classifications shown in Table 2-20.

Both the spatial extent and depth of each layer were used to develop weights for the DCE adjustments. The productivity adjustment for each layer was weighted by the relative thickness of the layers, and summed to provide a weighted average adjustment for the soil as a whole. The inverse of the resulting county-level soil adjustment factors is shown in Figure 2-2. The resulting countywide activity adjustment factors are applied to the Commercial, Residential and Utility sector DCE profiles, as well as the Trencher and Boring/Drilling profiles.

**Figure 2-2. County Level Weighted Average Soil Adjustment Factors**



The DCE equipment profiles were evaluated to establish what portion of equipment activity should be subject to the soil productivity adjustments. The fraction of time each equipment type spends performing earthwork is summarized in Table 2-21.

**Table 2-21. Earthwork Weighting Factors for Soil Adjustments**

| DCE Sector | Equipment Type | Earthwork Fraction (Percent of time, weighted by hp-hrs) |
|---|---|---|
| All | Trencher | 100% |
| All | Boring/Drilling | 100% |
| Commercial | Excavator | 100% |
| | Backhoe | 100% |
| | Grader | 49% |
| | Crawler Dozer | 40% |
| Utility | Excavator | 100% |
| Residential | Excavator | 100% |
| | Crawler Dozer | 41% |

Soil adjustments specific to each county and DCE sector were calculated as follows:

| | |
|---|---|
| **SCCs:** | 2270002030, 2270002033, 2270002036, 2270002048, 2270002066, 2270002069 |
| **DCE Subsectors:** | Commercial, Utility, Boring and Drilling, Residential, Trenchers |
| **Application:** | Varies by sector and SCC –<br>Commercial (2270002036, 2270002066) = Pollutant / Adj. Factor<br>Commercial (2270002048) = Pollutant * (0.51 + 0.49/ Adj. Factor)<br>Commercial (2270002069) = Pollutant * (0.60 + 0.40/ Adj. Factor)<br>Residential (2270002036) = Pollutant / Adj. Factor<br>Residential (2270002069) = Pollutant * (0.59 + 0.41 / Adj. Factor)<br>Utility (2270002036) = Pollutant / Adj. Factor<br>Boring and Drilling (2270002033) = Pollutant / Adj. Factor<br>Trenchers (2270002030) = Pollutant / Adj. Factor |

The weighting factors applied to the different SCCs above reflect the percent of hp-hrs a specific equipment type is involved in earthwork activities, as shown in Table 2-21 above.

As seen in Figure 2-2, although the largest soil adjustments occur in West Texas near the Edwards Plateau, substantial adjustments (> 10 percent) are applied in all nonattainment regions across the state. However, as shown above these adjustments are only applied to a small number of SCCs in a few DCE sectors. Therefore, while the activity adjustments can be substantial for any particular county/SCC/DCE sector combination, the overall impact on emissions is relatively small.

Ground cover adjustments were only applied to crawler tractors operating in the Commercial and Residential DCE sectors. In this case each pollutant is multiplied by (0.955 + 0.045 x county specific ground cover adjustment). While the ground cover adjustments can be substantial for crawler tractors operating in heavily wooded areas such as East Texas, the adjustment is only this one equipment type operating within two of the DCE sectors. Accordingly, overall emissions are not particularly sensitive to these cover adjustments.

***Temperature and Humidity NOx Adjustments for Diesel Engines***

The TCEQ identified additional temperature and humidity correction factors for adjustment of NOx emissions from diesel engines [14]. The NOx adjustment equations developed in this study are a function of temperature, humidity, and atmospheric pressure. Using the climate data, temperature and humidity adjustment factors were calculated for diesel equipment operating in each county in the State, for each season and meteorological year. The application of these adjustment factors is summarized below.

1) Adjustments are applied to all diesel engines (SCC = 227XXXXXXX)
2) Adjustments are only applied to NOx emissions
3) Adjustments also depend upon technology type distributions, as determined by Analysis Year
4) Inputs to the adjustment equations include the following:

   - County Average Temperature (T – season and meteorological year-specific, from Climate Data – in degrees Fahrenheit)
   - County Relative Humidity (RH – season and meteorological year-specific, from Climate Data – in percent)
   - County Atmospheric Pressure (P – in millibars, or mb)[16]

5) Adjustments use absolute humidity (H), which is calculated as follows:

$$H = [RH \times 38.017 \times ea] / [P - 6.112 \times ea]$$
$$\text{where } a = [9.8245 \times (T - 32)] / [0.556 \times (T - 32) + 243.5]$$

6) There are two adjustment equations – one equation is used for naturally-aspirated engines, another for turbocharged engines.

   Naturally-Aspirated Engine Adjustment:
   $$1 + 0.001368 \times (0.556 \times (T - 32) - 29.444) - 0.01512 \times (H - 10.71)$$

   Turbo-charged Engine Adjustment:

[16] Average station pressure was found to vary by insignificant amounts over time. For the purposes of this calculation, annual average pressure for each station was calculated for the 2000 meteorological year.

$$1 + 0.00446 \times (0.556 \times (T - 32) - 25) - 0.018708 \times (H - 10.71)$$

7) The fraction of naturally-aspirated and turbocharged engines depends upon engine model year and hp bin. Relative fractions were estimated based on the number of engine entries in the EPA's certification database. Data were available electronically from the EPA for model years 1998 through 2006.[17] The weighting factors applied to the two different adjustment equations correspond to the relative fraction of naturally-aspirated to turbocharged engines for a given model year, summarized in Table 2-22 below:

**Table 2-22. Ratio of Turbo to Naturally-Aspirated Models for Diesel Engines by hp and Model Year**

| | Model Year | | | | | | |
|---|---|---|---|---|---|---|---|
| **hp Range** | **1999 (and older)** | **2000** | **2001** | **2002** | **2003** | **2004** | **2005+** |
| < 25 | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 25 – 50 | 10% | 14% | 15% | 17% | 15% | 14% | 18% |
| 50 - 100 | 28% | 28% | 28% | 28% | 47% | 55% | 55% |
| 100 – 175 | 63% | 84% | 84% | 84% | 98% | 98% | 98% |
| 175+ | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

8) Given this information, TexN first calculates the naturally-aspirated and turbocharged factors for each county and season, then weights and sums the factors using the relative fractions given above for each hp bin and model year, and applies the final weighted factors to the NOx emissions value by the appropriate hp bin and model year in the by model year exhaust file (BMX file).[18]

The above adjustments can result in substantial changes to diesel NOx emission estimates. For example, for a 2005 Analysis Year, from a baseline of 80 degrees F and 50 percent relative humidity, a 10 percent increase in humidity results in a 4 percent reduction in NOx emissions. However, although increasing temperature and decreasing relative humidity will tend to increase NOx emissions from diesel engines, this effect is offset by NONROAD's downward adjustment of NOx emissions from gasoline 4-stroke engines.

[17] Data from the EPA's certification records are not sales-weighted, and therefore may not represent the actual in-use distribution of naturally-aspirated and turbocharged engines. However, sales data is considered proprietary by manufacturers, and was not available for this analysis.

[18] The fraction of naturally-aspirated and turbocharged engines depends upon engine model year and hp bin, so adjustments must be applied to NONROAD's by model year exhaust (BMX) output file. This file provides emission estimates for each SCC and hp bin combination, as well as by model year and engine technology type. Since there are no NOx emissions in the by model year evaporative emissions (BMV) file, no adjustments applied there.

### *Adjustments for Emission Controls*

Various control programs have been implemented to reduce emissions from non-road engines. Federal controls, such as the introduction of new emission standards, are accounted for by the NONROAD model. While evaporative refueling (Stage II) VOC emission controls can be modeled by NONROAD, these emissions are categorized as area sources by the TCEQ. For this reason any Stage II emission control benefits associated with non-road engine refueling are excluded from TexN to avoid double counting.

The introduction of TxLED in certain Texas counties is not accounted for by the NONROAD model, and is addressed during TexN post-processing. Specifically, NOx emissions from diesel engines were reduced by 6.2 percent beginning in February of the 2006 calendar year, for the 110 counties affected by the TxLED program. TxLED was implemented January 31, 2006. TexN has refined the dates for application of TxLED credits to emissions estimates beginning in February 2006 and beyond, as described below.

1) The TxLED "flag" is now activated for 2006 and later analysis years, for the 110 counties.
2) Annual modeling scenarios for 2007 and beyond receive the full credit of 6.2 percent NOx reduction applied to all diesel emissions in TxLED counties.
3) If an annual modeling scenario is selected for the 2006 calendar year, the full 6.2 percent diesel NOx reduction is applied to the spring, summer, and fall season calculations.
4) Winter season diesel NOx emissions for 2006 are reduced by 4.1 percent, assuming adjustments for 2 of the 3 winter months (Jan, Feb, Dec of 2006).
5) Ozone-season daily scenarios for the 2006 calendar year receive the full 6.2 percent diesel NOx reduction adjustment.

Other rules and regulations that effect non-road engines include multiple Memoranda of Understanding and other agreements with specific fleets in different nonattainment areas, such as airport ground support equipment (GSE) and Port activities. Texas Emission Reduction Program (TERP) projects also fall under this category. However, these fleet-level control initiatives have to be modeled using fleet-specific equipment and activity profiles. Similarly, emissions from unusual construction projects that have been profiled on an individual basis previously (such as the construction of three large liquid natural gas depots on the Gulf Coast), must also be modeled on a fleet-specific basis to account for their inventory impacts. As such the effects of these programs and initiatives are not reflected in TexN outputs.

### 2.3.3 Calculation of Ammonia Emissions

The NONROAD model does not provide estimates for ammonia emissions. In order to provide ammonia estimates using TexN, a list of available ammonia emission factors for the different non-road mobile engine fuel types, including diesel, gasoline, and gaseous fuels (propane and natural gas), were identified and documented [14]. A literature review was performed, and contacts were made with air quality researchers from the EPA's Office of Transportation and Air Quality (OTAQ), the California Air Resources Board (ARB) and others to identify available data sources. A detailed web search was also conducted to identify additional sources of emissions test data and analysis. Available data were evaluated for applicability to non-road engine applications, and emission factors were processed and adjusted to account for the impact of future engine technology impacts to the extent possible. Emission factors in TexN are expressed in terms of grams per hp-hour of engine use, and/or grams per gallon of fuel consumption.

Only a limited amount of information was identified regarding ammonia emissions from non-road engines. An attempt was made to identify the most representative data, considering fuel and engine types, as well as the influence of future emission standards on control technologies. The ammonia emission factors identified can be combined with activity data outputs from NONROAD to estimate mass emissions for each SCC and county in Texas. Ammonia is estimated within TexN in tons for all SCCs.

There are four ammonia emission factors in TexN: one for diesel engines, one for spark ignition engines (gasoline and gaseous fuel) without three-way catalysts (TWCs), one for gasoline engines with TWCs, and one for natural gas/LPG engines with TWCs. The emission factors and corresponding technology types are presented in Table 2-23.

**Table 2-23. Engine and Technology Types with Associated Ammonia Emission Factors**

| Engine Type | SCC | Technology Type(s) | Ammonia Emission Factor |
|---|---|---|---|
| Diesel | 2270XXXXXX | All Tech Types | 0.00162 g/hp-hr |
| Gasoline with 3-way catalysts | 2260XXXXXX<br>2265XXXXXX | G2H3C2<br>G2H4C2<br>G2H5C2<br>G4GT251<br>G4GT252<br>G4N1O3<br>G4N1S3<br>G4N23a<br>MSC1 | 0.069 g/hp-hr |
| NG/LPG with 3-way catalysts | 2267XXXXXX<br>2268XXXXXX | LGT251<br>LGT252<br>NGT251<br>NGT252 | 0.103 g/hp-hr |
| SI engines without 3-way catalysts | 2260XXXXXX<br>2265XXXXXX<br>2267XXXXXX<br>2268XXXXXX | All other Tech Types | 0.15 g/gal |

Note that all emission factors are in g/hp-hr except for spark ignition engines without TWCs, which is in g/gal. Emissions for SCC/technology type combinations with emission factors in g/hp-hr are calculated in TexN by multiplying the factor by the average hp value, the load factor, and the activity value in the BMX file. Results are then converted from grams to tons for output. For those SCC/Technology Type combinations expressed in g/gal, emissions are calculated by multiplying the emission factor by the fuel consumption value in the BMX file, then multiplying by 1.1023e-6 to convert from grams to tons. (Note: Ammonia is an exhaust emission, so the evaporative emissions file is not needed for this calculation.)

In the EPA's latest version of the NONROAD model, NONROAD2008, technology type names were revised and expanded for certain equipment types to provide more specificity, especially for recreational engines (snowmobiles, ATVs, and offroad motorcycles) and diesel recreational marine engines. New technology types were added for recreational marine engines and small SI engines for the levels of control required by the new rules. New technology type sales fractions were updated or corrected for Phase 2 engines and technology types for snowblowers were corrected to include 4-stroke engines.

Changes in technology types have a direct impact on ammonia emissions estimates since the appropriate emission factors are chosen based on a combination of fuel and technology type. Documentation about specific changes to technology types have not been released by the EPA.

Therefore, ERG contacted the EPA to help identify which technology types use three-way catalysts, as this is the determining factor in choosing the correct ammonia emission factor. Table 2-24 details the outcome of these conversations with the EPA.[19]

**Table 2-24. Technology Types with 3-Way Catalysts**

| Tech Type | Description | 3-Way Catalyst? (Response from the EPA) |
|---|---|---|
| G2H3 | Gasoline 2-stroke handheld Class 3 | |
| G2H3 1 | Gasoline 2-stroke handheld Class 3 meeting Phase 1 Standards | |
| G2H3C1 | Gasoline 2-stroke handheld Class 3 meeting Phase 1 Standards with a catalyst | |
| G2H32 | Gasoline 2-stroke handheld Class 3 meeting Phase 2 Standards | |
| G2H3C2 | Gasoline 2-stroke handheld Class 3 meeting Phase 2 Standards with a catalyst | Because small engines are not very sophisticated, the catalysts are not the typical 3-way catalysts. |
| G2H4 | Gasoline 2-stroke handheld Class 4 | |
| G2H41 | Gasoline 2-stroke handheld Class 4 meeting Phase 1 Standards | |
| G2H4C1 | Gasoline 2-stroke handheld Class 4 meeting Phase 1 Standards with a catalyst | |
| G4H41 | Gasoline 4-stroke handheld Class 4 meeting Phase 1 Standards | |
| G2H42 | Gasoline 2-stroke handheld Class 4 meeting Phase 2 Standards | |
| G2H4C2 | Gasoline 2-stroke handheld Class 4 meeting Phase 2 Standards with a catalyst | Because small engines are not very sophisticated, the catalysts are not the typical 3-way catalysts. |
| G4H42 | Gasoline 4-stroke handheld Class 4 meeting Phase 2 Standards | |
| G2H5 | Gasoline 2-stroke handheld Class 5 | |
| G2H5 1 | Gasoline 2-stroke handheld Class 5 meeting Phase 1 Standards | |
| G2H5C1 | Gasoline 2-stroke handheld Class 5 meeting Phase 1 Standards with a catalyst | |
| G2H52 | Gasoline 2-stroke handheld Class 5 meeting Phase 2 Standards | |

[19] Personal communications with Philip Carlson with the EPA.

| Tech Type | Description | 3-Way Catalyst? (Response from the EPA) |
|---|---|---|
| G2H5C2 | Gasoline 2-stroke handheld Class 5 meeting Phase 2 Standards with a catalyst | Because small engines are not very sophisticated, the catalysts are not the typical 3-way catalysts. |
| G2N1 | Gasoline 2-stroke nonhandheld Class 1 | |
| G4N1 S | Gasoline 4-stroke nonhandheld Class 1 side-valve carburetor | |
| G4N1O | Gasoline 4-stroke nonhandheld Class 1 overhead-valve carburetor | |
| G2N1 | Gasoline 2-stroke nonhandheld Class 1 | |
| G4N1 S1 | Gasoline 4-stroke nonhandheld Class 1 side-valve carburetor meeting Phase 1 Standards | |
| G4N1O1 | Gasoline 4-stroke nonhandheld Class 1 overhead-valve carburetor meeting Phase 1 Standards | |
| G4N1 SC1 | Gasoline 4-stroke nonhandheld Class 1 side-valve carburetor meeting Phase 1 Standards with a catalyst | |
| G4N1 S2 | Gasoline 4-stroke nonhandheld Class 1 side-valve carburetor meeting Phase 2 Standards | |
| G4N1O2 | Gasoline 4-stroke nonhandheld Class 1 overhead-valve carburetor meeting Phase 2 Standards | |
| G2N2 | Gasoline 2-stroke nonhandheld Class 2 | |
| G4N2S | Gasoline 4-stroke nonhandheld Class 2 side-valve carburetor | |
| G4N2O | Gasoline 4-stroke nonhandheld Class 2 overhead-valve carburetor | |
| G4N2S1 | Gasoline 4-stroke nonhandheld Class 2 side-valve carburetor meeting Phase 1 Standards | |
| G4N2O1 | Gasoline 4-stroke nonhandheld Class 2 overhead-valve carburetor meeting Phase 1 Standards | |
| G4N2S2 | Gasoline 4-stroke nonhandheld Class 2 side-valve carburetor meeting Phase 2 Standards | |
| G4N2O2 | Gasoline 4-stroke nonhandheld Class 2 overhead-valve carburetor meeting Phase 2 Standards | |
| G2GT25 | Gasoline 2-stroke greater than 25 horsepower | |
| G4GT25 | Gasoline 4-stroke greater than 25 horsepower | |

| Tech Type | Description | 3-Way Catalyst? (Response from the EPA) |
|---|---|---|
| G4GT251 | Gasoline 4-stroke greater than 25 horsepower meeting Tier 1 Standards | Yes |
| G4GT252 | Gasoline 4-stroke greater than 25 horsepower meeting Tier 2 Standards | Yes |
| R12S | Gasoline Recreational 2-stroke | |
| * R12SP | Gasoline Recreational 2-stroke ("P" = Pump Fueled, unused as a separate tech type) | |
| R12S1 | Gasoline Recreational 2-stroke meeting Tier 1 Standards | |
| R12S1P | Gasoline Recreational 2-stroke meeting Tier 1 Standards ("P" = Pump Fueled, unused as a separate tech type) | |
| R12S2 | Gasoline Recreational 2-stroke meeting Tier 2 Standards | |
| * R12S2P | Gasoline Recreational 2-stroke meeting Tier 2 Standards ("P" = Pump Fueled, unused as a separate tech type) | |
| R14S | Gasoline Recreational 4-stroke | |
| * R14SP | Gasoline Recreational 4-stroke ("P" = Pump Fueled, unused as a separate tech type) | |
| R14S1 | Gasoline Recreational 4-stroke meeting Tier 1 Standards | |
| LGT25 | LPG greater than 25 horsepower | |
| LGT251 | LPG greater than 25 horsepower meeting Tier 1 Standards | Yes |
| LGT252 | LPG greater than 25 horsepower meeting Tier 2 Standards | Yes |
| NGT25 | CNG greater than 25 horsepower | |
| NGT251 | CNG greater than 25 horsepower meeting Tier 1 Standards | Yes |
| NGT252 | CNG greater than 25 horsepower meeting Tier 2 Standards | Yes |
| Base | Early (pre-1988) uncontrolled diesel engines | |
| T0 | Late model (1988+) uncontrolled diesel engines | |
| T1 | Diesel engine meeting Tier 1 Standards | |
| T2 | Diesel engine meeting Tier 2 Standards | |
| T3 | Diesel land-based engine meeting Tier 3 Standards | |
| T3B | Diesel land-based engine meeting Tier 3 Standards for 75-100 hp engines | |
| T4A | Diesel land-based engine meeting transitional Tier 4 Standards for engines under 50 hp | |

| Tech Type | Description | 3-Way Catalyst? (Response from the EPA) |
|---|---|---|
| T4B | Diesel land-based engine meeting transitional Tier 4 Standards for engines under 25 hp | |
| T4 | Diesel land-based engine meeting full Tier 4 PM Standards | No 3-way. But new technologies could affect NH3 |
| * T4N1 | Unused | |
| T4N | Diesel land-based engine meeting full Tier 4 PM & NOx Standards | No 3-way. But new technologies could affect NH3 |
| T2M | Diesel recreational marine engine meeting "Tier 2" Standards for over 50 hp engines | |
| MO2C | 2-stroke gasoline Outboard Carbureted | |
| MO2I | 2-stroke gasoline Outboard with Indirect injection | |
| MO2D | 2-stroke gasoline Outboard with Direct injection | |
| MO4C | 4-stroke gasoline Outboard Carbureted | |
| MO4I | 4-stroke gasoline Outboard with Indirect injection | |
| MO4D | 4-stroke gasoline Outboard with Direct injection | |
| MP2C | 2-stroke gasoline Personal Watercraft Carbureted | |
| MP2I | 2-stroke gasoline Personal Watercraft with Indirect injection | |
| MP2D | 2-stroke gasoline Personal Watercraft with Direct injection | |
| MP4C | 4-stroke gasoline Personal Watercraft Carbureted | |
| MP4I | 4-stroke gasoline Personal Watercraft with Indirect injection | |
| MP4D | 4-stroke gasoline Personal Watercraft with Direct injection | |
| MS4C | 4-stroke gasoline Sterndrive/Inboard Carbureted | |
| MS4D | 4-stroke gasoline Sterndrive/Inboard with Direct Injection | |
| G4N1O3 | Phase 3, nonhandheld, Class I, overhead valve | Because small engines are not very sophisticated, the catalysts are not the typical 3-way catalysts. |

| Tech Type | Description | 3-Way Catalyst? (Response from the EPA) |
|---|---|---|
| G4N1S3 | Phase 3, nonhandheld, Class I, side valve | Because small engines are not very sophisticated, the catalysts are not the typical 3-way catalysts. |
| G4N23a | Phase 3, nonhandheld, Class II | Because small engines are not very sophisticated, the catalysts are not the typical 3-way catalysts. (FYI - we projected only 50 percent of Class II would use catalysts) |
| G4N23b | -- | |
| MOC1 | New stds for outboards | |
| MPC1 | New stds for personal watercraft | |
| MSC1 | New stds for SD/I engines | Yes |
| T3M | | |
| T4M | | |

Ammonia calculations within TexN were updated accordingly.

## 3.0 TexN Emission Calculation Example

The following provides an example illustrating the detailed calculation steps within the NONROAD model, as well as the post-processing adjustments applied by TexN. The derivation and use of each parameter in the fundamental emission equation (shown below) are discussed, as well as the application of the appropriate locality specific adjustments.

*Fundamental Emissions Equation:*

$$\textbf{Emissionsp/yr} = \sum(\textbf{MYR}) \sum(\textbf{HP})\ \textbf{Pop} * \textbf{Power} * \textbf{LF} * \textbf{A} * \textbf{EFp}$$

Where:
Pop = Number of engines
Power = Average hp (for specific hp group)
LF = Load factor ( percent of rated power)
A = Activity (hr/year)
EFp = Emissions for pollutant p (grams/bhp-hr)
**∑(HP) = summation over each equipment hp group**
**∑(MYR) = summation over each equipment model year**

The example calculation is conducted for NOx emissions for the following scenario:

- County – Harris
- Equipment Type – Diesel Trenchers (SCC = 2270002030)
- Analysis Year – 2050
- Period – Ozone Season Weekday

In order to walk through the example calculation we recommend you run a TexN scenario for these conditions.

**Step 1 – Identify NONROAD Input and TexN Adjustment Parameters**. First open the TexN scenario you developed for the above conditions. This will allow you to identify the default input and adjustment parameters used within the model. From the Population Tab identify average hp, useful life (in hrs) and population for each hp bin with non-zero populations. From the Activity Tab identify the load factor and activity in hours per year. And from the Fuel and Climate Tab identify the average summertime temperature in degrees Fahrenheit, and relative humidity (typical meteorological year assumed). These input parameters are listed below:

| Population Tab | | | |
|---|---|---|---|
| **hp bin** | **avg. hp** | **useful life** | **population (2050)20** |
| 25 – 50 hp | 34.1 | 2,500 hrs | 2,172.64 |
| 50 – 75 hp | 61.02 | 4,667 hrs | 491.01 |
| 75 – 100 hp | 86.75 | 4,667 hrs | 610.22 |

| Activity Tab | |
|---|---|
| **load factor** | **activity** |
| 0.59 | 1,308 hrs/yr |

| Fuel and Climate | | |
|---|---|---|
| **average temperature** | **relative humidity** | **atmospheric pressure (mb)21** |
| 81.1 °F | 75 percent | 1,013.21 |

**Step 2 – Determine the Model Year Distribution for Each HP Bin**. NONROAD applies its default scrappage and growth curves in order to allocate the population totals for each hp bin across model years. To develop these distributions, first calculate the median life in years for diesel trenchers as shown below.

**Median Life in years (< 50 hp)** = Median life in hours / (activity in hours/yr x load factor) =

2,500 / (1,306 x 0.59) = 3.24 years

**Median Life in years (> 50 hp)** = 4,667 / (1,306 x 0.59) = 6.05 years

Next, the default scrappage curve must be modified to provide the fraction of median life expressed in terms of engine age, as shown in Table 3-1 below. The age distributions shown in the table are calculated by simply multiplying the fraction of median life value by the median life expressed in years (3.24 years for engines < 50 hp, and 6.05 years for engines >= 50 hp).

[20] These figures correspond to 2050 population projections.
[21] Atmospheric pressure is not displayed on the Fuel and Climate Tab, but is maintained in one of the TexN lookup tables accessible by the TexN database administrator.

## Table 3-1. Default Scrappage Curve Expressed in Years of Age (Trenchers)

| Fraction of Median Life | Cumulative % Scrapped | Incremental % Scrapped | Age Distribution (<50 hp) | Age Distribution (>50 hp) |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 0.0294 | 0.5 | 0.5 | 0.095 | 0.178 |
| 0.0588 | 1 | 0.5 | 0.190 | 0.356 |
| 0.08705 | 1.5 | 0.5 | 0.282 | 0.526 |
| 0.1153 | 2 | 0.5 | 0.374 | 0.697 |
| 0.14235 | 2.5 | 0.5 | 0.461 | 0.861 |
| 0.1694 | 3 | 0.5 | 0.549 | 1.024 |
| 0.19535 | 3.5 | 0.5 | 0.633 | 1.181 |
| 0.2213 | 4 | 0.5 | 0.717 | 1.338 |
| 0.24615 | 4.5 | 0.5 | 0.797 | 1.489 |
| 0.271 | 5 | 0.5 | 0.878 | 1.639 |
| 0.29475 | 5.5 | 0.5 | 0.955 | 1.783 |
| 0.3185 | 6 | 0.5 | 1.032 | 1.926 |
| 0.3412 | 6.5 | 0.5 | 1.105 | 2.063 |
| 0.3639 | 7 | 0.5 | 1.179 | 2.201 |
| 0.3856 | 7.5 | 0.5 | 1.249 | 2.332 |
| 0.4073 | 8 | 0.5 | 1.319 | 2.463 |
| 0.42795 | 8.5 | 0.5 | 1.386 | 2.588 |
| 0.4486 | 9 | 0.5 | 1.453 | 2.713 |
| 0.4683 | 9.5 | 0.5 | 1.517 | 2.832 |
| 0.488 | 10 | 0.5 | 1.581 | 2.951 |
| 0.5067 | 10.5 | 0.5 | 1.641 | 3.064 |
| 0.5254 | 11 | 0.5 | 1.702 | 3.177 |
| 0.5432 | 11.5 | 0.5 | 1.760 | 3.285 |
| 0.561 | 12 | 0.5 | 1.817 | 3.393 |
| 0.5779 | 12.5 | 0.5 | 1.872 | 3.495 |
| 0.5948 | 13 | 0.5 | 1.927 | 3.597 |
| 0.6108 | 13.5 | 0.5 | 1.979 | 3.694 |
| 0.6268 | 14 | 0.5 | 2.031 | 3.791 |
| 0.6419 | 14.5 | 0.5 | 2.079 | 3.882 |
| 0.657 | 15 | 0.5 | 2.128 | 3.973 |
| 0.6713 | 15.5 | 0.5 | 2.175 | 4.060 |
| 0.6856 | 16 | 0.5 | 2.221 | 4.146 |
| 0.69905 | 16.5 | 0.5 | 2.265 | 4.228 |
| 0.7125 | 17 | 0.5 | 2.308 | 4.309 |
| 0.7252 | 17.5 | 0.5 | 2.349 | 4.386 |
| 0.7379 | 18 | 0.5 | 2.390 | 4.462 |
| 0.7498 | 18.5 | 0.5 | 2.429 | 4.534 |
| 0.7617 | 19 | 0.5 | 2.468 | 4.606 |
| 0.77285 | 19.5 | 0.5 | 2.504 | 4.674 |
| 0.784 | 20 | 0.5 | 2.540 | 4.741 |
| 0.79445 | 20.5 | 0.5 | 2.574 | 4.804 |
| 0.8049 | 21 | 0.5 | 2.607 | 4.868 |
| 0.81465 | 21.5 | 0.5 | 2.639 | 4.927 |
| 0.8244 | 22 | 0.5 | 2.671 | 4.986 |

| Fraction of Median Life | Cumulative % Scrapped | Incremental % Scrapped | Age Distribution (<50 hp) | Age Distribution (>50 hp) |
|---|---|---|---|---|
| 0.83345 | 22.5 | 0.5 | 2.700 | 5.040 |
| 0.8425 | 23 | 0.5 | 2.729 | 5.095 |
| 0.85095 | 23.5 | 0.5 | 2.757 | 5.146 |
| 0.8594 | 24 | 0.5 | 2.784 | 5.197 |
| 0.8672 | 24.5 | 0.5 | 2.809 | 5.244 |
| 0.875 | 25 | 0.5 | 2.835 | 5.292 |
| 0.8822 | 25.5 | 0.5 | 2.858 | 5.335 |
| 0.8894 | 26 | 0.5 | 2.881 | 5.379 |
| 0.89605 | 26.5 | 0.5 | 2.903 | 5.419 |
| 0.9027 | 27 | 0.5 | 2.924 | 5.459 |
| 0.90875 | 27.5 | 0.5 | 2.944 | 5.496 |
| 0.9148 | 28 | 0.5 | 2.964 | 5.532 |
| 0.92035 | 28.5 | 0.5 | 2.981 | 5.566 |
| 0.9259 | 29 | 0.5 | 2.999 | 5.599 |
| 0.93095 | 29.5 | 0.5 | 3.016 | 5.630 |
| 0.936 | 30 | 0.5 | 3.032 | 5.660 |
| 0.94055 | 30.5 | 0.5 | 3.047 | 5.688 |
| 0.9451 | 31 | 0.5 | 3.062 | 5.716 |
| 0.9492 | 31.5 | 0.5 | 3.075 | 5.740 |
| 0.9533 | 32 | 0.5 | 3.088 | 5.765 |
| 0.957 | 32.5 | 0.5 | 3.100 | 5.787 |
| 0.9607 | 33 | 0.5 | 3.112 | 5.810 |
| 0.96395 | 33.5 | 0.5 | 3.123 | 5.830 |
| 0.9672 | 34 | 0.5 | 3.133 | 5.849 |
| 0.9701 | 34.5 | 0.5 | 3.143 | 5.867 |
| 0.973 | 35 | 0.5 | 3.152 | 5.884 |
| 0.9755 | 35.5 | 0.5 | 3.160 | 5.899 |
| 0.978 | 36 | 0.5 | 3.168 | 5.914 |
| 0.9802 | 36.5 | 0.5 | 3.175 | 5.928 |
| 0.9824 | 37 | 0.5 | 3.183 | 5.941 |
| 0.9843 | 37.5 | 0.5 | 3.189 | 5.953 |
| 0.9862 | 38 | 0.5 | 3.195 | 5.964 |
| 0.9878 | 38.5 | 0.5 | 3.200 | 5.974 |
| 0.9894 | 39 | 0.5 | 3.205 | 5.983 |
| 0.9907 | 39.5 | 0.5 | 3.209 | 5.991 |
| 0.992 | 40 | 0.5 | 3.214 | 5.999 |
| 0.9931 | 40.5 | 0.5 | 3.217 | 6.006 |
| 0.9942 | 41 | 0.5 | 3.221 | 6.012 |
| 0.99505 | 41.5 | 0.5 | 3.223 | 6.018 |
| 0.9959 | 42 | 0.5 | 3.226 | 6.023 |
| 0.9966 | 42.5 | 0.5 | 3.229 | 6.027 |
| 0.9973 | 43 | 0.5 | 3.231 | 6.031 |
| 0.9978 | 43.5 | 0.5 | 3.232 | 6.034 |
| 0.9983 | 44 | 0.5 | 3.234 | 6.037 |
| 0.99865 | 44.5 | 0.5 | 3.235 | 6.039 |
| 0.999 | 45 | 0.5 | 3.236 | 6.041 |
| 0.99925 | 45.5 | 0.5 | 3.237 | 6.043 |

| Fraction of Median Life | Cumulative % Scrapped | Incremental % Scrapped | Age Distribution (<50 hp) | Age Distribution (>50 hp) |
|---|---|---|---|---|
| 0.9995 | 46 | 0.5 | 3.238 | 6.045 |
| 0.99965 | 46.5 | 0.5 | 3.238 | 6.045 |
| 0.9998 | 47 | 0.5 | 3.239 | 6.046 |
| 0.99985 | 47.5 | 0.5 | 3.239 | 6.047 |
| 0.9999 | 48 | 0.5 | 3.239 | 6.047 |
| 0.99995 | 49 | 1 | 3.239 | 6.047 |
| 1 | 50 | 1 | 3.240 | 6.048 |
| 1.00005 | 51 | 1 | 3.240 | 6.048 |
| 1.0001 | 52 | 1 | 3.240 | 6.048 |
| 1.00015 | 52.5 | 0.5 | 3.240 | 6.048 |
| 1.0002 | 53 | 0.5 | 3.240 | 6.049 |
| 1.00035 | 53.5 | 0.5 | 3.241 | 6.050 |
| 1.0005 | 54 | 0.5 | 3.241 | 6.051 |
| 1.00075 | 54.5 | 0.5 | 3.242 | 6.052 |
| 1.001 | 55 | 0.5 | 3.243 | 6.054 |
| 1.00135 | 55.5 | 0.5 | 3.244 | 6.056 |
| 1.0017 | 56 | 0.5 | 3.245 | 6.058 |
| 1.0022 | 56.5 | 0.5 | 3.247 | 6.061 |
| 1.0027 | 57 | 0.5 | 3.248 | 6.064 |
| 1.0034 | 57.5 | 0.5 | 3.251 | 6.068 |
| 1.0041 | 58 | 0.5 | 3.253 | 6.072 |
| 1.00495 | 58.5 | 0.5 | 3.256 | 6.077 |
| 1.0058 | 59 | 0.5 | 3.258 | 6.083 |
| 1.0069 | 59.5 | 0.5 | 3.262 | 6.089 |
| 1.008 | 60 | 0.5 | 3.265 | 6.096 |
| 1.0093 | 60.5 | 0.5 | 3.270 | 6.104 |
| 1.0106 | 61 | 0.5 | 3.274 | 6.112 |
| 1.0122 | 61.5 | 0.5 | 3.279 | 6.121 |
| 1.0138 | 62 | 0.5 | 3.284 | 6.131 |
| 1.0157 | 62.5 | 0.5 | 3.290 | 6.142 |
| 1.0176 | 63 | 0.5 | 3.297 | 6.154 |
| 1.0198 | 63.5 | 0.5 | 3.304 | 6.167 |
| 1.022 | 64 | 0.5 | 3.311 | 6.181 |
| 1.0245 | 64.5 | 0.5 | 3.319 | 6.196 |
| 1.027 | 65 | 0.5 | 3.327 | 6.211 |
| 1.0299 | 65.5 | 0.5 | 3.336 | 6.228 |
| 1.0328 | 66 | 0.5 | 3.346 | 6.246 |
| 1.03605 | 66.5 | 0.5 | 3.356 | 6.266 |
| 1.0393 | 67 | 0.5 | 3.367 | 6.285 |
| 1.043 | 67.5 | 0.5 | 3.379 | 6.308 |
| 1.0467 | 68 | 0.5 | 3.391 | 6.330 |
| 1.0508 | 68.5 | 0.5 | 3.404 | 6.355 |
| 1.0549 | 69 | 0.5 | 3.417 | 6.380 |
| 1.05945 | 69.5 | 0.5 | 3.432 | 6.407 |
| 1.064 | 70 | 0.5 | 3.447 | 6.435 |
| 1.06905 | 70.5 | 0.5 | 3.463 | 6.465 |
| 1.0741 | 71 | 0.5 | 3.480 | 6.496 |

| Fraction of Median Life | Cumulative % Scrapped | Incremental % Scrapped | Age Distribution (<50 hp) | Age Distribution (>50 hp) |
|---|---|---|---|---|
| 1.07965 | 71.5 | 0.5 | 3.498 | 6.529 |
| 1.0852 | 72 | 0.5 | 3.516 | 6.563 |
| 1.09125 | 72.5 | 0.5 | 3.535 | 6.599 |
| 1.0973 | 73 | 0.5 | 3.555 | 6.636 |
| 1.10395 | 73.5 | 0.5 | 3.576 | 6.676 |
| 1.1106 | 74 | 0.5 | 3.598 | 6.716 |
| 1.1178 | 74.5 | 0.5 | 3.621 | 6.760 |
| 1.125 | 75 | 0.5 | 3.644 | 6.803 |
| 1.1328 | 75.5 | 0.5 | 3.670 | 6.851 |
| 1.1406 | 76 | 0.5 | 3.695 | 6.898 |
| 1.14905 | 76.5 | 0.5 | 3.722 | 6.949 |
| 1.1575 | 77 | 0.5 | 3.750 | 7.000 |
| 1.16655 | 77.5 | 0.5 | 3.779 | 7.055 |
| 1.1756 | 78 | 0.5 | 3.808 | 7.109 |
| 1.18535 | 78.5 | 0.5 | 3.840 | 7.168 |
| 1.1951 | 79 | 0.5 | 3.872 | 7.227 |
| 1.20555 | 79.5 | 0.5 | 3.905 | 7.291 |
| 1.216 | 80 | 0.5 | 3.939 | 7.354 |
| 1.22715 | 80.5 | 0.5 | 3.975 | 7.421 |
| 1.2383 | 81 | 0.5 | 4.011 | 7.489 |
| 1.2502 | 81.5 | 0.5 | 4.050 | 7.561 |
| 1.2621 | 82 | 0.5 | 4.089 | 7.633 |
| 1.2748 | 82.5 | 0.5 | 4.130 | 7.709 |
| 1.2875 | 83 | 0.5 | 4.171 | 7.786 |
| 1.30095 | 83.5 | 0.5 | 4.214 | 7.868 |
| 1.3144 | 84 | 0.5 | 4.258 | 7.949 |
| 1.3287 | 84.5 | 0.5 | 4.304 | 8.035 |
| 1.343 | 85 | 0.5 | 4.351 | 8.122 |
| 1.3581 | 85.5 | 0.5 | 4.400 | 8.213 |
| 1.3732 | 86 | 0.5 | 4.449 | 8.304 |
| 1.3892 | 86.5 | 0.5 | 4.500 | 8.401 |
| 1.4052 | 87 | 0.5 | 4.552 | 8.498 |
| 1.4221 | 87.5 | 0.5 | 4.607 | 8.600 |
| 1.439 | 88 | 0.5 | 4.662 | 8.702 |
| 1.4568 | 88.5 | 0.5 | 4.719 | 8.810 |
| 1.4746 | 89 | 0.5 | 4.777 | 8.918 |
| 1.4933 | 89.5 | 0.5 | 4.838 | 9.031 |
| 1.512 | 90 | 0.5 | 4.898 | 9.144 |
| 1.5317 | 90.5 | 0.5 | 4.962 | 9.263 |
| 1.5514 | 91 | 0.5 | 5.026 | 9.382 |
| 1.57205 | 91.5 | 0.5 | 5.093 | 9.507 |
| 1.5927 | 92 | 0.5 | 5.160 | 9.632 |
| 1.6144 | 92.5 | 0.5 | 5.230 | 9.763 |
| 1.6361 | 93 | 0.5 | 5.300 | 9.894 |
| 1.6588 | 93.5 | 0.5 | 5.374 | 10.032 |
| 1.6815 | 94 | 0.5 | 5.447 | 10.169 |
| 1.70525 | 94.5 | 0.5 | 5.524 | 10.313 |

| Fraction of Median Life | Cumulative % Scrapped | Incremental % Scrapped | Age Distribution (<50 hp) | Age Distribution (>50 hp) |
|---|---|---|---|---|
| 1.729 | 95 | 0.5 | 5.601 | 10.456 |
| 1.75385 | 95.5 | 0.5 | 5.682 | 10.606 |
| 1.7787 | 96 | 0.5 | 5.762 | 10.757 |
| 1.80465 | 96.5 | 0.5 | 5.846 | 10.914 |
| 1.8306 | 97 | 0.5 | 5.930 | 11.071 |
| 1.85765 | 97.5 | 0.5 | 6.018 | 11.234 |
| 1.8847 | 98 | 0.5 | 6.106 | 11.398 |
| 1.91295 | 98.5 | 0.5 | 6.197 | 11.569 |
| 1.9412 | 99 | 0.5 | 6.289 | 11.739 |
| 1.9706 | 99.5 | 0.5 | 6.384 | 11.917 |
| 2 | 100 | 0.5 | 6.479 | 12.095 |

The above fractions were then aggregated by engine age in year increments to determine the fraction of engines in each year (see Table 3-2 below).

**Table 3-2. Remaining Fraction of Engines by Age**

| Age | < 50 hp | > 50 hp |
|---|---|---|
| 1 | 0.95 | 0.98 |
| 2 | 0.87 | 0.94 |
| 3 | 0.71 | 0.90 |
| 4 | 0.20 | 0.85 |
| 5 | 0.10 | 0.78 |
| 6 | 0.03 | 0.60 |
| 7 | 0.00 | 0.24 |
| 8 | 0.00 | 0.16 |
| 9 | 0.00 | 0.11 |
| 10 | 0.00 | 0.07 |
| 11 | 0.00 | 0.04 |
| 12 | 0.00 | 0.01 |

In order to determine the 2050 model year distribution, the fractions presented in Table 3-2 must be combined with annual equipment sales estimates over the previous 6 years, in the case of engines < 50 hp, and over the previous 12 years, in the case of engines >= 50 hp. The annual growth in sales can be calculated from NONROAD's default growth file, nation.grw. From this file we identify the last two indicator values for the diesel construction indicator code (021), as show below.

2025 - 1,927
2045 - 2,569

The NONROAD model uses these two data points to linearly extrapolate annual sales growth rates up to 2050. Annual growth rates for the period from 2025 through 2050 are therefore calculated as [(2,569 – 1,927) / (2045 – 2025)] / 1,000 = 3.21%.[22] Therefore equipment sales totals for units of age X are related to sales totals in the year 2050 (age 1) by the following equation:

$$Sales_{age\ x} = Sales_{age\ 1} / [1 + (x - 1)\ (0.0321)] = Sales_{age\ x} / a_x$$

The values for ax are shown below in Table 3-3.

**Table 3-3. Sales Adjustment Factors by Age**

| Age | a (x) |
|---|---|
| 1 | 1.000 |
| 2 | 1.032 |
| 3 | 1.064 |
| 4 | 1.096 |
| 5 | 1.128 |
| 6 | 1.161 |
| 7 | 1.193 |
| 8 | 1.225 |
| 9 | 1.257 |
| 10 | 1.289 |
| 11 | 1.321 |
| 12 | 1.353 |

Dividing the total equipment population for each hp bin by the sum of the ratios of the remaining equipment fraction (Table 3-2) and the sales adjustment factors (Table 3-3) allows us to calculate the equipment sales totals for units sold in 2050 (age 1) for each hp bin. The general equation for a given hp bin is shown below, with the summation over all equipment ages with non-zero remaining fractions.

$$Salesage\ 1 = Total\ Pop / \sum (Remaining\ Fractionx / ax)$$

The resulting 2050 sales totals (age = 1) are shown in Table 3-4.

[22] The difference between the indicator code values are divided by the 1996 base year value of 1,000 – also obtained from the *nation.grw* file.

**Table 3-4. 2050 (Age 1) Sales Totals by HP Bin**

| | |
|---|---|
| < 50 hp | 793.46 |
| 50 - 75 hp | 94.16 |
| 75-100 hp | 117.02 |

These age 1 sales totals are then divided by the product of the sales adjustment factor and the remaining fraction by year to obtain the model year distribution for each hp bin, as shown in Table 3-5.

**Table 3-5. Model Year Distribution by HP Bin**

| Yr | < 50 hp | 50 - 75 hp | 75-100 hp |
|---|---|---|---|
| 1 | 749.82 | 91.80 | 114.09 |
| 2 | 665.00 | 85.76 | 106.58 |
| 3 | 529.37 | 79.63 | 98.96 |
| 4 | 141.13 | 73.00 | 90.73 |
| 5 | 66.80 | 65.09 | 80.89 |
| 6 | 20.51 | 48.68 | 60.50 |
| 7 | 0.00 | 18.55 | 23.06 |
| 8 | 0.00 | 12.30 | 15.29 |
| 9 | 0.00 | 8.24 | 10.24 |
| 10 | 0.00 | 5.11 | 6.36 |
| 11 | 0.00 | 2.49 | 3.10 |
| 12 | 0.00 | 0.35 | 0.43 |
| Total | 2,172.64 | 491.01 | 610.22 |

**Step 3 – Determine Emission Factors by HP Bin and Age**. First, determine the technology mix for trenchers in 2050. In the tech-exh.dat file we see that diesel engine sales (SCC 227XXXXXXX) in the 25 – 50, and 50 – 75 hp bins are designated 100 percent "T4" starting shortly after 2010. Therefore by 2050 100 percent of all in-use trencher engines are assumed to be T4. Similarly all in-use trenchers in the 75 – 100 hp range are assumed to be T4N by 2050. Next, identify the zero-hour NOx emission factors in the exhnox.emf file for the appropriate hp bin and technology type. These factors are shown below in Table 3-6.

**Table 3-6. Zero-Hour NOx Diesel Emission Factors (2050)**

| HP Bin | g/hp-hr | Tech Type |
|---|---|---|
| < 50 hp | 3.00 | 100% T4 |
| 50 - 75 hp | 3.00 | 100% T4 |
| 75-100 hp | 0.28 | 100% T4N |

Next, identify the associated NOx deterioration factors by technology type. These values are provided in the exhnox.det file. Deterioration factors are multiplicative to the zero-hour factors, and are calculated as follows:

$$DF = 1 + A \times \text{engine age}b$$

In the above equation engine age is expressed as a fraction of median life.

For technology types T4 and T4N, A = 0.008 and b = 1, translating to a very low deterioration rate for these engines. In addition, deterioration is capped once the engine age equals the median life of the engine. By calculating engine age in terms of the fraction of median life (hrs/yr x yrs x load factor / median life in hours), and substituting this value into the above equation, a separate deterioration factor can be calculated for each engine age of interest (in years), as shown in Table 3-7.

**Table 3-7. NOx Deterioration Factors by Model Year (2050 Scenario)**

| Model Yr | < 50 hp | >= 50 hp |
|---|---|---|
| 2050 | 1.0025 | 1.0013 |
| 2049 | 1.0049 | 1.0026 |
| 2048 | 1.0074 | 1.0040 |
| 2047 | 1.0080 | 1.0053 |
| 2046 | 1.0080 | 1.0066 |
| 2045 | 1.0080 | 1.0079 |
| 2044 | 1.0080 | 1.0080 |
| 2043 | 1.0080 | 1.0080 |
| 2042 | 1.0080 | 1.0080 |
| 2041 | 1.0080 | 1.0080 |
| 2040 | 1.0080 | 1.0080 |
| 2039 | 1.0080 | 1.0080 |

By multiplying the zero-hour factors in Table 3-6 by the deterioration factors above, we obtain the age-dependent emission factors, shown in Table 3-8.

**Table 3-8. NOx Emission Factors by Model Year (g/hp-hr)**

| Model Yr | < 50 hp | 50 - 75 hp | 75-100 hp |
|---|---|---|---|
| 2050 | 3.007 | 3.004 | 0.280 |
| 2049 | 3.015 | 3.008 | 0.281 |
| 2048 | 3.022 | 3.012 | 0.281 |
| 2047 | 3.024 | 3.016 | 0.281 |
| 2046 | 3.024 | 3.020 | 0.282 |

| Model Yr | < 50 hp | 50 - 75 hp | 75-100 hp |
|---|---|---|---|
| 2045 | 3.024 | 3.024 | 0.282 |
| 2044 | 3.024 | 3.024 | 0.282 |
| 2043 | 3.024 | 3.024 | 0.282 |
| 2042 | 3.024 | 3.024 | 0.282 |
| 2041 | 3.024 | 3.024 | 0.282 |
| 2040 | 3.024 | 3.024 | 0.282 |
| 2039 | 3.024 | 3.024 | 0.282 |

**Step 4 – Determine Activity Hours per Ozone-Season Weekday**. The MONTHLY packet within the season.dat file indicates that construction equipment in the Southwest U.S. ("SW", which includes Texas), are operated 9.1 percent of their annual total during each summer month. Equivalently, 27.3 percent (3 summer months x 9.1 percent/month) of total hours per year occur during the summer. This corresponds to 1,306 x 0.273 = 357 hours of trencher activity per summer. From the Scenario output file we see that a summer NONROAD run is assumed to include 92 days in the entire season, or 92 / 7 = 13.14 weeks. In turn, this corresponds to 357 hrs/season / 13.14 weeks/season = 27.17 hours per week.

Finally, the DAILY packet of the season.dat file shows that construction equipment is assumed to have 16.7 percent of its weekly activity occur on a weekday. This corresponds to 27.17 hrs/week x 0.167 = 4.53 hours/summer weekday. This daily activity level can be multiplied using the following equation to estimate tons of NOx per ozone season day, with the summation occurring over engine model years.

**Tons/Ozone-Season Weekday = ∑ Emission Factor (g/hp-hr) x Engine Population x Hours/Ozone Season Weekday x Average hp x Load Factor x 1.1023 x 10-6 short tons/gram**

The resulting emissions estimates are provided in Table 3-9 below. These estimates correspond to the values output from the NONROAD model before TexN adjustments are applied.

**Table 3-9. $NO_X$ Emissions from Diesel Trenchers (Tons per Ozone-Season Weekday, 2050 Scenario)**

| Equipment Age (Yrs) | < 50 hp | 50 - 75 hp | 75-100 hp |
|---|---|---|---|
| 1 | 0.227 | 0.050 | 0.008 |
| 2 | 0.201 | 0.046 | 0.008 |
| 3 | 0.161 | 0.043 | 0.007 |
| 4 | 0.043 | 0.040 | 0.007 |
| 5 | 0.020 | 0.035 | 0.006 |

| Equipment Age (Yrs) | < 50 hp | 50 - 75 hp | 75-100 hp |
|---|---|---|---|
| 6 | 0.006 | 0.026 | 0.004 |
| 7 | 0.000 | 0.010 | 0.002 |
| 8 | 0.000 | 0.007 | 0.001 |
| 9 | 0.000 | 0.004 | 0.001 |
| 10 | 0.000 | 0.003 | 0.000 |
| 11 | 0.000 | 0.001 | 0.000 |
| 12 | 0.000 | 0.000 | 0.000 |
| Total | 0.658 | 0.266 | 0.044 |

**Step 5 – Apply Post-Processing Adjustments**. Several adjustments are applied to the NONROAD outputs. First, temperature and humidity adjustments are applied to all diesel engines. Adjustments use absolute humidity (H), which is calculated as follows:

$$H = [RH \times 38.017 \times ea] / [P - 6.112 \times ea]$$
$$\text{where } a = [9.8245 \times (T - 32)] / [0.556 \times (T - 32) + 243.5]$$

Inserting the parameters specific to typical meteorological year conditions in Harris County identified under Step 1, a = 1.781 and H = 17.330.

There are two adjustment equations – one equation is used for naturally-aspirated engines, another for turbocharged engines.

Naturally-Aspirated (N-A) Engine Adjustment:

$$1 + 0.001368 \times (0.556 \times (T - 32) - 29.444) - 0.01512 \times (H - 10.71)$$

Turbo-charged Engine Adjustment:

$$1 + 0.00446 \times (0.556 \times (T - 32) - 25) - 0.018708 \times (H - 10.71)$$

Inserting the values for T (81.1) and H from above, the N-A adjustment = 0.897, and the turbo adjustment = 0.886.

Next the estimated fraction of N-A and turbocharged engines is shown below for model years beyond 2005.

| | N-A | Turbo |
|---|---|---|
| < 50 hp | 0.82 | 0.18 |
| > 50 hp | 0.45 | 0.55 |

Applying these weights to the engine adjustments results in a net adjustment of 0.895 for engines less than 50 hp, and 0.891 for engines greater than or equal to 50 hp. Applying these factors directly to the NONROAD output emissions estimates we obtain the following adjusted NOx values.

| **< 50 hp** | **0.5889 TPD** |
|---:|---:|
| 50 – 75 hp | 0.2370 TPD |
| 75 – 100 hp | 0.0391 TPD |
| Total | 0.8650 TPD |

Next altitude adjustments are applied directly to NOx emission estimates to reflect the slight increase in hp-hrs needed to accomplish a task at a higher altitude. Multiplying the 0.865 figure by the altitude adjustment factor for Harris County (1.00032) yields a miniscule adjustment of .0003 TPD (0.8653).

The soil adjustment factor for Harris County of 1.222 is applied to all trencher activity, resulting in a one-to-one increase in hp-hrs and NOx emissions. The resulting adjustment applied to the 0.8653 figure results in a revised NOx estimate of 1.0578 TPD.

Finally, Harris County is within the TxLED region, so a further adjustment of (1-.062) = 0.938 is applied to the 1.0578 value, yielding a final adjusted emission estimate of 0.992 TPD for all trenchers operating in Harris County in 2050. The difference from the actual TexN output of 0.991 TPD is attributable to rounding error.

# 4.0 Incorporation of NONROAD2008 and Quality Assurance

As mentioned above, the 2008 emissions inventory incorporated some relatively major changes to the TexN model, such as the incorporation of NONROAD2008. As such, the following quality assurance measures were followed to ensure the updates incorporated into the model were reflected accurately in the final emissions inventory.

As part of the quality assurance process, the output from TexN after the updates was compared to output from the previous version of TexN. The analysis focused on nonattainment and near-nonattainment counties, and an example rural attainment county, as well as statewide emissions totals. The comparison highlighted changes in emissions where they were expected, for small SI engines and recreational marine engines, updates included in NONROAD2008. However, the comparison also highlighted some differences that were not expected and could not be explained with the available documentation from the EPA. To isolate whether the differences were being caused by changes in TexN or the new version of NONROAD, ERG ran NONROAD2005 and NONROAD2008, using all of the same input parameters, with zero as the ethanol blend and market share in the NONROAD2008 version (in order to make outputs between the versions consistent). This comparison showed continued differences between the versions of the NONROAD model. After extensive research into all of the external files that are read by the model and discussions with the EPA, the differences in emissions estimates between NONROAD model versions were explained. A more detailed discussion of the NONROAD2008 updates follows. Once the differences between NONROAD versions were accounted for, the remaining differences in emissions between TexN versions could be explained by the updates to the data made in TexN version 1.3, such as fuel, agricultural equipment, and recreational marine equipment.

## 4.1 Incorporation of NONROAD2008 into TexN

In order to meet the EPA reporting requirements, non-road emissions inventories for the next NEI must be calculated using NONROAD2008 for the sources contained within the model. The NONROAD2008 model has several differences from the NONROAD2005 model. Full documentation of the changes in the model has not been released by the EPA as of this date. Many of the changes discussed below are described in a document released by the EPA, Frequently Asked Questions About NONROAD2008, available on the EPA's website at http://www.epa.gov/oms/models/nonrdmdl/nonrdmdl2008/420f09021.pdf. However, other changes to the model, not yet documented, were discovered through a rigorous QA of emissions estimates obtained from TexN using NONROAD2008 compared to the emissions estimates from

TexN using NONROAD2005, in conjunction with conversations with the EPA non-road modeling staff.

## 4.2 New Small SI and Recreational Marine Rules

The NONROAD2008 model accounts for the emissions reductions resulting from two rules finalized by the EPA in 2008. These two rules are:

- Diesel recreational marine standards in the Locomotive/Marine final rule, Federal Register Vol 73, No. 88, page 25098, May 6, 2008; and
- Small SI and SI Recreational Marine final rule, Federal Register Vol 73, No. 196, page 59034, October 8, 2008.

The new model version incorporates new Phase 3 controls for small SI engines as specified by the rules listed above. It also added controls for SI and CI recreational marine engines as required by these rules.

Other than incorporation of the NONROAD2008 model into TexN, no further changes were required by TexN in order to model the effects of these two new rules.

## 4.3 Fuel Inputs

NONROAD2008 also gives a user the ability to model the effects of ethanol blends on fuel tank and hose permeation losses. Two input fields have been added to the option file to allow users to specify ethanol blend market share and volume percent ethanol in the blend. These inputs are required to accurately model permeation emissions from fuel tanks and hoses with ethanol blends. Accordingly, the TexN database has been updated to accommodate ethanol blend percent volume and market share information.

## 4.4 Changes in Technology Types and Implications for Ammonia Emissions Estimates

Technology type names within NONROAD2008 have been revised and expanded for certain equipment types to provide more specificity, especially for recreational engines (snowmobiles, ATVs, and offroad motorcycles) and diesel recreational marine engines. New technology types were added for recreational marine engines and small SI engines for the levels of control required by the new rules. New technology type sales fractions have also been updated or corrected for Phase 2 engines. Technology types for snowblowers have been corrected to include 4-stroke engines.

## 4.5 Changes in Emission Factors and Other NONROAD Model Inputs

NONROAD2008 also incorporates new emissions factors for small SI engines based on the EPA and industry test data, along with minor revisions to tank sizes. The EPA has added new fuel tank diffusion losses to the diurnal emission estimates for small SI engines. Exhaust emission factors and deterioration rates have been updated or corrected for Phase 2 engines. Hot soak and running loss inputs for handheld equipment have been added in the NONROAD2008 version of the model. Running loss emission factors for Class 1 snowblowers have been corrected to account for cold weather applications.

Brake-specific fuel consumption factors have been revised for recreational marine SI engines. PM emission factors for 2-stroke technology engines have also been revised for recreational marine SI engines. Fuel tank and hose permeation emission factors and temperature effects for recreational marine SI engines have also been incorporated into the NONROAD2008 model. Hot soak and running loss emission estimates have also been added for recreational marine engines. Modeling inputs for high performance (greater than 600 hp) sterndrive and inboard (SD/I) engines.

Through a rigorous QA process, ERG identified changes in NOx emissions that could not be explained by changes described in the limited NONROAD2008 documentation. After contacting the EPA about the changes in NOx emissions between versions, it was discovered that the EPA had erroneously made changes to NOx emission factors for land-based diesels. Consequently, the EPA gave two options:

- Run the model as-is, with the erroneous NOx emissions for land-based diesels, or
- Use the NOx emission factors from NONROAD2005 for land-based diesels.

After consulting with the TCEQ regarding these options, ERG corrected the exhaust NOx emission factor file within NONROAD2008 to incorporate NOx emission factors from NONROAD2005 for land-based diesel engines.

In addition to inconsistent NOx emission estimates, there were also changes in PM emissions estimates that were not explained by the available documentation. After contacting the EPA about these differences, the EPA explained that changes had been made to the Base PM Sulfur packet in the option file of the NONROAD2008 model.

## 4.6 Updates to Average Horsepower and Useful Life

It was discovered during the QA process, although not documented by the EPA, that there were some changes made to the average horsepower values for some SCCs in the NONROAD2008 model. Therefore, since average horsepower is critical to calculating emissions, and in order to make TexN consistent with NONROAD2008, ERG wrote database scripts to update the average horsepower and useful life for all non-diesel construction equipment. (Diesel construction equipment was excluded from this update due to the fact that average horsepower and useful life were meticulously calculated under a previous work order for the TCEQ to update data for diesel construction equipment.)

# 5.0 EIS CERS Activity Data Submittal

TexN currently houses the most detailed and disaggregated data available for calculating emissions for many non-road sources in Texas. However, the EPA currently uses the National Mobile Inventory Model (NMIM) to calculate emissions for non-road equipment and prefers to receive activity data for updating NMIM instead of emissions data. The data within TexN are more disaggregated than the structure for NMIM can accommodate. Therefore, the data within TexN has been aggregated and formatted to match the NMIM data structures as much as possible in order to comply with the EPA's request for activity data to be used with NMIM.

Submitting activity data to the EPA for the EIS CER consists of two parts. The first part involves updating some data tables within the NMIM MySQL National County Database (NCD). The second part involves updating the external files that will be used by the NONROAD2008 model.

## 5.1 Update of the NCD Tables

According to the EPA, there are eleven key data tables within the NCD that states may update for the activity submittal. Each of these tables and the associated updates for this activity data submittal are listed in Table 5-1.

**Table 5-1. NCD Tables and Associated Updates**

| Table Name | Update Description |
|---|---|
| BaseyearVMT | No changes. Not applicable to non-road sources. |
| County | No changes. |
| Countynrfile | Added allocation, season, and population file names and types for each county in Texas. Set DatasourceID equal to 9995*. |
| Countyvmtmonthallocation | No changes. Not applicable to non-road sources. |
| Countyyear | Added the activity file name to the NRACTFileName column for all Texas counties for the year 2008. |
| Countyyearmonth | Edited the NRGasolineID, NRDieselID, RMDieselID, and NRFuelDataSource columns for Texas. |
| Countyyearmonthhour | Updated Temperature and Relative Humidity using the data in the Texas NONROAD Model (TexN). Assumes all hours of the day are equal since hourly data is not available in TexN. |
| Diesel | Added diesel sulfur values for non-road diesel and recreational marine diesel using the data in TexN. |
| Gasoline | Updated to reflect data in TexN. Fields without equivalent data in TexN used NMIM defaults. |

| Field | Data Source |
|---|---|
| RVP | TexN |
| GasSulfur | TexN |
| GasMaxSulfur | NMIM default |
| RVPOxyWaiver | NMIM default |
| EtOHVolume | TexN |
| EtOHMktShare | TexN |
| MTBEVolume | TexN |
| MTBEMktShare | TexN |
| ETBEVolume | TexN |
| ETBEMktShare | TexN |
| TAMEVolume | TexN |
| TAMEMktShare | TexN |
| AromaticContent | NMIM default |
| OlefinContent | NMIM default |
| BenzeneContent | NMIM default |
| E200 | NMIM default |
| E300 | NMIM default |
| RFG | NMIM default |

| | |
|---|---|
| NaturalGas | No changes. |
| State | No changes. |

*While the datasource table within the NCD was not identified by the EPA as a table that may require updating, there wasn't an existing entry within the table to accurately reflect the information for this data submission. Therefore, the datasource table has also been updated and is available to the EPA for inclusion upon request.

## 5.2 Update of the NONROAD External Files

As part of the EIS CER activity data submission, the EPA also requires the external files read by the NONROAD model to be updated and submitted. In accordance with this requirement, the external files in Table 5-2 have been updated to reflect the data within TexN as closely as possible.

**Table 5-2. Updates to NONROAD2008 External Files**

| External Files | Update Description |
|---|---|
| Activity | The activity file was updated with the weighted average activity for 2008 and reported in hours/year. |
| Emission Factor Files | The exhaust NOx emission factor file (EXHNOX.EMF) was corrected for land-based diesels. For land-based diesels, emission factors from NONROAD2005 were used. |
| Deterioration Files | No changes. |
| Season | Monthly activity allocation was updated for recreational marine equipment in the 8-county Houston-Galveston-Brazoria nonattainment area, and statewide updates were made for LPG forklifts and agricultural equipment. |
| Growth | The growth file was updated to reflect zero growth for all source categories, as year-specific population data is provided in the population file. |
| Daily | No changes. |
| Allocation | Allocation for all indicator codes have been set to 100 percent for all counties, as county-specific population data is provided in the population file. |
| Technology Types | No changes. |
| Population | Population files were updated with county- and year-specific population data from TexN. |

## References


1) User's Guide for the Final NONROAD2005 Model, EPA420-R-05-013, December 2005, http://www.epa.gov/otaq/nonrdmdl.htm
2) NONROAD2005 Emission Factor Model, available from http://www.epa.gov/otaq/nonrdmdl.htm, last validated 11-18-2006.
3) Eastern Research Group, Sampling and Laboratory Analysis of Retail Fuel for Selected Texas Cities, prepared for Peter Ogbeide, Texas Commission on Environmental Quality, August 29, 2003.
4) Eastern Research Group, Sampling and Laboratory Analysis of Retail Fuel for Selected Texas Cities – Summer 2004, prepared for Peter Ogbeide, Texas Commission on Environmental Quality, August 31, 2004.
5) Eastern Research Group, Sampling and Laboratory Analysis of Retail Fuel for Selected Texas Cities – Summer 2005, prepared for Peter Ogbeide, Texas Commission on Environmental Quality, August 31, 2005.
6) Eastern Research Group, Sampling and Laboratory Analysis of Retail Fuel for Selected Texas Cities – Winter 2006, prepared for Peter Ogbeide, Texas Commission on Environmental Quality, April 30, 2006.
7) Texas A&M University Energy Systems Laboratory, http://energysystems.tamu.edu/sb5/data.html, last validated 11-22-06.
8) Eastern Research Group, Ozone Science and Air Modeling Research Project H43T163: Diesel Construction Equipment Activity and Emissions Estimates for the Dallas/Ft. Worth Region, prepared for The Houston Advanced Research Center, August 31, 2005.
9) Eastern Research Group, Final TexN User's Guide Addendum, Memo from Rick Baker to Edgar Gilmore, May 7, 2009
10) Eastern Research Group, Non-road Mobile Source Emissions Inventory Development for the Houston-Galveston-Brazoria Area, submitted to the Houston-Galveston Area Council, July 28, 2006.
11) Eastern Research Group, Data Collection, Sampling and Emissions Inventory Preparation Plan for Selected Commercial and Industrial Equipment: Phase II, Final Report, prepared for the Texas Commission on Environmental Quality, August 31, 2005.
12) Eastern Research Group, Development of Commercial Lawn and Garden Emissions Estimates for the State of Texas and Selected Metropolitan Areas, prepared for Texas Commission on Environmental Quality, November 24, 2003.
13) Eastern Research Group, Recreational Marine Emissions Inventory, prepared for the Texas Commission on Environmental Quality, August 28, 2002.
14) Eastern Research Group, Non-road Ammonia Emissions Inventory Development, prepared for Texas Commission on Environmental Quality, November 24, 2006
15) EPA Office of Transportation and Air Quality, User's Guide to MOBILE6.1 and 6.2, http://www.epa.gov/otaq/models/mobile6/420r03010.pdf, last validated 11-22-06.
16) Texas A&M Real Estate Center, Texas County Building Permit Activity Data, from http://recenter.tamu.edu/data/bpc/.
17) U.S. Census Bureau, New Privately Owned Housing Units Started: Annual Data, http://www.census.gov/const/startsan.pdf.

18) Texas Comptroller of Public Accounts, Fall 2007 Economic Forecast, Texas Economic Detail, from http://www.window.state.tx.us/ecodata/fcst07fall/fall07economiccalendar.html.
19) Texas State Data Center, 0.5 Growth Scenario, http://txsdc.utsa.edu/tpepp/2004projections/.
20) Texas Comptroller of Public Accounts, Texas State Expenditures by County, from http://www.window.state.tx.us/taxbud/expbyco/.
21) Bureau of Labor Statistics, Consumer Price Index, All Urban Consumers, South Region, from http://data.bls.gov/PDQ/servlet/SurveyOutputServlet?data_tool=dropmap&series_id=CUUR0300SA0,CUUS0300SA0 - all consumers, South Region.
22) Personal communication with Anusuya Iyer, TCEQ, April 25, 2008.
23) Bob Lanham, Vice President Williams Brothers Construction, Houston Texas, personal communication May 23, 2008.
24) Equipment Data Associates, Skid Steer Loader Sales Records through 2005, taken from Eastern Research Group, "Statewide Diesel Construction Equipment Inventory", prepared for the Texas Commission on Environmental Quality, August 31, 2005, p. 3-36.
25) Natural Resource Conservation Service, http://www.ncgc.nrcs.usda.gov/products/datasets/ssurgo/description.html.
26) U.S. Geological Survey, http://edc.usgs.gov/geodata/.
27) Eastern Research Group. Sampling and Laboratory Analysis of Retail Gasoline and Diesel Fuel for Selected Texas Cities – Summer 2007, Final Report. August 31, 2007
28) Eastern Research Group. Sampling and Laboratory Analysis of Retail Gasoline and Diesel Fuel for Selected Texas Cities - Summer 2008, Final Report. August 31, 2008
29) E. H. Pechan & Associates. Development of 2007 Recreational Marine Emissions Inventory: Spatial and Temporal Allocation in the Houston-Galveston-Brazoria 8-County Area. August 31, 2008.
30) E. H. Pechan & Associates. Development of Emissions Inventory of Agricultural Equipment in All Texas Counties Phase Two. July 2009.
31) Eastern Research Group. Texas NONROAD (TexN) Model Version 1.0 User's Guide. August 2008.

# Appendix A
# County Level Fuel Specifications from TexN for the Year 2008

## Table A-1. TexN 2008 Summer Fuel Specifications

| County | Gas RVP | Oxygen Weight Percent | Gas Sulfur Percent | Diesel Sulfur Percent | Marine Diesel Sulfur Percent | CNG/LPG Sulfur Percent | Average MTBE Market Share | Average ETBE Market Share | Average TAME Market Share | Average EtOH Market Share | MTBE Percent Volume | TAME Percent Volume | ETBE Percent Volume | EtOH Percent Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANDERSON | 7.8 | 0.00746 | 0.0033 | 0.01978 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0418 | 0 | 0 | 3.830 |
| ANDREWS | 8.7 | 0.01752 | 0.0033 | 0.02693 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1056 | 0.00300 | 0 | 0 |
| ANGELINA | 7.8 | 0.01694 | 0.0033 | 0.03370 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0948 | 0.00300 | 0 | 2.177 |
| ARANSAS | 7.8 | 0.02043 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1144 | 0 | 0 | 0.032 |
| ARCHER | 8.7 | 0.01700 | 0.0033 | 0.04093 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1025 | 0 | 0 | 0 |
| ARMSTRONG | 8.7 | 0.03976 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0666 | 0.00100 | 0 | 1.166 |
| ATASCOSA | 7.8 | 0.00854 | 0.0033 | 0.03917 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0478 | 0 | 0 | 0 |
| AUSTIN | 7.8 | 0.02297 | 0.0033 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1286 | 0 | 0 | 0 |
| BAILEY | 8.7 | 0.01151 | 0.0033 | 0.01443 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0694 | 0 | 0 | 0 |
| BANDERA | 8.7 | 0.00793 | 0.0033 | 0.03917 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0478 | 0 | 0 | 0 |
| BASTROP | 7.8 | 0.02619 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1466 | 0 | 0 | 0.024 |
| BAYLOR | 8.7 | 0.01700 | 0.0033 | 0.04093 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1025 | 0 | 0 | 0 |
| BEE | 7.8 | 0.02043 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1144 | 0 | 0 | 0.032 |
| BELL | 7.8 | 0.00000 | 0.0033 | 0.03690 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0.593 |
| BEXAR | 7.8 | 0.00854 | 0.0033 | 0.03917 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0478 | 0 | 0 | 0 |
| BLANCO | 8.7 | 0.02491 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1466 | 0 | 0 | 0.024 |
| BORDEN | 8.7 | 0.00934 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0554 | 0 | 0 | 0.006 |
| BOSQUE | 7.8 | 0.00000 | 0.0033 | 0.03690 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0.593 |
| BOWIE | 7.8 | 0.01505 | 0.0033 | 0.03747 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0843 | 0 | 0 | 0 |
| BRAZORIA | 6.8 | 0.01085 | 0.0033 | 0.03510 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0607 | 0.00100 | 0.32 | 5.295 |
| BRAZOS | 7.8 | 0.00913 | 0.0033 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0511 | 0 | 0 | 0.001 |
| BREWSTER | 8.7 | 0.01818 | 0.0033 | 0.03580 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0 | 0 | 0 | 0.738 |
| BRISCOE | 8.7 | 0.09874 | 0.0033 | 0.02673 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1010 | 0 | 0 | 3.329 |
| BROOKS | 8.7 | 0.00000 | 0.0033 | 0.02700 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0 | 0 | 0 | 0 |
| BROWN | 8.7 | 0.02489 | 0.0033 | 0.02680 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1501 | 0 | 0 | 0 |
| BURLESON | 7.8 | 0.00913 | 0.0033 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0511 | 0 | 0 | 0.001 |
| BURNET | 8.7 | 0.02491 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1466 | 0 | 0 | 0.024 |
| CALDWELL | 7.8 | 0.02619 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1466 | 0 | 0 | 0.024 |
| CALHOUN | 7.8 | 0.02297 | 0.0033 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1286 | 0 | 0 | 0 |
| CALLAHAN | 8.7 | 0.00934 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0554 | 0 | 0 | 0.006 |
| CAMERON | 8.7 | 0.00000 | 0.0033 | 0.02700 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0 | 0 | 0 | 0 |
| CAMP | 7.8 | 0.01505 | 0.0033 | 0.03747 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0843 | 0 | 0 | 0 |
| CARSON | 8.7 | 0.03976 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0666 | 0.00100 | 0 | 1.166 |
| CASS | 7.8 | 0.01505 | 0.0033 | 0.03747 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0843 | 0 | 0 | 0 |
| CASTRO | 8.7 | 0.01151 | 0.0033 | 0.01443 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0694 | 0 | 0 | 0 |
| CHAMBERS | 6.8 | 0.00970 | 0.0033 | 0.04120 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0543 | 0.00100 | 0 | 2.007 |

| County | Gas RVP | Oxygen Weight Percent | Gas Sulfur Percent | Diesel Sulfur Percent | Marine Diesel Sulfur Percent | CNG/LPG Sulfur Percent | Average MTBE Market Share | Average ETBE Market Share | Average TAME Market Share | Average EtOH Market Share | MTBE Percent Volume | TAME Percent Volume | ETBE Percent Volume | EtOH Percent Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHEROKEE | 7.8 | 0.00746 | 0.0033 | 0.01978 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0418 | 0 | 0 | 3.830 |
| CHILDRESS | 8.7 | 0.09874 | 0.0033 | 0.02673 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1010 | 0 | 0 | 3.329 |
| CLAY | 8.7 | 0.01700 | 0.0033 | 0.04093 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1025 | 0 | 0 | 0 |
| COCHRAN | 8.7 | 0.01151 | 0.0033 | 0.01443 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0694 | 0 | 0 | 0 |
| COKE | 8.7 | 0.02262 | 0.0033 | 0.02147 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1364 | 0.00200 | 0 | 0 |
| COLEMAN | 8.7 | 0.02489 | 0.0033 | 0.02680 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1501 | 0 | 0 | 0 |
| COLLIN | 6.8 | 0.00818 | 0.0033 | 0.03458 | 0.0408 | 0.003 | 0.9538 | 0 | 0.0462333 | 0 | 0.0480 | 0 | 0 | 5.904 |
| COLLINGSWORTH | 8.7 | 0.09874 | 0.0033 | 0.02673 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1010 | 0 | 0 | 3.329 |
| COLORADO | 7.8 | 0.02297 | 0.0033 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1286 | 0 | 0 | 0 |
| COMAL | 7.8 | 0.00854 | 0.0033 | 0.03917 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0478 | 0 | 0 | 0 |
| COMANCHE | 8.7 | 0.02489 | 0.0033 | 0.02680 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1501 | 0 | 0 | 0 |
| CONCHO | 8.7 | 0.02262 | 0.0033 | 0.02147 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1364 | 0.00200 | 0 | 0 |
| COOKE | 7.8 | 0.01831 | 0.0033 | 0.04093 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1025 | 0 | 0 | 0 |
| CORYELL | 7.8 | 0.00000 | 0.0033 | 0.03690 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0.593 |
| COTTLE | 8.7 | 0.09874 | 0.0033 | 0.02673 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1010 | 0 | 0 | 3.329 |
| CRANE | 8.7 | 0.01752 | 0.0033 | 0.02693 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1056 | 0.00300 | 0 | 0 |
| CROCKETT | 8.7 | 0.02262 | 0.0033 | 0.02147 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1364 | 0.00200 | 0 | 0 |
| CROSBY | 8.7 | 0.01151 | 0.0033 | 0.01443 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0694 | 0 | 0 | 0 |
| CULBERSON | 8.7 | 0.01818 | 0.0033 | 0.03580 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0 | 0 | 0 | 0.738 |
| DALLAM | 8.7 | 0.03976 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0666 | 0.00100 | 0 | 1.166 |
| DALLAS | 6.8 | 0.00818 | 0.0033 | 0.03458 | 0.0408 | 0.003 | 0.9538 | 0 | 0.0462333 | 0 | 0.0480 | 0 | 0 | 5.904 |
| DAWSON | 8.7 | 0.01151 | 0.0033 | 0.01443 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0694 | 0 | 0 | 0 |
| DE WITT | 7.8 | 0.02297 | 0.0033 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1286 | 0 | 0 | 0 |
| DEAF SMITH | 8.7 | 0.03976 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0666 | 0.00100 | 0 | 1.166 |
| DELTA | 7.8 | 0.00724 | 0.0033 | 0.03740 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0405 | 0 | 0 | 5.539 |
| DENTON | 6.8 | 0.00818 | 0.0033 | 0.03458 | 0.0408 | 0.003 | 0.9538 | 0 | 0.0462333 | 0 | 0.0480 | 0 | 0 | 5.904 |
| DICKENS | 8.7 | 0.09874 | 0.0033 | 0.02673 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1010 | 0 | 0 | 3.329 |
| DIMMIT | 8.7 | 0.01933 | 0.0033 | 0.03701 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1165 | 0.00200 | 0 | 0 |
| DONLEY | 8.7 | 0.09874 | 0.0033 | 0.02673 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1010 | 0 | 0 | 3.329 |
| DUVAL | 8.7 | 0.01933 | 0.0033 | 0.03701 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1165 | 0.00200 | 0 | 0 |
| EASTLAND | 8.7 | 0.02489 | 0.0033 | 0.02680 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1501 | 0 | 0 | 0 |
| ECTOR | 8.7 | 0.01752 | 0.0033 | 0.02693 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1056 | 0.00300 | 0 | 0 |
| EDWARDS | 8.7 | 0.02262 | 0.0033 | 0.02147 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1364 | 0.00200 | 0 | 0 |
| EL PASO | 6.8 | 0.01818 | 0.0033 | 0.03580 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0 | 0 | 0 | 0.738 |
| ELLIS | 8.7 | 0.00858 | 0.0033 | 0.03458 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0480 | 0 | 0 | 5.904 |
| ERATH | 8.7 | 0.17818 | 0.0033 | 0.03573 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0622 | 0 | 0 | 6.815 |
| FALLS | 7.8 | 0.00000 | 0.0033 | 0.03690 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0.593 |
| FANNIN | 7.8 | 0.00724 | 0.0033 | 0.03740 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0405 | 0 | 0 | 5.539 |
| FAYETTE | 7.8 | 0.02297 | 0.0033 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1286 | 0 | 0 | 0 |

| County | Gas RVP | Oxygen Weight Percent | Gas Sulfur Percent | Diesel Sulfur Percent | Marine Diesel Sulfur Percent | CNG/LPG Sulfur Percent | Average MTBE Market Share | Average ETBE Market Share | Average TAME Market Share | Average EtOH Market Share | MTBE Percent Volume | TAME Percent Volume | ETBE Percent Volume | EtOH Percent Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FISHER | 8.7 | 0.00934 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0554 | 0 | 0 | 0.006 |
| FLOYD | 8.7 | 0.01151 | 0.0033 | 0.01443 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0694 | 0 | 0 | 0 |
| FOARD | 8.7 | 0.09874 | 0.0033 | 0.02673 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1010 | 0 | 0 | 3.329 |
| FORT BEND | 6.8 | 0.01085 | 0.0033 | 0.03510 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0607 | 0.00100 | 0.32 | 5.295 |
| FRANKLIN | 7.8 | 0.00724 | 0.0033 | 0.03740 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0405 | 0 | 0 | 5.539 |
| FREESTONE | 7.8 | 0.00913 | 0.0033 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0511 | 0 | 0 | 0.001 |
| FRIO | 8.7 | 0.00793 | 0.0033 | 0.03917 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0478 | 0 | 0 | 0 |
| GAINES | 8.7 | 0.01151 | 0.0033 | 0.01443 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0694 | 0 | 0 | 0 |
| GALVESTON | 6.8 | 0.01085 | 0.0033 | 0.03510 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0607 | 0.00100 | 0.32 | 5.295 |
| GARZA | 8.7 | 0.01151 | 0.0033 | 0.01443 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0694 | 0 | 0 | 0 |
| GILLESPIE | 8.7 | 0.02491 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1466 | 0 | 0 | 0.024 |
| GLASSCOCK | 8.7 | 0.02262 | 0.0033 | 0.02147 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1364 | 0.00200 | 0 | 0 |
| GOLIAD | 7.8 | 0.02043 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1144 | 0 | 0 | 0.032 |
| GONZALES | 7.8 | 0.02297 | 0.0033 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1286 | 0 | 0 | 0 |
| GRAY | 8.7 | 0.03976 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0666 | 0.00100 | 0 | 1.166 |
| GRAYSON | 7.8 | 0.00724 | 0.0033 | 0.03740 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0405 | 0 | 0 | 5.539 |
| GREGG | 7.8 | 0.00746 | 0.0033 | 0.01978 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0418 | 0 | 0 | 3.830 |
| GRIMES | 7.8 | 0.00913 | 0.0033 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0511 | 0 | 0 | 0.001 |
| GUADALUPE | 7.8 | 0.00854 | 0.0033 | 0.03917 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0478 | 0 | 0 | 0 |
| HALE | 8.7 | 0.01151 | 0.0033 | 0.01443 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0694 | 0 | 0 | 0 |
| HALL | 8.7 | 0.09874 | 0.0033 | 0.02673 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1010 | 0 | 0 | 3.329 |
| HAMILTON | 8.7 | 0.01461 | 0.0033 | 0.03690 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0 | 0 | 0 | 0.593 |
| HANSFORD | 8.7 | 0.03976 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0666 | 0.00100 | 0 | 1.166 |
| HARDEMAN | 8.7 | 0.09874 | 0.0033 | 0.02673 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1010 | 0 | 0 | 3.329 |
| HARDIN | 7.8 | 0.00970 | 0.0033 | 0.04120 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0543 | 0.00100 | 0 | 2.007 |
| HARRIS | 6.8 | 0.01085 | 0.0033 | 0.03510 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0607 | 0.00100 | 0.32 | 5.295 |
| HARRISON | 7.8 | 0.01505 | 0.0033 | 0.03747 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0843 | 0 | 0 | 0 |
| HARTLEY | 8.7 | 0.03976 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0666 | 0.00100 | 0 | 1.166 |
| HASKELL | 8.7 | 0.00934 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0554 | 0 | 0 | 0.006 |
| HAYS | 7.8 | 0.02619 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1466 | 0 | 0 | 0.024 |
| HEMPHILL | 8.7 | 0.03976 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0666 | 0.00100 | 0 | 1.166 |
| HENDERSON | 7.8 | 0.00746 | 0.0033 | 0.01978 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0418 | 0 | 0 | 3.830 |
| HIDALGO | 8.7 | 0.00000 | 0.0033 | 0.02700 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0 | 0 | 0 | 0 |
| HILL | 7.8 | 0.00000 | 0.0033 | 0.03690 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0.593 |
| HOCKLEY | 8.7 | 0.01151 | 0.0033 | 0.01443 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0694 | 0 | 0 | 0 |
| HOOD | 7.8 | 0.01111 | 0.0033 | 0.03573 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0622 | 0 | 0 | 6.815 |
| HOPKINS | 7.8 | 0.00724 | 0.0033 | 0.03740 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0405 | 0 | 0 | 5.539 |
| HOUSTON | 7.8 | 0.01694 | 0.0033 | 0.03370 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0948 | 0.00300 | 0 | 2.177 |
| HOWARD | 8.7 | 0.00934 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0554 | 0 | 0 | 0.006 |

| County | Gas RVP | Oxygen Weight Percent | Gas Sulfur Percent | Diesel Sulfur Percent | Marine Diesel Sulfur Percent | CNG/LPG Sulfur Percent | Average MTBE Market Share | Average ETBE Market Share | Average TAME Market Share | Average EtOH Market Share | MTBE Percent Volume | TAME Percent Volume | ETBE Percent Volume | EtOH Percent Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HUDSPETH | 8.7 | 0.01818 | 0.0033 | 0.03580 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0 | 0 | 0 | 0.738 |
| HUNT | 7.8 | 0.00724 | 0.0033 | 0.03740 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0405 | 0 | 0 | 5.539 |
| HUTCHINSON | 8.7 | 0.03976 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0666 | 0.00100 | 0 | 1.166 |
| IRION | 8.7 | 0.02262 | 0.0033 | 0.02147 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1364 | 0.00200 | 0 | 0 |
| JACK | 8.7 | 0.17818 | 0.0033 | 0.03573 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0622 | 0 | 0 | 6.815 |
| JACKSON | 7.8 | 0.02297 | 0.0033 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1286 | 0 | 0 | 0 |
| JASPER | 7.8 | 0.00970 | 0.0033 | 0.04120 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0543 | 0.00100 | 0 | 2.007 |
| JEFF DAVIS | 8.7 | 0.01818 | 0.0033 | 0.03580 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0 | 0 | 0 | 0.738 |
| JEFFERSON | 7.8 | 0.00970 | 0.0033 | 0.04120 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0543 | 0.00100 | 0 | 2.007 |
| JIM HOGG | 8.7 | 0.00000 | 0.0033 | 0.02700 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0 | 0 | 0 | 0 |
| JIM WELLS | 8.7 | 0.01976 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1144 | 0 | 0 | 0.032 |
| JOHNSON | 7.8 | 0.01111 | 0.0033 | 0.03573 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0622 | 0 | 0 | 6.815 |
| JONES | 8.7 | 0.00934 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0554 | 0 | 0 | 0.006 |
| KARNES | 7.8 | 0.02043 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1144 | 0 | 0 | 0.032 |
| KAUFMAN | 7.8 | 0.00858 | 0.0033 | 0.03458 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0480 | 0 | 0 | 5.904 |
| KENDALL | 8.7 | 0.00793 | 0.0033 | 0.03917 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0478 | 0 | 0 | 0 |
| KENEDY | 8.7 | 0.00000 | 0.0033 | 0.02700 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0 | 0 | 0 | 0 |
| KENT | 8.7 | 0.00934 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0554 | 0 | 0 | 0.006 |
| KERR | 8.7 | 0.00793 | 0.0033 | 0.03917 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0478 | 0 | 0 | 0 |
| KIMBLE | 8.7 | 0.02262 | 0.0033 | 0.02147 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1364 | 0.00200 | 0 | 0 |
| KING | 8.7 | 0.09874 | 0.0033 | 0.02673 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1010 | 0 | 0 | 3.329 |
| KINNEY | 8.7 | 0.01933 | 0.0033 | 0.03701 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1165 | 0.00200 | 0 | 0 |
| KLEBERG | 8.7 | 0.01976 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1144 | 0 | 0 | 0.032 |
| KNOX | 8.7 | 0.09874 | 0.0033 | 0.02673 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1010 | 0 | 0 | 3.329 |
| LA SALLE | 8.7 | 0.01933 | 0.0033 | 0.03701 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1165 | 0.00200 | 0 | 0 |
| LAMAR | 7.8 | 0.00724 | 0.0033 | 0.03740 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0405 | 0 | 0 | 5.539 |
| LAMB | 8.7 | 0.01151 | 0.0033 | 0.01443 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0694 | 0 | 0 | 0 |
| LAMPASAS | 8.7 | 0.02489 | 0.0033 | 0.02680 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1501 | 0 | 0 | 0 |
| LAVACA | 7.8 | 0.02297 | 0.0033 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1286 | 0 | 0 | 0 |
| LEE | 7.8 | 0.02619 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1466 | 0 | 0 | 0.024 |
| LEON | 7.8 | 0.00913 | 0.0033 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0511 | 0 | 0 | 0.001 |
| LIBERTY | 6.8 | 0.00970 | 0.0033 | 0.04120 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0543 | 0.00100 | 0 | 2.007 |
| LIMESTONE | 7.8 | 0.00000 | 0.0033 | 0.03690 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0.593 |
| LIPSCOMB | 8.7 | 0.03976 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0666 | 0.00100 | 0 | 1.166 |
| LIVE OAK | 7.8 | 0.02043 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1144 | 0 | 0 | 0.032 |
| LLANO | 8.7 | 0.02491 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1466 | 0 | 0 | 0.024 |
| LOVING | 8.7 | 0.01752 | 0.0033 | 0.02693 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1056 | 0.00300 | 0 | 0 |
| LUBBOCK | 8.7 | 0.01151 | 0.0033 | 0.01443 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0694 | 0 | 0 | 0 |
| LYNN | 8.7 | 0.01151 | 0.0033 | 0.01443 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0694 | 0 | 0 | 0 |

| County | Gas RVP | Oxygen Weight Percent | Gas Sulfur Percent | Diesel Sulfur Percent | Marine Diesel Sulfur Percent | CNG/LPG Sulfur Percent | Average MTBE Market Share | Average ETBE Market Share | Average TAME Market Share | Average EtOH Market Share | MTBE Percent Volume | TAME Percent Volume | ETBE Percent Volume | EtOH Percent Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MADISON | 7.8 | 0.00913 | 0.0033 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0511 | 0 | 0 | 0.001 |
| MARION | 7.8 | 0.01505 | 0.0033 | 0.03747 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0843 | 0 | 0 | 0 |
| MARTIN | 8.7 | 0.01752 | 0.0033 | 0.02693 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1056 | 0.00300 | 0 | 0 |
| MASON | 8.7 | 0.02491 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1466 | 0 | 0 | 0.024 |
| MATAGORDA | 7.8 | 0.02297 | 0.0033 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1286 | 0 | 0 | 0 |
| MAVERICK | 8.7 | 0.01933 | 0.0033 | 0.03701 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1165 | 0.00200 | 0 | 0 |
| MCCULLOCH | 8.7 | 0.02489 | 0.0033 | 0.02680 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1501 | 0 | 0 | 0 |
| MCLENNAN | 7.8 | 0.00000 | 0.0033 | 0.03690 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0.593 |
| MCMULLEN | 8.7 | 0.00793 | 0.0033 | 0.03917 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0478 | 0 | 0 | 0 |
| MEDINA | 8.7 | 0.00793 | 0.0033 | 0.03917 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0478 | 0 | 0 | 0 |
| MENARD | 8.7 | 0.02262 | 0.0033 | 0.02147 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1364 | 0.00200 | 0 | 0 |
| MIDLAND | 8.7 | 0.01752 | 0.0033 | 0.02693 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1056 | 0.00300 | 0 | 0 |
| MILAM | 7.8 | 0.00913 | 0.0033 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0511 | 0 | 0 | 0.001 |
| MILLS | 8.7 | 0.02489 | 0.0033 | 0.02680 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1501 | 0 | 0 | 0 |
| MITCHELL | 8.7 | 0.00934 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0554 | 0 | 0 | 0.006 |
| MONTAGUE | 8.7 | 0.01700 | 0.0033 | 0.04093 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1025 | 0 | 0 | 0 |
| MONTGOMERY | 6.8 | 0.01085 | 0.0033 | 0.03510 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0607 | 0.00100 | 0.32 | 5.295 |
| MOORE | 8.7 | 0.03976 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0666 | 0.00100 | 0 | 1.166 |
| MORRIS | 7.8 | 0.01505 | 0.0033 | 0.03747 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0843 | 0 | 0 | 0 |
| MOTLEY | 8.7 | 0.09874 | 0.0033 | 0.02673 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1010 | 0 | 0 | 3.329 |
| NACOGDOCHES | 7.8 | 0.01694 | 0.0033 | 0.03370 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0948 | 0.00300 | 0 | 2.177 |
| NAVARRO | 7.8 | 0.00858 | 0.0033 | 0.03458 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0480 | 0 | 0 | 5.904 |
| NEWTON | 7.8 | 0.00970 | 0.0033 | 0.04120 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0543 | 0.00100 | 0 | 2.007 |
| NOLAN | 8.7 | 0.00934 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0554 | 0 | 0 | 0.006 |
| NUECES | 7.8 | 0.02043 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1144 | 0 | 0 | 0.032 |
| OCHILTREE | 8.7 | 0.03976 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0666 | 0.00100 | 0 | 1.166 |
| OLDHAM | 8.7 | 0.03976 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0666 | 0.00100 | 0 | 1.166 |
| ORANGE | 7.8 | 0.00970 | 0.0033 | 0.04120 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0543 | 0.00100 | 0 | 2.007 |
| PALO PINTO | 8.7 | 0.17818 | 0.0033 | 0.03573 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0622 | 0 | 0 | 6.815 |
| PANOLA | 7.8 | 0.01505 | 0.0033 | 0.03747 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0843 | 0 | 0 | 0 |
| PARKER | 7.8 | 0.01111 | 0.0033 | 0.03573 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0622 | 0 | 0 | 6.815 |
| PARMER | 8.7 | 0.01151 | 0.0033 | 0.01443 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0694 | 0 | 0 | 0 |
| PECOS | 8.7 | 0.01752 | 0.0033 | 0.02693 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1056 | 0.00300 | 0 | 0 |
| POLK | 7.8 | 0.01694 | 0.0033 | 0.03370 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0948 | 0.00300 | 0 | 2.177 |
| POTTER | 8.7 | 0.03976 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0666 | 0.00100 | 0 | 1.166 |
| PRESIDIO | 8.7 | 0.01818 | 0.0033 | 0.03580 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0 | 0 | 0 | 0.738 |
| RAINS | 7.8 | 0.00724 | 0.0033 | 0.03740 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0405 | 0 | 0 | 5.539 |
| RANDALL | 8.7 | 0.03976 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0666 | 0.00100 | 0 | 1.166 |
| REAGAN | 8.7 | 0.02262 | 0.0033 | 0.02147 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1364 | 0.00200 | 0 | 0 |

| County | Gas RVP | Oxygen Weight Percent | Gas Sulfur Percent | Diesel Sulfur Percent | Marine Diesel Sulfur Percent | CNG/LPG Sulfur Percent | Average MTBE Market Share | Average ETBE Market Share | Average TAME Market Share | Average EtOH Market Share | MTBE Percent Volume | TAME Percent Volume | ETBE Percent Volume | EtOH Percent Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| REAL | 8.7 | 0.02262 | 0.0033 | 0.02147 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1364 | 0.00200 | 0 | 0 |
| RED RIVER | 7.8 | 0.00724 | 0.0033 | 0.03740 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0405 | 0 | 0 | 5.539 |
| REEVES | 8.7 | 0.01752 | 0.0033 | 0.02693 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1056 | 0.00300 | 0 | 0 |
| REFUGIO | 7.8 | 0.02043 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1144 | 0 | 0 | 0.032 |
| ROBERTS | 8.7 | 0.03976 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0666 | 0.00100 | 0 | 1.166 |
| ROBERTSON | 7.8 | 0.00913 | 0.0033 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0511 | 0 | 0 | 0.001 |
| ROCKWALL | 7.8 | 0.00858 | 0.0033 | 0.03458 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0480 | 0 | 0 | 5.904 |
| RUNNELS | 8.7 | 0.02262 | 0.0033 | 0.02147 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1364 | 0.00200 | 0 | 0 |
| RUSK | 7.8 | 0.00746 | 0.0033 | 0.01978 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0418 | 0 | 0 | 3.830 |
| SABINE | 7.8 | 0.01694 | 0.0033 | 0.03370 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0948 | 0.00300 | 0 | 2.177 |
| SAN AUGUSTINE | 7.8 | 0.01694 | 0.0033 | 0.03370 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0948 | 0.00300 | 0 | 2.177 |
| SAN JACINTO | 7.8 | 0.01694 | 0.0033 | 0.03370 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0948 | 0.00300 | 0 | 2.177 |
| SAN PATRICIO | 7.8 | 0.02043 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1144 | 0 | 0 | 0.032 |
| SAN SABA | 8.7 | 0.02489 | 0.0033 | 0.02680 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1501 | 0 | 0 | 0 |
| SCHLEICHER | 8.7 | 0.02262 | 0.0033 | 0.02147 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1364 | 0.00200 | 0 | 0 |
| SCURRY | 8.7 | 0.00934 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0554 | 0 | 0 | 0.006 |
| SHACKELFORD | 8.7 | 0.00934 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0554 | 0 | 0 | 0.006 |
| SHELBY | 7.8 | 0.01694 | 0.0033 | 0.03370 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0948 | 0.00300 | 0 | 2.177 |
| SHERMAN | 8.7 | 0.03976 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0666 | 0.00100 | 0 | 1.166 |
| SMITH | 7.8 | 0.00746 | 0.0033 | 0.01978 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0418 | 0 | 0 | 3.830 |
| SOMERVELL | 7.8 | 0.01111 | 0.0033 | 0.03573 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0622 | 0 | 0 | 6.815 |
| STARR | 8.7 | 0.00000 | 0.0033 | 0.02700 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0 | 0 | 0 | 0 |
| STEPHENS | 8.7 | 0.02489 | 0.0033 | 0.02680 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1501 | 0 | 0 | 0 |
| STERLING | 8.7 | 0.02262 | 0.0033 | 0.02147 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1364 | 0.00200 | 0 | 0 |
| STONEWALL | 8.7 | 0.00934 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0554 | 0 | 0 | 0.006 |
| SUTTON | 8.7 | 0.02262 | 0.0033 | 0.02147 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1364 | 0.00200 | 0 | 0 |
| SWISHER | 8.7 | 0.01151 | 0.0033 | 0.01443 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0694 | 0 | 0 | 0 |
| TARRANT | 6.8 | 0.01060 | 0.0033 | 0.03573 | 0.0408 | 0.003 | 0.9538 | 0 | 0.04623 | 0 | 0.0622 | 0 | 0 | 6.815 |
| TAYLOR | 8.7 | 0.00934 | 0.0033 | 0.03850 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0554 | 0 | 0 | 0.006 |
| TERRELL | 8.7 | 0.01752 | 0.0033 | 0.02693 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1056 | 0.00300 | 0 | 0 |
| TERRY | 8.7 | 0.01151 | 0.0033 | 0.01443 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0694 | 0 | 0 | 0 |
| THROCKMORTON | 8.7 | 0.01700 | 0.0033 | 0.04093 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1025 | 0 | 0 | 0 |
| TITUS | 7.8 | 0.01505 | 0.0033 | 0.03747 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0843 | 0 | 0 | 0 |
| TOM GREEN | 8.7 | 0.02262 | 0.0033 | 0.02147 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1364 | 0.00200 | 0 | 0 |
| TRAVIS | 7.8 | 0.02619 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1466 | 0 | 0 | 0.024 |
| TRINITY | 7.8 | 0.01694 | 0.0033 | 0.03370 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0948 | 0.00300 | 0 | 2.177 |
| TYLER | 7.8 | 0.00970 | 0.0033 | 0.04120 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0543 | 0.00100 | 0 | 2.007 |
| UPSHUR | 7.8 | 0.01505 | 0.0033 | 0.03747 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0843 | 0 | 0 | 0 |
| UPTON | 8.7 | 0.01752 | 0.0033 | 0.02693 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1056 | 0.00300 | 0 | 0 |

| County | Gas RVP | Oxygen Weight Percent | Gas Sulfur Percent | Diesel Sulfur Percent | Marine Diesel Sulfur Percent | CNG/LPG Sulfur Percent | Average MTBE Market Share | Average ETBE Market Share | Average TAME Market Share | Average EtOH Market Share | MTBE Percent Volume | TAME Percent Volume | ETBE Percent Volume | EtOH Percent Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UVALDE | 8.7 | 0.00793 | 0.0033 | 0.03917 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0478 | 0 | 0 | 0 |
| VAL VERDE | 8.7 | 0.01933 | 0.0033 | 0.03701 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1165 | 0.00200 | 0 | 0 |
| VAN ZANDT | 7.8 | 0.00746 | 0.0033 | 0.01978 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0418 | 0 | 0 | 3.830 |
| VICTORIA | 7.8 | 0.02297 | 0.0033 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1286 | 0 | 0 | 0 |
| WALKER | 7.8 | 0.00913 | 0.0033 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0511 | 0 | 0 | 0.001 |
| WALLER | 6.8 | 0.01085 | 0.0033 | 0.03510 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0607 | 0.00100 | 0.32 | 5.295 |
| WARD | 8.7 | 0.01752 | 0.0033 | 0.02693 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1056 | 0.00300 | 0 | 0 |
| WASHINGTON | 7.8 | 0.00913 | 0.0033 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0511 | 0 | 0 | 0.001 |
| WEBB | 8.7 | 0.01933 | 0.0033 | 0.03701 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1165 | 0.00200 | 0 | 0 |
| WHARTON | 7.8 | 0.02297 | 0.0033 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1286 | 0 | 0 | 0 |
| WHEELER | 8.7 | 0.09874 | 0.0033 | 0.02673 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1010 | 0 | 0 | 3.329 |
| WICHITA | 8.7 | 0.01700 | 0.0033 | 0.04093 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1025 | 0 | 0 | 0 |
| WILBARGER | 8.7 | 0.01700 | 0.0033 | 0.04093 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1025 | 0 | 0 | 0 |
| WILLACY | 8.7 | 0.00000 | 0.0033 | 0.02700 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0 | 0 | 0 | 0 |
| WILLIAMSON | 7.8 | 0.02619 | 0.0033 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.1466 | 0 | 0 | 0.024 |
| WILSON | 7.8 | 0.00854 | 0.0033 | 0.03917 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0478 | 0 | 0 | 0 |
| WINKLER | 8.7 | 0.01752 | 0.0033 | 0.02693 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1056 | 0.00300 | 0 | 0 |
| WISE | 7.8 | 0.01111 | 0.0033 | 0.03573 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0622 | 0 | 0 | 6.815 |
| WOOD | 7.8 | 0.00746 | 0.0033 | 0.01978 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.0418 | 0 | 0 | 3.830 |
| YOAKUM | 8.7 | 0.01151 | 0.0033 | 0.01443 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.0694 | 0 | 0 | 0 |
| YOUNG | 8.7 | 0.01700 | 0.0033 | 0.04093 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1025 | 0 | 0 | 0 |
| ZAPATA | 8.7 | 0.00000 | 0.0033 | 0.02700 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0 | 0 | 0 | 0 |
| ZAVALA | 8.7 | 0.01933 | 0.0033 | 0.03701 | 0.0408 | 0.003 | 0.9286 | 0 | 0 | 0.07143 | 0.1165 | 0.00200 | 0 | 0 |

## Table A-2. TexN 2008 Winter Fuel Specifications

| County | Gas RVP | Oxygen Weight Percent | Gas Sulfur Percent | Diesel Sulfur Percent | Marine Diesel Sulfur Percent | CNG/LPG Sulfur Percent | Average MTBE Market Share | Average ETBE Market Share | Average TAME Market Share | Average EtOH Market Share | MTBE Percent Volume | TAME Percent Volume | ETBE PercentVolume | EtOH Percent Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANDERSON | 12.3 | 0.04608 | 0.003 | 0.01978 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| ANDREWS | 11.5 | 0.00277 | 0.003 | 0.02693 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| ANGELINA | 12.3 | 0.04608 | 0.003 | 0.03370 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| ARANSAS | 12.3 | 0.04608 | 0.003 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| ARCHER | 11.5 | 0.01316 | 0.003 | 0.04093 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| ARMSTRONG | 11.5 | 0.00000 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| ATASCOSA | 12.3 | 0.04608 | 0.003 | 0.03917 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| AUSTIN | 12.3 | 0.04608 | 0.003 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| BAILEY | 11.5 | 0.00000 | 0.003 | 0.01443 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| BANDERA | 11.5 | 0.01316 | 0.003 | 0.03917 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| BASTROP | 12.3 | 0.04608 | 0.003 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| BAYLOR | 11.5 | 0.01316 | 0.003 | 0.04093 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| BEE | 12.3 | 0.04608 | 0.003 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| BELL | 12.3 | 0.04608 | 0.003 | 0.03690 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| BEXAR | 12.3 | 0.04608 | 0.003 | 0.03917 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| BLANCO | 11.5 | 0.01316 | 0.003 | 0.03303 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| BORDEN | 11.5 | 0.00277 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| BOSQUE | 12.3 | 0.04608 | 0.003 | 0.03690 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| BOWIE | 12.3 | 0.04608 | 0.003 | 0.03747 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| BRAZORIA | 11.3 | 0.19985 | 0.003 | 0.03510 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 1.1190 | 0.05000 | 0 | 0 |
| BRAZOS | 12.3 | 0.04608 | 0.003 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| BREWSTER | 11.5 | 0.00277 | 0.003 | 0.03580 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| BRISCOE | 11.5 | 0.00000 | 0.003 | 0.02673 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| BROOKS | 11.5 | 0.01316 | 0.003 | 0.02700 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| BROWN | 11.5 | 0.01316 | 0.003 | 0.02680 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |

| County | Gas RVP | Oxygen Weight Percent | Gas Sulfur Percent | Diesel Sulfur Percent | Marine Diesel Sulfur Percent | CNG/LPG Sulfur Percent | Average MTBE Market Share | Average ETBE Market Share | Average TAME Market Share | Average EtOH Market Share | MTBE Percent Volume | TAME Percent Volume | ETBE PercentVolume | EtOH Percent Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BURLESON | 12.3 | 0.04608 | 0.003 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| BURNET | 11.5 | 0.01316 | 0.003 | 0.03303 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| CALDWELL | 12.3 | 0.04608 | 0.003 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| CALHOUN | 12.3 | 0.04608 | 0.003 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| CALLAHAN | 11.5 | 0.00277 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| CAMERON | 11.5 | 0.01316 | 0.003 | 0.02700 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| CAMP | 12.3 | 0.04608 | 0.003 | 0.03747 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| CARSON | 11.5 | 0.00000 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| CASS | 12.3 | 0.04608 | 0.003 | 0.03747 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| CASTRO | 11.5 | 0.00000 | 0.003 | 0.01443 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| CHAMBERS | 11.3 | 0.19985 | 0.003 | 0.04120 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 1.1190 | 0.05000 | 0 | 0 |
| CHEROKEE | 12.3 | 0.04608 | 0.003 | 0.01978 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| CHILDRESS | 11.5 | 0.00000 | 0.003 | 0.02673 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| CLAY | 11.5 | 0.01316 | 0.003 | 0.04093 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| COCHRAN | 11.5 | 0.00277 | 0.003 | 0.01443 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| COKE | 11.5 | 0.00277 | 0.003 | 0.02147 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| COLEMAN | 11.5 | 0.00277 | 0.003 | 0.02680 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| COLLIN | 11.7 | 0.17497 | 0.003 | 0.03458 | 0.0408 | 0.003 | 0.9689 | 0 | 0.03115 | 0 | 1.0083 | 0.09556 | 0 | 0 |
| COLLINGSWORTH | 11.5 | 0.00000 | 0.003 | 0.02673 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| COLORADO | 12.3 | 0.04608 | 0.003 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| COMAL | 12.3 | 0.04608 | 0.003 | 0.03917 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| COMANCHE | 11.5 | 0.01316 | 0.003 | 0.02680 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| CONCHO | 11.5 | 0.00277 | 0.003 | 0.02147 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| COOKE | 12.3 | 0.04608 | 0.003 | 0.04093 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| CORYELL | 12.3 | 0.04608 | 0.003 | 0.03690 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| COTTLE | 11.5 | 0.00000 | 0.003 | 0.02673 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| CRANE | 11.5 | 0.00277 | 0.003 | 0.02693 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |

| County | Gas RVP | Oxygen Weight Percent | Gas Sulfur Percent | Diesel Sulfur Percent | Marine Diesel Sulfur Percent | CNG/LPG Sulfur Percent | Average MTBE Market Share | Average ETBE Market Share | Average TAME Market Share | Average EtOH Market Share | MTBE Percent Volume | TAME Percent Volume | ETBE PercentVolume | EtOH Percent Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CROCKETT | 11.5 | 0.00277 | 0.003 | 0.02147 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| CROSBY | 11.5 | 0.00000 | 0.003 | 0.01443 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| CULBERSON | 11.5 | 0.19118 | 0.003 | 0.03580 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0 | 0 | 0.776 |
| DALLAM | 11.5 | 0.00000 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| DALLAS | 11.7 | 0.17497 | 0.003 | 0.03458 | 0.0408 | 0.003 | 0.9689 | 0 | 0.03115 | 0 | 1.0083 | 0.09556 | 0 | 0 |
| DAWSON | 11.5 | 0.00277 | 0.003 | 0.01443 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| DE WITT | 12.3 | 0.04608 | 0.003 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| DEAF SMITH | 11.5 | 0.00000 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| DELTA | 12.3 | 0.04608 | 0.003 | 0.03740 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| DENTON | 11.7 | 0.17497 | 0.003 | 0.03458 | 0.0408 | 0.003 | 0.9689 | 0 | 0.03115 | 0 | 1.0083 | 0.09556 | 0 | 0 |
| DICKENS | 11.5 | 0.00000 | 0.003 | 0.02673 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| DIMMIT | 11.5 | 0.01316 | 0.003 | 0.03701 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| DONLEY | 11.5 | 0.00000 | 0.003 | 0.02673 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| DUVAL | 11.5 | 0.01316 | 0.003 | 0.03701 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| EASTLAND | 11.5 | 0.01316 | 0.003 | 0.02680 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| ECTOR | 11.5 | 0.00277 | 0.003 | 0.02693 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| EDWARDS | 11.5 | 0.01316 | 0.003 | 0.02147 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| EL PASO | 12.3 | 0.19118 | 0.003 | 0.03580 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0 | 0 | 0.776 |
| ELLIS | 12.3 | 0.04608 | 0.003 | 0.03458 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| ERATH | 11.5 | 0.01316 | 0.003 | 0.03573 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| FALLS | 12.3 | 0.04608 | 0.003 | 0.03690 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| FANNIN | 12.3 | 0.04608 | 0.003 | 0.03740 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| FAYETTE | 12.3 | 0.04608 | 0.003 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| FISHER | 11.5 | 0.00277 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| FLOYD | 11.5 | 0.00000 | 0.003 | 0.01443 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| FOARD | 11.5 | 0.00000 | 0.003 | 0.02673 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| FORT BEND | 11.3 | 0.19985 | 0.003 | 0.03510 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 1.1190 | 0.05000 | 0 | 0 |

| County | Gas RVP | Oxygen Weight Percent | Gas Sulfur Percent | Diesel Sulfur Percent | Marine Diesel Sulfur Percent | CNG/LPG Sulfur Percent | Average MTBE Market Share | Average ETBE Market Share | Average TAME Market Share | Average EtOH Market Share | MTBE Percent Volume | TAME Percent Volume | ETBE PercentVolume | EtOH Percent Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FRANKLIN | 12.3 | 0.04608 | 0.003 | 0.03740 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| FREESTONE | 12.3 | 0.04608 | 0.003 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| FRIO | 11.5 | 0.01316 | 0.003 | 0.03917 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| GAINES | 11.5 | 0.00277 | 0.003 | 0.01443 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| GALVESTON | 11.3 | 0.19985 | 0.003 | 0.03510 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 1.1190 | 0.05000 | 0 | 0 |
| GARZA | 11.5 | 0.00277 | 0.003 | 0.01443 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| GILLESPIE | 11.5 | 0.01316 | 0.003 | 0.03303 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| GLASSCOCK | 11.5 | 0.00277 | 0.003 | 0.02147 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| GOLIAD | 12.3 | 0.04608 | 0.003 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| GONZALES | 12.3 | 0.04608 | 0.003 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| GRAY | 11.5 | 0.00000 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| GRAYSON | 12.3 | 0.04608 | 0.003 | 0.03740 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| GREGG | 12.3 | 0.04608 | 0.003 | 0.01978 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| GRIMES | 12.3 | 0.04608 | 0.003 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| GUADALUPE | 12.3 | 0.04608 | 0.003 | 0.03917 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| HALE | 11.5 | 0.00000 | 0.003 | 0.01443 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| HALL | 11.5 | 0.00000 | 0.003 | 0.02673 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| HAMILTON | 11.5 | 0.01316 | 0.003 | 0.03690 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| HANSFORD | 11.5 | 0.00000 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| HARDEMAN | 11.5 | 0.00000 | 0.003 | 0.02673 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| HARDIN | 12.3 | 0.04608 | 0.003 | 0.04120 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| HARRIS | 11.3 | 0.19985 | 0.003 | 0.03510 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 1.1190 | 0.05000 | 0 | 0 |
| HARRISON | 12.3 | 0.04608 | 0.003 | 0.03747 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| HARTLEY | 11.5 | 0.00000 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| HASKELL | 11.5 | 0.00277 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| HAYS | 12.3 | 0.04608 | 0.003 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| HEMPHILL | 11.5 | 0.00000 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |

| County | Gas RVP | Oxygen Weight Percent | Gas Sulfur Percent | Diesel Sulfur Percent | Marine Diesel Sulfur Percent | CNG/LPG Sulfur Percent | Average MTBE Market Share | Average ETBE Market Share | Average TAME Market Share | Average EtOH Market Share | MTBE Percent Volume | TAME Percent Volume | ETBE PercentVolume | EtOH Percent Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HENDERSON | 12.3 | 0.04608 | 0.003 | 0.01978 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| HIDALGO | 11.5 | 0.01316 | 0.003 | 0.02700 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| HILL | 12.3 | 0.04608 | 0.003 | 0.03690 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| HOCKLEY | 11.5 | 0.00277 | 0.003 | 0.01443 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| HOOD | 12.3 | 0.04608 | 0.003 | 0.03573 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| HOPKINS | 12.3 | 0.04608 | 0.003 | 0.03740 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| HOUSTON | 12.3 | 0.04608 | 0.003 | 0.03370 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| HOWARD | 11.5 | 0.00277 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| HUDSPETH | 11.5 | 0.19118 | 0.003 | 0.03580 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0 | 0 | 0.776 |
| HUNT | 12.3 | 0.04608 | 0.003 | 0.03740 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| HUTCHINSON | 11.5 | 0.00000 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| IRION | 11.5 | 0.00277 | 0.003 | 0.02147 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| JACK | 11.5 | 0.01316 | 0.003 | 0.03573 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| JACKSON | 12.3 | 0.04608 | 0.003 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| JASPER | 12.3 | 0.04608 | 0.003 | 0.04120 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| JEFF DAVIS | 11.5 | 0.19118 | 0.003 | 0.03580 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0 | 0 | 0.776 |
| JEFFERSON | 12.3 | 0.04608 | 0.003 | 0.04120 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| JIM HOGG | 11.5 | 0.01316 | 0.003 | 0.02700 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| JIM WELLS | 11.5 | 0.01316 | 0.003 | 0.03303 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| JOHNSON | 12.3 | 0.04608 | 0.003 | 0.03573 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| JONES | 11.5 | 0.00277 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| KARNES | 12.3 | 0.04608 | 0.003 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| KAUFMAN | 12.3 | 0.04608 | 0.003 | 0.03458 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| KENDALL | 11.5 | 0.01316 | 0.003 | 0.03917 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| KENEDY | 11.5 | 0.01316 | 0.003 | 0.02700 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| KENT | 11.5 | 0.00277 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| KERR | 11.5 | 0.01316 | 0.003 | 0.03917 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |

| County | Gas RVP | Oxygen Weight Percent | Gas Sulfur Percent | Diesel Sulfur Percent | Marine Diesel Sulfur Percent | CNG/LPG Sulfur Percent | Average MTBE Market Share | Average ETBE Market Share | Average TAME Market Share | Average EtOH Market Share | MTBE Percent Volume | TAME Percent Volume | ETBE PercentVolume | EtOH Percent Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KIMBLE | 11.5 | 0.01316 | 0.003 | 0.02147 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| KING | 11.5 | 0.00000 | 0.003 | 0.02673 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| KINNEY | 11.5 | 0.01316 | 0.003 | 0.03701 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| KLEBERG | 11.5 | 0.01316 | 0.003 | 0.03303 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| KNOX | 11.5 | 0.00000 | 0.003 | 0.02673 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| LA SALLE | 11.5 | 0.01316 | 0.003 | 0.03701 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| LAMAR | 12.3 | 0.04608 | 0.003 | 0.03740 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| LAMB | 11.5 | 0.00000 | 0.003 | 0.01443 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| LAMPASAS | 11.5 | 0.01316 | 0.003 | 0.02680 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| LAVACA | 12.3 | 0.04608 | 0.003 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| LEE | 12.3 | 0.04608 | 0.003 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| LEON | 12.3 | 0.04608 | 0.003 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| LIBERTY | 11.3 | 0.19985 | 0.003 | 0.04120 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 1.1190 | 0.05000 | 0 | 0 |
| LIMESTONE | 12.3 | 0.04608 | 0.003 | 0.03690 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| LIPSCOMB | 11.5 | 0.00000 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| LIVE OAK | 12.3 | 0.04608 | 0.003 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| LLANO | 11.5 | 0.01316 | 0.003 | 0.03303 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| LOVING | 11.5 | 0.00277 | 0.003 | 0.02693 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| LUBBOCK | 11.5 | 0.00277 | 0.003 | 0.01443 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| LYNN | 11.5 | 0.00277 | 0.003 | 0.01443 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| MADISON | 12.3 | 0.04608 | 0.003 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| MARION | 12.3 | 0.04608 | 0.003 | 0.03747 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| MARTIN | 11.5 | 0.00277 | 0.003 | 0.02693 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| MASON | 11.5 | 0.01316 | 0.003 | 0.03303 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| MATAGORDA | 12.3 | 0.04608 | 0.003 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| MAVERICK | 11.5 | 0.01316 | 0.003 | 0.03701 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| MCCULLOCH | 11.5 | 0.01316 | 0.003 | 0.02680 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |

| County | Gas RVP | Oxygen Weight Percent | Gas Sulfur Percent | Diesel Sulfur Percent | Marine Diesel Sulfur Percent | CNG/LPG Sulfur Percent | Average MTBE Market Share | Average ETBE Market Share | Average TAME Market Share | Average EtOH Market Share | MTBE Percent Volume | TAME Percent Volume | ETBE PercentVolume | EtOH Percent Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCLENNAN | 12.3 | 0.04608 | 0.003 | 0.03690 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| MCMULLEN | 11.5 | 0.01316 | 0.003 | 0.03917 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| MEDINA | 11.5 | 0.01316 | 0.003 | 0.03917 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| MENARD | 11.5 | 0.01316 | 0.003 | 0.02147 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| MIDLAND | 11.5 | 0.00277 | 0.003 | 0.02693 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| MILAM | 12.3 | 0.04608 | 0.003 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| MILLS | 11.5 | 0.01316 | 0.003 | 0.02680 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| MITCHELL | 11.5 | 0.00277 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| MONTAGUE | 11.5 | 0.01316 | 0.003 | 0.04093 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| MONTGOMERY | 11.3 | 0.19985 | 0.003 | 0.03510 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 1.1190 | 0.05000 | 0 | 0 |
| MOORE | 11.5 | 0.00000 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| MORRIS | 12.3 | 0.04608 | 0.003 | 0.03747 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| MOTLEY | 11.5 | 0.00000 | 0.003 | 0.02673 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| NACOGDOCHES | 12.3 | 0.04608 | 0.003 | 0.03370 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| NAVARRO | 12.3 | 0.04608 | 0.003 | 0.03458 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| NEWTON | 12.3 | 0.04608 | 0.003 | 0.04120 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| NOLAN | 11.5 | 0.00277 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| NUECES | 12.3 | 0.04608 | 0.003 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| OCHILTREE | 11.5 | 0.00000 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| OLDHAM | 11.5 | 0.00000 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| ORANGE | 12.3 | 0.04608 | 0.003 | 0.04120 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| PALO PINTO | 11.5 | 0.01316 | 0.003 | 0.03573 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| PANOLA | 12.3 | 0.04608 | 0.003 | 0.03747 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| PARKER | 12.3 | 0.04608 | 0.003 | 0.03573 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| PARMER | 11.5 | 0.00000 | 0.003 | 0.01443 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| PECOS | 11.5 | 0.00277 | 0.003 | 0.02693 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| POLK | 12.3 | 0.04608 | 0.003 | 0.03370 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |

| County | Gas RVP | Oxygen Weight Percent | Gas Sulfur Percent | Diesel Sulfur Percent | Marine Diesel Sulfur Percent | CNG/LPG Sulfur Percent | Average MTBE Market Share | Average ETBE Market Share | Average TAME Market Share | Average EtOH Market Share | MTBE Percent Volume | TAME Percent Volume | ETBE PercentVolume | EtOH Percent Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| POTTER | 11.5 | 0.00000 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| PRESIDIO | 11.5 | 0.19118 | 0.003 | 0.03580 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0 | 0 | 0.776 |
| RAINS | 12.3 | 0.04608 | 0.003 | 0.03740 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| RANDALL | 11.5 | 0.00000 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| REAGAN | 11.5 | 0.00277 | 0.003 | 0.02147 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| REAL | 11.5 | 0.01316 | 0.003 | 0.02147 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| RED RIVER | 12.3 | 0.04608 | 0.003 | 0.03740 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| REEVES | 11.5 | 0.00277 | 0.003 | 0.02693 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| REFUGIO | 12.3 | 0.04608 | 0.003 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| ROBERTS | 11.5 | 0.00000 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| ROBERTSON | 12.3 | 0.04608 | 0.003 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| ROCKWALL | 12.3 | 0.04608 | 0.003 | 0.03458 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| RUNNELS | 11.5 | 0.00277 | 0.003 | 0.02147 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| RUSK | 12.3 | 0.04608 | 0.003 | 0.01978 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| SABINE | 12.3 | 0.04608 | 0.003 | 0.03370 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| SAN AUGUSTINE | 12.3 | 0.04608 | 0.003 | 0.03370 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| SAN JACINTO | 12.3 | 0.04608 | 0.003 | 0.03370 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| SAN PATRICIO | 12.3 | 0.04608 | 0.003 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| SAN SABA | 11.5 | 0.01316 | 0.003 | 0.02680 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| SCHLEICHER | 11.5 | 0.01316 | 0.003 | 0.02147 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| SCURRY | 11.5 | 0.00277 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| SHACKELFORD | 11.5 | 0.01316 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| SHELBY | 12.3 | 0.04608 | 0.003 | 0.03370 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| SHERMAN | 11.5 | 0.00000 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| SMITH | 12.3 | 0.04608 | 0.003 | 0.01978 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| SOMERVELL | 12.3 | 0.04608 | 0.003 | 0.03573 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| STARR | 11.5 | 0.01316 | 0.003 | 0.02700 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |

| County | Gas RVP | Oxygen Weight Percent | Gas Sulfur Percent | Diesel Sulfur Percent | Marine Diesel Sulfur Percent | CNG/LPG Sulfur Percent | Average MTBE Market Share | Average ETBE Market Share | Average TAME Market Share | Average EtOH Market Share | MTBE Percent Volume | TAME Percent Volume | ETBE PercentVolume | EtOH Percent Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STEPHENS | 11.5 | 0.01316 | 0.003 | 0.02680 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| STERLING | 11.5 | 0.00277 | 0.003 | 0.02147 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| STONEWALL | 11.5 | 0.00277 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| SUTTON | 11.5 | 0.01316 | 0.003 | 0.02147 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| SWISHER | 11.5 | 0.00000 | 0.003 | 0.01443 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0000 | 0.00167 | 0 | 0 |
| TARRANT | 11.7 | 0.17497 | 0.003 | 0.03573 | 0.0408 | 0.003 | 0.9689 | 0 | 0.03115 | 0 | 1.0083 | 0.09556 | 0 | 0 |
| TAYLOR | 11.5 | 0.00277 | 0.003 | 0.03850 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| TERRELL | 11.5 | 0.00277 | 0.003 | 0.02693 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| TERRY | 11.5 | 0.00277 | 0.003 | 0.01443 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| THROCKMORTON | 11.5 | 0.01316 | 0.003 | 0.04093 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| TITUS | 12.3 | 0.04608 | 0.003 | 0.03747 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| TOM GREEN | 11.5 | 0.00277 | 0.003 | 0.02147 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| TRAVIS | 12.3 | 0.04608 | 0.003 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| TRINITY | 12.3 | 0.04608 | 0.003 | 0.03370 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| TYLER | 12.3 | 0.04608 | 0.003 | 0.04120 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| UPSHUR | 12.3 | 0.04608 | 0.003 | 0.03747 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| UPTON | 11.5 | 0.00277 | 0.003 | 0.02693 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| UVALDE | 11.5 | 0.01316 | 0.003 | 0.03917 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| VAL VERDE | 11.5 | 0.00277 | 0.003 | 0.03701 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| VAN ZANDT | 12.3 | 0.04608 | 0.003 | 0.01978 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| VICTORIA | 12.3 | 0.04608 | 0.003 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| WALKER | 12.3 | 0.04608 | 0.003 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| WALLER | 11.3 | 0.19985 | 0.003 | 0.03510 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 1.1190 | 0.05000 | 0 | 0 |
| WARD | 11.5 | 0.00277 | 0.003 | 0.02693 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| WASHINGTON | 12.3 | 0.04608 | 0.003 | 0.03587 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| WEBB | 11.5 | 0.01316 | 0.003 | 0.03701 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| WHARTON | 12.3 | 0.04608 | 0.003 | 0.03710 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |

| County | Gas RVP | Oxygen Weight Percent | Gas Sulfur Percent | Diesel Sulfur Percent | Marine Diesel Sulfur Percent | CNG/LPG Sulfur Percent | Average MTBE Market Share | Average ETBE Market Share | Average TAME Market Share | Average EtOH Market Share | MTBE Percent Volume | TAME Percent Volume | ETBE PercentVolume | EtOH Percent Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WHEELER | 11.5 | 0.00000 | 0.003 | 0.02673 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0 | 0.00167 | 0 | 0 |
| WICHITA | 11.5 | 0.01316 | 0.003 | 0.04093 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| WILBARGER | 11.5 | 0.01316 | 0.003 | 0.04093 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| WILLACY | 11.5 | 0.01316 | 0.003 | 0.02700 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| WILLIAMSON | 12.3 | 0.04608 | 0.003 | 0.03303 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| WILSON | 12.3 | 0.04608 | 0.003 | 0.03917 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| WINKLER | 11.5 | 0.00277 | 0.003 | 0.02693 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| WISE | 12.3 | 0.04608 | 0.003 | 0.03573 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| WOOD | 12.3 | 0.04608 | 0.003 | 0.01978 | 0.0408 | 0.003 | 1 | 0 | 0 | 0 | 0.2580 | 0.00300 | 0 | 0 |
| YOAKUM | 11.5 | 0.00277 | 0.003 | 0.01443 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.0544 | 0.00125 | 0 | 0 |
| YOUNG | 11.5 | 0.01316 | 0.003 | 0.04093 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| ZAPATA | 11.5 | 0.01316 | 0.003 | 0.02700 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |
| ZAVALA | 11.5 | 0.01316 | 0.003 | 0.03701 | 0.0408 | 0.003 | 0.2857 | 0 | 0 | 0.71430 | 0.2580 | 0.00300 | 0 | 0 |

# Appendix B
# TexN Climate Data for 2008 [7]

## Table B-1. County Level Assignments to Weather Stations

| COUNTIES | ASSIGNED WEATHER STATION |
|---|---|
| CALLAHAN | ABILENE |
| COLEMAN | ABILENE |
| EASTLAND | ABILENE |
| ERATH | ABILENE |
| FISHER | ABILENE |
| HASKELL | ABILENE |
| JACK | ABILENE |
| JONES | ABILENE |
| MITCHELL | ABILENE |
| NOLAN | ABILENE |
| PALO PINTO | ABILENE |
| SHACKELFORD | ABILENE |
| STEPHENS | ABILENE |
| TAYLOR | ABILENE |
| THROCKMORTON | ABILENE |
| YOUNG | ABILENE |
| BELL | WACO |
| BOSQUE | WACO |
| BROWN | WACO |
| COMANCHE | WACO |
| CORYELL | WACO |
| FALLS | WACO |
| FREESTONE | WACO |
| HAMILTON | WACO |
| HILL | WACO |
| LAMPASAS | WACO |
| LEON | WACO |
| LIMESTONE | WACO |
| MCLENNAN | WACO |
| MILLS | WACO |
| NAVARRO | WACO |
| ARMSTRONG | AMARILLO |
| BAILEY | AMARILLO |
| BRISCOE | AMARILLO |
| CARSON | AMARILLO |
| CASTRO | AMARILLO |
| DALLAM | AMARILLO |
| DEAF SMITH | AMARILLO |
| DONLEY | AMARILLO |
| GRAY | AMARILLO |
| HALL | AMARILLO |
| HANSFORD | AMARILLO |
| HARTLEY | AMARILLO |

| COUNTIES | ASSIGNED WEATHER STATION |
|---|---|
| HEMPHILL | AMARILLO |
| HUTCHINSON | AMARILLO |
| LIPSCOMB | AMARILLO |
| MOORE | AMARILLO |
| OCHILTREE | AMARILLO |
| OLDHAM | AMARILLO |
| PARMER | AMARILLO |
| POTTER | AMARILLO |
| RANDALL | AMARILLO |
| ROBERTS | AMARILLO |
| SHERMAN | AMARILLO |
| SWISHER | AMARILLO |
| WHEELER | AMARILLO |
| BASTROP | AUSTIN |
| BLANCO | AUSTIN |
| BURNET | AUSTIN |
| CALDWELL | AUSTIN |
| GILLESPIE | AUSTIN |
| HAYS | AUSTIN |
| KERR | AUSTIN |
| LEE | AUSTIN |
| LLANO | AUSTIN |
| MASON | AUSTIN |
| REAL | AUSTIN |
| SAN SABA | AUSTIN |
| TRAVIS | AUSTIN |
| WILLIAMSON | AUSTIN |
| CHAMBERS | BEAUMONT-PORT ARTHUR |
| HARDIN | BEAUMONT-PORT ARTHUR |
| JEFFERSON | BEAUMONT-PORT ARTHUR |
| ORANGE | BEAUMONT-PORT ARTHUR |
| BROOKS | BROWNSVILLE |
| CAMERON | BROWNSVILLE |
| HIDALGO | BROWNSVILLE |
| JIM HOGG | BROWNSVILLE |
| KENEDY | BROWNSVILLE |
| STARR | BROWNSVILLE |
| WILLACY | BROWNSVILLE |
| ZAPATA | BROWNSVILLE |
| ARANSAS | CORPUS CHRISTI |
| DIMMIT | CORPUS CHRISTI |
| DUVAL | CORPUS CHRISTI |
| JIM WELLS | CORPUS CHRISTI |
| KLEBERG | CORPUS CHRISTI |
| LA SALLE | CORPUS CHRISTI |

| COUNTIES | ASSIGNED WEATHER STATION |
|---|---|
| LIVE OAK | CORPUS CHRISTI |
| MAVERICK | CORPUS CHRISTI |
| MCMULLEN | CORPUS CHRISTI |
| NUECES | CORPUS CHRISTI |
| SAN PATRICIO | CORPUS CHRISTI |
| WEBB | CORPUS CHRISTI |
| ZAVALA | CORPUS CHRISTI |
| BOWIE | DALLAS-FORT WORTH |
| CAMP | DALLAS-FORT WORTH |
| CASS | DALLAS-FORT WORTH |
| COLLIN | DALLAS-FORT WORTH |
| DALLAS | DALLAS-FORT WORTH |
| DELTA | DALLAS-FORT WORTH |
| DENTON | DALLAS-FORT WORTH |
| ELLIS | DALLAS-FORT WORTH |
| FRANKLIN | DALLAS-FORT WORTH |
| GREGG | DALLAS-FORT WORTH |
| HARRISON | DALLAS-FORT WORTH |
| HENDERSON | DALLAS-FORT WORTH |
| HOOD | DALLAS-FORT WORTH |
| HOPKINS | DALLAS-FORT WORTH |
| JOHNSON | DALLAS-FORT WORTH |
| KAUFMAN | DALLAS-FORT WORTH |
| LAMAR | DALLAS-FORT WORTH |
| MARION | DALLAS-FORT WORTH |
| MORRIS | DALLAS-FORT WORTH |
| PARKER | DALLAS-FORT WORTH |
| RAINS | DALLAS-FORT WORTH |
| RED RIVER | DALLAS-FORT WORTH |
| ROCKWALL | DALLAS-FORT WORTH |
| SMITH | DALLAS-FORT WORTH |
| SOMERVELL | DALLAS-FORT WORTH |
| TARRANT | DALLAS-FORT WORTH |
| TITUS | DALLAS-FORT WORTH |
| UPSHUR | DALLAS-FORT WORTH |
| VAN ZANDT | DALLAS-FORT WORTH |
| WISE | DALLAS-FORT WORTH |
| WOOD | DALLAS-FORT WORTH |
| CULBERSON | EL PASO |
| EL PASO | EL PASO |
| HUDSPETH | EL PASO |
| ANDERSON | LUFKIN |
| ANGELINA | LUFKIN |
| CHEROKEE | LUFKIN |
| HOUSTON | LUFKIN |

| COUNTIES | ASSIGNED WEATHER STATION |
|---|---|
| JASPER | LUFKIN |
| NACOGDOCHES | LUFKIN |
| NEWTON | LUFKIN |
| PANOLA | LUFKIN |
| POLK | LUFKIN |
| RUSK | LUFKIN |
| SABINE | LUFKIN |
| SAN AUGUSTINE | LUFKIN |
| SHELBY | LUFKIN |
| TRINITY | LUFKIN |
| TYLER | LUFKIN |
| AUSTIN | HOUSTON |
| BRAZORIA | HOUSTON |
| BRAZOS | HOUSTON |
| BURLESON | HOUSTON |
| COLORADO | HOUSTON |
| FAYETTE | HOUSTON |
| FORT BEND | HOUSTON |
| GALVESTON | HOUSTON |
| GRIMES | HOUSTON |
| HARRIS | HOUSTON |
| LIBERTY | HOUSTON |
| MADISON | HOUSTON |
| MILAM | HOUSTON |
| MONTGOMERY | HOUSTON |
| ROBERTSON | HOUSTON |
| SAN JACINTO | HOUSTON |
| WALKER | HOUSTON |
| WALLER | HOUSTON |
| WASHINGTON | HOUSTON |
| BORDEN | LUBBOCK |
| COCHRAN | LUBBOCK |
| CROSBY | LUBBOCK |
| DAWSON | LUBBOCK |
| DICKENS | LUBBOCK |
| FLOYD | LUBBOCK |
| GAINES | LUBBOCK |
| GARZA | LUBBOCK |
| HALE | LUBBOCK |
| HOCKLEY | LUBBOCK |
| KENT | LUBBOCK |
| KING | LUBBOCK |
| LAMB | LUBBOCK |
| LUBBOCK | LUBBOCK |
| LYNN | LUBBOCK |

| COUNTIES | ASSIGNED WEATHER STATION |
|---|---|
| MOTLEY | LUBBOCK |
| SCURRY | LUBBOCK |
| STONEWALL | LUBBOCK |
| TERRY | LUBBOCK |
| YOAKUM | LUBBOCK |
| ANDREWS | MIDLAND |
| CRANE | MIDLAND |
| ECTOR | MIDLAND |
| GLASSCOCK | MIDLAND |
| HOWARD | MIDLAND |
| JEFF DAVIS | MIDLAND |
| LOVING | MIDLAND |
| MARTIN | MIDLAND |
| MIDLAND | MIDLAND |
| REAGAN | MIDLAND |
| REEVES | MIDLAND |
| UPTON | MIDLAND |
| WARD | MIDLAND |
| WINKLER | MIDLAND |
| ATASCOSA | SAN ANTONIO |
| BANDERA | SAN ANTONIO |
| BEXAR | SAN ANTONIO |
| COMAL | SAN ANTONIO |
| FRIO | SAN ANTONIO |
| GONZALES | SAN ANTONIO |
| GUADALUPE | SAN ANTONIO |
| KENDALL | SAN ANTONIO |
| KINNEY | SAN ANTONIO |
| MEDINA | SAN ANTONIO |
| UVALDE | SAN ANTONIO |
| VAL VERDE | SAN ANTONIO |
| WILSON | SAN ANTONIO |
| BREWSTER | SAN ANGELO |
| COKE | SAN ANGELO |
| CONCHO | SAN ANGELO |
| CROCKETT | SAN ANGELO |
| EDWARDS | SAN ANGELO |
| IRION | SAN ANGELO |
| KIMBLE | SAN ANGELO |
| MCCULLOCH | SAN ANGELO |
| MENARD | SAN ANGELO |
| PECOS | SAN ANGELO |
| PRESIDIO | SAN ANGELO |
| RUNNELS | SAN ANGELO |
| SCHLEICHER | SAN ANGELO |

| COUNTIES | ASSIGNED WEATHER STATION |
|---|---|
| STERLING | SAN ANGELO |
| SUTTON | SAN ANGELO |
| TERRELL | SAN ANGELO |
| TOM GREEN | SAN ANGELO |
| ARCHER | WICHITA FALLS |
| BAYLOR | WICHITA FALLS |
| CHILDRESS | WICHITA FALLS |
| CLAY | WICHITA FALLS |
| COLLINGSWORTH | WICHITA FALLS |
| COOKE | WICHITA FALLS |
| COTTLE | WICHITA FALLS |
| FANNIN | WICHITA FALLS |
| FOARD | WICHITA FALLS |
| GRAYSON | WICHITA FALLS |
| HARDEMAN | WICHITA FALLS |
| HUNT | WICHITA FALLS |
| KNOX | WICHITA FALLS |
| MONTAGUE | WICHITA FALLS |
| WICHITA | WICHITA FALLS |
| WILBARGER | WICHITA FALLS |
| BEE | VICTORIA |
| CALHOUN | VICTORIA |
| DE WITT | VICTORIA |
| GOLIAD | VICTORIA |
| JACKSON | VICTORIA |
| KARNES | VICTORIA |
| LAVACA | VICTORIA |
| MATAGORDA | VICTORIA |
| REFUGIO | VICTORIA |
| VICTORIA | VICTORIA |
| WHARTON | VICTORIA |

## Table B-2. Seasonal Climate Data by Weather Station and Year

| Meteorological Station | Meteorological Year | Season | Minimum Temperature | Maximum Temperature | Average Temperature | Relative Humidity |
|---|---|---|---|---|---|---|
| ABI | 2008 | Fall | 51.4 | 77.1 | 64.5 | 52% |
| ABI | 2008 | Summer | 70.6 | 93.7 | 82.4 | 52% |
| ABI | 2008 | Spring | 52.1 | 78.6 | 65.6 | 48% |
| ABI | 2008 | Winter | 33.7 | 61.4 | 47.9 | 45% |
| ACT | 2008 | Fall | 53.8 | 80.2 | 67.3 | 57% |
| ACT | 2008 | Summer | 73.4 | 96.4 | 85.2 | 54% |
| ACT | 2008 | Spring | 55 | 78.3 | 66.9 | 62% |
| ACT | 2008 | Winter | 35.4 | 61.2 | 48.5 | 56% |
| AMA | 2008 | Fall | 44.4 | 71.1 | 58.1 | 54% |
| AMA | 2008 | Summer | 63.5 | 89.3 | 76.6 | 50% |
| AMA | 2008 | Spring | 41 | 73 | 57.3 | 38% |
| AMA | 2008 | Winter | 24.4 | 55.1 | 39.8 | 43% |
| ATT | 2008 | Fall | 53.2 | 84.2 | 68.9 | 55% |
| ATT | 2008 | Summer | 71.9 | 97.1 | 84.8 | 57% |
| ATT | 2008 | Spring | 54.9 | 81.1 | 68.2 | 64% |
| ATT | 2008 | Winter | 36.5 | 66.2 | 51.5 | 59% |
| BPT | 2008 | Fall | 58.9 | 80 | 69.7 | 69% |
| BPT | 2008 | Summer | 73.9 | 91.6 | 83 | 72% |
| BPT | 2008 | Spring | 60 | 79.3 | 69.9 | 66% |
| BPT | 2008 | Winter | 45.7 | 65.4 | 55.8 | 69% |
| BRO | 2008 | Fall | 65 | 84 | 74.8 | 74% |
| BRO | 2008 | Summer | 76.6 | 92 | 84.5 | 71% |
| BRO | 2008 | Spring | 66.1 | 84.7 | 75.7 | 69% |
| BRO | 2008 | Winter | 54.7 | 74.2 | 64.6 | 72% |
| CRP | 2008 | Fall | 62.1 | 84.2 | 73.4 | 68% |
| CRP | 2008 | Summer | 74.1 | 91 | 82.7 | 77% |
| CRP | 2008 | Spring | 62.8 | 83.3 | 73.3 | 70% |
| CRP | 2008 | Winter | 49.3 | 71 | 60.4 | 70% |
| DFW | 2008 | Fall | 58.4 | 80.1 | 69.5 | 51% |
| DFW | 2008 | Summer | 77.1 | 97.7 | 87.7 | 49% |
| DFW | 2008 | Spring | 57.1 | 79.2 | 68.5 | 54% |
| DFW | 2008 | Winter | 37.9 | 61.8 | 50.1 | 51% |
| ELP | 2008 | Fall | 50.5 | 77.3 | 64.1 | 39% |
| ELP | 2008 | Summer | 70.3 | 92.9 | 81.9 | 39% |
| ELP | 2008 | Spring | 51.4 | 80.2 | 66.1 | 16% |
| ELP | 2008 | Winter | 35.4 | 61.6 | 48.7 | 33% |
| GGG | 2008 | Fall | 54.1 | 79 | 66.8 | 62% |
| GGG | 2008 | Summer | 72 | 93.7 | 83.1 | 63% |
| GGG | 2008 | Spring | 55.6 | 79.3 | 67.7 | 64% |
| GGG | 2008 | Winter | 39.4 | 63.1 | 51.5 | 65% |
| IAH | 2008 | Fall | 59.1 | 80.9 | 70.3 | 65% |
| IAH | 2008 | Summer | 74.5 | 94.4 | 84.7 | 64% |
| IAH | 2008 | Spring | 59.7 | 80.8 | 70.5 | 66% |
| IAH | 2008 | Winter | 45.1 | 66.7 | 56.1 | 68% |
| LBB | 2008 | Fall | 46.6 | 74.1 | 60.6 | 54% |
| LBB | 2008 | Summer | 66.9 | 91.6 | 79.4 | 51% |
| LBB | 2008 | Spring | 45.8 | 76.7 | 61.5 | 38% |

| Meteorological Station | Meteorological Year | Season | Minimum Temperature | Maximum Temperature | Average Temperature | Relative Humidity |
|---|---|---|---|---|---|---|
| LBB | 2008 | Winter | 27.8 | 58.9 | 43.6 | 39% |
| MAF | 2008 | Fall | 48.9 | 76.2 | 62.8 | 52% |
| MAF | 2008 | Summer | 69.6 | 93.7 | 81.9 | 48% |
| MAF | 2008 | Spring | 51.6 | 82.3 | 67.2 | 38% |
| MAF | 2008 | Winter | 30.3 | 62.7 | 46.7 | 39% |
| SAT | 2008 | Fall | 59 | 84 | 71.7 | 52% |
| SAT | 2008 | Summer | 74.8 | 95.4 | 85.3 | 57% |
| SAT | 2008 | Spring | 59.5 | 84 | 72 | 56% |
| SAT | 2008 | Winter | 42.9 | 68.8 | 55.8 | 54% |
| SJT | 2008 | Fall | 49.5 | 79.3 | 64.6 | 53% |
| SJT | 2008 | Summer | 70.4 | 95.5 | 83.2 | 47% |
| SJT | 2008 | Spring | 52.1 | 82.4 | 67.5 | 43% |
| SJT | 2008 | Winter | 33.3 | 64.8 | 49.3 | 44% |
| SPS | 2008 | Fall | 51.9 | 78.5 | 65.5 | 51% |
| SPS | 2008 | Summer | 73.4 | 97.9 | 86 | 48% |
| SPS | 2008 | Spring | 51.5 | 79.1 | 65.5 | 48% |
| SPS | 2008 | Winter | 30.8 | 59.9 | 45.6 | 41% |
| VCT | 2008 | Fall | 57.2 | 84.4 | 71 | 63% |
| VCT | 2008 | Summer | 73.2 | 95.3 | 84.5 | 66% |
| VCT | 2008 | Spring | 59.7 | 81.9 | 71.1 | 68% |
| VCT | 2008 | Winter | 44.3 | 68.7 | 56.7 | 70% |

## Table B-3. Atmospheric Pressure by Meteorological Station

| Meteorological Station | Pressure (atm) |
|---|---|
| ABI | 952.929 |
| ACT | 998.645 |
| AMA | 892.313 |
| ATT | 992.55 |
| BPT | 1017.27 |
| BRO | 1015.24 |
| CRP | 1014.22 |
| DFW | 996.275 |
| ELP | 881.815 |
| GGG | 1004.74 |
| IAH | 1013.21 |
| LBB | 903.488 |
| MAF | 916.695 |
| SAT | 988.148 |
| SJT | 948.866 |
| SPS | 980.02 |
| VCT | 1013.55 |

# Appendix C
# Population Growth Surrogates

## Table C-1. Land in Farms by County (acres)

| County | 2002 | 1997 | 1992 | 1987 |
|---|---|---|---|---|
| Anderson | 365,182 | 353,969 | 352,488 | 350,886 |
| Andrews | 803,998 | 828,859 | 962,576 | 929,052 |
| Angelina | 116,769 | 117,920 | 103,063 | 103,622 |
| Aransas | 50,032 | 18,758 | 19,131 | 22,877 |
| Archer | 535,965 | 610,877 | 612,718 | 560,742 |
| Armstrong | 506,308 | 560,412 | 500,665 | 482,017 |
| Atascosa | 669,890 | 708,067 | 765,139 | 743,424 |
| Austin | 367,497 | 367,432 | 337,351 | 347,215 |
| Bailey | 394,475 | 408,936 | 432,939 | 432,697 |
| Bandera | 366,827 | 364,190 | 396,508 | 334,867 |
| Bastrop | 422,852 | 392,255 | 394,923 | 410,344 |
| Baylor | 327,716 | 377,871 | 357,933 | 355,540 |
| Bee | 509,544 | 421,287 | 442,173 | 481,240 |
| Bell | 450,923 | 406,772 | 416,631 | 422,998 |
| Bexar | 441,206 | 447,824 | 408,710 | 477,160 |
| Blanco | 389,282 | 381,412 | 371,257 | 379,118 |
| Borden | 480,015 | 514,623 | 629,681 | 593,971 |
| Bosque | 562,851 | 548,359 | 547,829 | 569,369 |
| Bowie | 307,531 | 280,762 | 263,077 | 251,091 |
| Brazoria | 613,891 | 566,809 | 563,993 | 537,077 |
| Brazos | 308,814 | 265,163 | 295,601 | 271,421 |
| Brewster | 1,675,564 | 2,396,979 | 2,405,018 | 2,377,767 |
| Briscoe | 425,565 | 533,084 | 408,824 | 403,824 |
| Brooks | 439,771 | 458,487 | 566,400 | 528,903 |
| Brown | 481,936 | 516,058 | 513,533 | 547,165 |
| Burleson | 388,982 | 321,657 | 317,187 | 314,756 |
| Burnet | 565,413 | 537,198 | 548,351 | 509,782 |
| Caldwell | 304,844 | 265,269 | 263,925 | 265,788 |
| Calhoun | 247,827 | 213,390 | 208,073 | 188,899 |
| Callahan | 515,396 | 488,662 | 490,739 | 495,955 |
| Cameron | 350,437 | 368,528 | 329,288 | 389,370 |
| Camp | 69,343 | 63,021 | 68,448 | 78,326 |
| Carson | 451,669 | 467,605 | 622,130 | 650,002 |
| Cass | 193,244 | 170,684 | 166,939 | 190,634 |
| Castro | 563,538 | 558,662 | 518,316 | 521,739 |
| Chambers | 274,853 | 241,933 | 251,249 | 306,606 |
| Cherokee | 286,306 | 283,241 | 269,146 | 284,490 |
| Childress | 368,782 | 393,162 | 449,972 | 406,502 |
| Clay | 654,342 | 603,652 | 670,459 | 569,541 |
| Cochran | 439,252 | 402,071 | 370,572 | 330,711 |
| Coke | 485,397 | 482,480 | 523,049 | 505,736 |
| Coleman | 642,263 | 736,739 | 680,567 | 702,467 |
| Collin | 309,630 | 270,434 | 275,638 | 305,235 |
| Collingsworth | 506,942 | 488,382 | 462,533 | 454,535 |
| Colorado | 538,635 | 520,627 | 549,167 | 559,698 |

| County | 2002 | 1997 | 1992 | 1987 |
|---|---|---|---|---|
| Comal | 203,291 | 183,241 | 207,350 | 223,866 |
| Comanche | 543,386 | 535,278 | 543,750 | 505,542 |
| Concho | 544,312 | 635,584 | 571,684 | 655,499 |
| Cooke | 458,775 | 478,860 | 430,377 | 515,267 |
| Coryell | 493,087 | 646,407 | 605,252 | 609,091 |
| Cottle | 574,177 | 506,868 | 471,498 | 499,983 |
| Crane | 561,912 | 491,112 | 394,805 | 336,758 |
| Crockett | 1,735,476 | 1,935,171 | 2,001,152 | 1,854,660 |
| Crosby | 489,613 | 562,839 | 451,584 | 464,927 |
| Culberson | 1,694,512 | 1,569,227 | 1,584,367 | 1,606,076 |
| Dallam | 884,166 | 931,529 | 780,925 | 786,393 |
| Dallas | 89,112 | 148,862 | 123,756 | 147,155 |
| Dawson | 572,422 | 605,260 | 553,047 | 595,182 |
| Deaf Smith | 964,347 | 879,692 | 856,707 | 851,850 |
| Delta | 141,992 | 120,136 | 107,565 | 142,463 |
| Denton | 349,093 | 362,712 | 365,618 | 390,568 |
| Dewitt | 576,896 | 560,093 | 569,212 | 582,107 |
| Dickens | 567,096 | 532,948 | 561,521 | 439,124 |
| Dimmit | 570,684 | 517,641 | 677,308 | 695,478 |
| Donley | 584,340 | 643,151 | 599,637 | 588,433 |
| Duval | 850,360 | 844,195 | 801,159 | 996,776 |
| Eastland | 498,047 | 497,171 | 493,227 | 433,691 |
| Ector | 503,781 | 462,315 | 518,788 | 589,050 |
| Edwards | 973,512 | 1,141,833 | 1,117,134 | 1,032,782 |
| Ellis | 464,039 | 425,717 | 426,189 | 392,585 |
| El Paso | 113,948 | 243,684 | 240,176 | 236,667 |
| Erath | 580,627 | 613,323 | 581,776 | 562,030 |
| Falls | 408,692 | 362,205 | 378,003 | 413,886 |
| Fannin | 483,446 | 444,661 | 412,632 | 442,247 |
| Fayette | 552,414 | 515,108 | 496,742 | 530,328 |
| Fisher | 479,270 | 575,095 | 545,666 | 504,096 |
| Floyd | 573,794 | 555,923 | 629,148 | 607,773 |
| Foard | 286,492 | 307,730 | 321,752 | 397,398 |
| Fort Bend | 415,251 | 431,582 | 422,464 | 363,823 |
| Franklin | 132,241 | 134,979 | 128,533 | 118,725 |
| Freestone | 429,339 | 422,548 | 370,140 | 405,010 |
| Frio | 603,119 | 662,124 | 749,504 | 638,480 |
| Gaines | 758,896 | 772,172 | 686,578 | 674,419 |
| Galveston | 127,280 | 104,941 | 102,229 | 98,924 |
| Garza | 499,552 | 514,384 | 573,827 | 548,251 |
| Gillespie | 645,422 | 693,933 | 688,330 | 662,195 |
| Glasscock | 492,939 | 436,528 | 477,515 | 529,304 |
| Goliad | 506,019 | 433,568 | 465,365 | 491,949 |
| Gonzales | 695,774 | 709,657 | 665,421 | 615,743 |
| Gray | 452,820 | 560,796 | 576,013 | 504,506 |
| Grayson | 441,246 | 417,356 | 409,501 | 414,435 |
| Gregg | 46,660 | 51,388 | 47,196 | 54,046 |

| County | 2002 | 1997 | 1992 | 1987 |
|---|---|---|---|---|
| Grimes | 414,887 | 370,308 | 352,915 | 363,160 |
| Guadalupe | 384,824 | 347,763 | 347,313 | 331,240 |
| Hale | 605,020 | 586,515 | 560,355 | 582,208 |
| Hall | 431,782 | 447,833 | 443,027 | 393,949 |
| Hamilton | 449,671 | 465,847 | 461,249 | 415,885 |
| Hansford | 593,063 | 582,092 | 576,468 | 575,744 |
| Hardeman | 345,897 | 322,727 | 313,952 | 330,751 |
| Hardin | 68,512 | 65,442 | 32,436 | 63,879 |
| Harris | 304,868 | 311,005 | 308,344 | 374,759 |
| Harrison | 229,272 | 214,495 | 201,952 | 193,932 |
| Hartley | 789,289 | 822,989 | 686,578 | 956,997 |
| Haskell | 491,957 | 468,937 | 494,177 | 453,977 |
| Hays | 278,352 | 298,493 | 463,450 | 297,443 |
| Hemphill | 546,373 | 623,614 | 545,664 | 615,426 |
| Henderson | 340,869 | 367,096 | 356,170 | 333,190 |
| Hidalgo | 593,158 | 635,884 | 660,412 | 762,442 |
| Hill | 504,322 | 463,925 | 470,096 | 441,837 |
| Hockley | 491,498 | 571,521 | 490,578 | 504,681 |
| Hood | 202,131 | 225,450 | 225,852 | 212,741 |
| Hopkins | 431,411 | 386,460 | 386,546 | 374,043 |
| Houston | 464,706 | 440,228 | 417,187 | 422,172 |
| Howard | 518,369 | 543,576 | 489,398 | 483,275 |
| Hudspeth | 2,121,727 | 2,502,799 | 2,234,262 | 2,266,986 |
| Hunt | 400,272 | 353,410 | 345,138 | 348,386 |
| Hutchinson | 552,995 | 400,166 | 402,897 | 444,779 |
| Irion | 536,292 | 651,708 | 656,961 | 609,447 |
| Jack | 596,172 | 531,787 | 519,043 | 519,342 |
| Jackson | 470,500 | 462,927 | 461,829 | 457,207 |
| Jasper | 96,286 | 87,079 | 70,165 | 101,968 |
| Jeff Davis | 1,488,732 | 1,481,660 | 1,524,636 | 1,532,081 |
| Jefferson | 388,239 | 433,597 | 322,324 | 311,992 |
| Jim Hogg | 603,511 | 768,209 | 736,407 | 785,975 |
| Jim Wells | 497,880 | 496,317 | 517,671 | 502,206 |
| Johnson | 362,004 | 332,844 | 330,173 | 312,129 |
| Jones | 517,244 | 459,379 | 513,418 | 487,903 |
| Karnes | 474,806 | 417,146 | 383,573 | 403,124 |
| Kaufman | 419,553 | 388,830 | 386,991 | 361,425 |
| Kendall | 326,956 | 325,412 | 354,917 | 351,297 |
| Kenedy | 474,073 | 562,932 | 553,226 | 621,878 |
| Kent | 560,695 | 560,952 | 595,420 | 554,352 |
| Kerr | 564,352 | 547,882 | 531,206 | 539,371 |
| Kimble | 615,501 | 773,046 | 774,804 | 781,013 |
| King | 546,693 | 491,367 | 436,040 | 409,706 |
| Kinney | 613,634 | 628,811 | 698,832 | 653,556 |
| Kleberg | 474,073 | 562,932 | 553,226 | 938,193 |
| Knox | 564,263 | 658,161 | 576,893 | 534,150 |
| Lamar | 470,216 | 431,136 | 424,701 | 406,639 |

| County | 2002 | 1997 | 1992 | 1987 |
|---|---|---|---|---|
| Lamb | 628,505 | 539,395 | 518,028 | 496,345 |
| Lampasas | 412,491 | 434,737 | 432,379 | 404,876 |
| La Salle | 558,559 | 526,978 | 766,037 | 766,840 |
| Lavaca | 601,698 | 526,067 | 527,837 | 507,900 |
| Lee | 366,367 | 344,475 | 318,658 | 324,657 |
| Leon | 562,615 | 514,724 | 482,165 | 499,334 |
| Liberty | 304,574 | 306,783 | 342,213 | 362,794 |
| Limestone | 529,924 | 442,882 | 428,068 | 459,897 |
| Lipscomb | 578,025 | 528,762 | 588,500 | 558,370 |
| Live Oak | 525,291 | 520,236 | 558,553 | 517,379 |
| Llano | 533,234 | 532,277 | 507,135 | 534,043 |
| Loving | 515,192 | 352,072 | 346,653 | 415,540 |
| Lubbock | 557,182 | 540,880 | 481,539 | 465,173 |
| Lynn | 530,475 | 563,218 | 491,015 | 474,424 |
| Madison | 546,293 | 223,690 | 243,989 | 222,574 |
| Marion | 538,473 | 61,981 | 49,579 | 49,658 |
| Martin | 596,900 | 539,196 | 512,473 | 503,635 |
| Mason | 244,524 | 595,265 | 547,428 | 548,293 |
| Matagorda | 59,602 | 550,642 | 562,612 | 578,993 |
| Maverick | 526,007 | 470,270 | 678,590 | 672,382 |
| McCulloch | 555,597 | 640,593 | 675,927 | 636,274 |
| McLennan | 619,142 | 492,599 | 472,332 | 445,252 |
| McMullen | 476,245 | 520,992 | 515,960 | 543,283 |
| Medina | 804,941 | 749,653 | 658,204 | 685,417 |
| Menard | 548,838 | 495,873 | 487,573 | 501,761 |
| Midland | 361,558 | 863,073 | 724,706 | 733,377 |
| Milam | 576,809 | 544,780 | 551,148 | 514,582 |
| Mills | 427,342 | 425,370 | 428,243 | 403,063 |
| Mitchell | 487,922 | 541,253 | 587,316 | 531,023 |
| Montague | 503,562 | 493,542 | 495,364 | 448,354 |
| Montgomery | 197,892 | 193,375 | 193,885 | 188,284 |
| Moore | 549,548 | 555,471 | 587,264 | 564,821 |
| Morris | 99,674 | 66,486 | 73,948 | 75,350 |
| Motley | 486,994 | 589,947 | 479,889 | 467,309 |
| Nacogdoches | 273,880 | 372,451 | 220,355 | 239,772 |
| Navarro | 537,104 | 516,395 | 525,885 | 505,366 |
| Newton | 69,381 | 62,108 | 30,268 | 64,047 |
| Nolan | 481,183 | 520,001 | 536,300 | 555,520 |
| Nueces | 523,859 | 438,242 | 443,224 | 465,658 |
| Ochiltree | 559,479 | 564,316 | 593,819 | 607,038 |
| Oldham | 936,390 | 841,907 | 847,608 | 812,372 |
| Orange | 73,474 | 87,871 | 56,975 | 53,640 |
| Palo Pinto | 484,964 | 524,449 | 517,272 | 510,757 |
| Panola | 222,910 | 202,258 | 195,147 | 201,728 |
| Parker | 486,658 | 479,807 | 415,694 | 403,385 |
| Parmer | 576,461 | 546,870 | 526,276 | 499,011 |
| Pecos | 2,916,070 | 2,943,214 | 2,891,640 | 2,918,048 |

| County | 2002 | 1997 | 1992 | 1987 |
|---|---|---|---|---|
| Polk | 129,956 | 135,988 | 141,215 | 144,390 |
| Potter | 521,824 | 449,859 | 402,011 | 546,742 |
| Presidio | 1,503,639 | 1,690,096 | 1,695,484 | 1,890,612 |
| Rains | 93,601 | 94,427 | 98,449 | 96,893 |
| Randall | 512,309 | 460,114 | 497,106 | 445,493 |
| Reagan | 538,285 | 623,807 | 617,851 | 712,335 |
| Real | 399,963 | 377,890 | 362,642 | 318,164 |
| Red River | 422,645 | 444,611 | 425,281 | 388,412 |
| Reeves | 1,009,877 | 1,013,803 | 1,555,905 | 1,432,367 |
| Refugio | 505,954 | 550,165 | 667,177 | 529,092 |
| Roberts | 494,588 | 566,057 | 510,079 | 524,222 |
| Robertson | 515,311 | 424,700 | 391,842 | 395,291 |
| Rockwall | 46,419 | 46,015 | 47,446 | 41,091 |
| Runnels | 584,878 | 581,139 | 572,607 | 576,671 |
| Rusk | 272,436 | 267,448 | 268,058 | 271,230 |
| Sabine | 30,808 | 25,103 | 33,544 | 33,922 |
| San Augustine | 58,723 | 65,250 | 54,580 | 54,825 |
| San Jacinto | 93,497 | 84,620 | 82,721 | 91,209 |
| San Patricio | 345,395 | 405,507 | 358,211 | 340,034 |
| San Saba | 709,336 | 732,874 | 743,638 | 741,678 |
| Schleicher | 778,272 | 738,704 | 764,723 | 760,431 |
| Scurry | 564,813 | 478,576 | 518,371 | 505,808 |
| Shackelford | 557,102 | 515,842 | 564,382 | 550,354 |
| Shelby | 192,036 | 201,427 | 187,728 | 203,750 |
| Sherman | 546,237 | 607,148 | 507,449 | 546,175 |
| Smith | 286,894 | 250,855 | 247,626 | 249,326 |
| Somervell | 84,262 | 71,694 | 62,850 | 65,054 |
| Starr | 570,430 | 636,083 | 632,622 | 599,295 |
| Stephens | 427,859 | 464,737 | 536,507 | 474,001 |
| Sterling | 633,007 | 705,614 | 835,337 | 675,977 |
| Stonewall | 524,308 | 483,523 | 512,247 | 506,172 |
| Sutton | 879,789 | 924,748 | 926,093 | 851,494 |
| Swisher | 566,429 | 515,910 | 505,140 | 530,622 |
| Tarrant | 173,493 | 184,081 | 167,569 | 198,180 |
| Taylor | 533,937 | 491,840 | 509,017 | 431,408 |
| Terrell | 1,413,092 | 1,290,770 | 1,396,275 | 1,129,318 |
| Terry | 444,996 | 468,016 | 459,120 | 463,136 |
| Throckmorton | 561,306 | 562,070 | 581,511 | 609,702 |
| Titus | 178,303 | 174,394 | 180,332 | 177,929 |
| Tom Green | 844,695 | 958,722 | 1,020,756 | 1,014,367 |
| Travis | 298,426 | 396,165 | 332,826 | 306,767 |
| Trinity | 104,724 | 98,748 | 109,635 | 133,122 |
| Tyler | 79,600 | 53,225 | 58,690 | 96,724 |
| Upshur | 196,450 | 175,297 | 194,008 | 170,695 |
| Upton | 723,446 | 746,269 | 694,909 | 739,149 |
| Uvalde | 968,866 | 942,604 | 917,186 | 850,230 |
| Val Verde | 1,661,161 | 1,748,028 | 1,806,639 | 1,761,748 |

| County | 2002 | 1997 | 1992 | 1987 |
|---|---|---|---|---|
| Van Zandt | 422,084 | 360,888 | 378,217 | 380,811 |
| Victoria | 513,828 | 458,111 | 430,736 | 427,724 |
| Walker | 206,311 | 183,988 | 213,923 | 269,832 |
| Waller | 277,000 | 238,110 | 242,901 | 276,750 |
| Ward | 465,639 | 363,034 | 455,873 | 468,610 |
| Washington | 354,813 | 336,197 | 328,367 | 338,840 |
| Webb | 2,042,680 | 2,176,046 | 1,712,044 | 2,021,882 |
| Wharton | 637,982 | 679,275 | 644,730 | 685,935 |
| Wheeler | 533,569 | 514,280 | 501,692 | 486,321 |
| Wichita | 301,574 | 338,624 | 307,783 | 298,490 |
| Wilbarger | 872,488 | 883,781 | 863,384 | 849,507 |
| Willacy | 369,893 | 286,352 | 260,892 | 227,319 |
| Williamson | 583,099 | 538,130 | 545,670 | 527,175 |
| Wilson | 446,157 | 445,798 | 476,493 | 448,022 |
| Winkler | 491,718 | 487,734 | 432,887 | 467,166 |
| Wise | 493,044 | 411,737 | 461,127 | 402,967 |
| Wood | 228,146 | 214,656 | 203,667 | 206,782 |
| Yoakum | 454,981 | 343,095 | 344,667 | 348,460 |
| Young | 509,721 | 553,406 | 563,183 | 585,910 |
| Zapata | 397,594 | 403,273 | 484,907 | 431,704 |
| Zavala | 707,383 | 590,746 | 723,018 | 825,843 |

Source: Texas Agricultural Census

## Table C-2. County Level Single Family Housing Permit Data, 1980 – 1994

| Year | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Anderson | 102 | 92 | 77 | 65 | 79 | 69 | 39 | 34 | 36 | 27 | 10 | 10 | 14 | 25 | 27 |
| Andrews | 38 | 59 | 60 | 35 | 26 | 51 | 13 | 8 | 6 | 24 | 5 | 4 | 3 | 2 | 3 |
| Angelina | 174 | 86 | 80 | 155 | 103 | 112 | 83 | 80 | 81 | 101 | 64 | 92 | 120 | 146 | 121 |
| Aransas | 26 | 60 | 35 | 79 | 32 | 27 | 36 | 37 | 27 | 23 | 16 | 23 | 22 | 58 | 46 |
| Archer | 0 | 10 | 30 | 50 | 19 | 8 | 1 | 0 | 4 | 5 | 6 | 4 | 4 | 5 | 11 |
| Armstrong | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 2 | 0 | 3 |
| Atacosa | 56 | 71 | 62 | 43 | 29 | 12 | 44 | 40 | 24 | 21 | 24 | 54 | 37 | 50 | 49 |
| Austin | 60 | 74 | 43 | 41 | 66 | 21 | 23 | 7 | 5 | 7 | 11 | 14 | 26 | 34 | 31 |
| Bailey | 22 | 15 | 13 | 11 | 11 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 0 | 1 |
| Bandera | 2 | 2 | 0 | 9 | 1 | 0 | 2 | 0 | 0 | 6 | 0 | 3 | 1 | 2 | 0 |
| Bastrop | 85 | 72 | 72 | 55 | 36 | 8 | 50 | 24 | 12 | 10 | 8 | 16 | 13 | 12 | 27 |
| Baylor | 8 | 6 | 6 | 2 | 5 | 7 | 4 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 0 |
| Bee | 111 | 102 | 67 | 55 | 14 | 16 | 6 | 2 | 2 | 5 | 0 | 1 | 0 | 0 | 5 |
| Bell | 433 | 437 | 945 | 1,269 | 928 | 1,337 | 1,327 | 844 | 683 | 470 | 196 | 343 | 1,047 | 1,461 | 1,296 |
| Bexar | 3,553 | 3,143 | 3,043 | 4,985 | 4,915 | 4,840 | 3,240 | 2,309 | 1,365 | 1,292 | 1,405 | 1,663 | 2,805 | 3,918 | 5,194 |
| Blanco | 4 | 4 | 2 | 4 | 3 | 8 | 8 | 4 | 2 | 2 | 2 | 2 | 8 | 2 | 29 |
| Bosque | 11 | 10 | 15 | 11 | 20 | 11 | 6 | 8 | 5 | 5 | 4 | 2 | 3 | 6 | 8 |
| Bowie | 113 | 52 | 82 | 182 | 150 | 139 | 152 | 145 | 124 | 120 | 114 | 113 | 142 | 136 | 125 |
| Brazoria | 1,093 | 868 | 1,091 | 1,594 | 1,707 | 988 | 843 | 672 | 682 | 680 | 924 | 937 | 1,221 | 1,257 | 1,106 |
| Brazos | 578 | 719 | 896 | 894 | 245 | 227 | 202 | 194 | 218 | 219 | 213 | 269 | 479 | 607 | 589 |
| Brewster | 2 | 7 | 27 | 24 | 4 | 4 | 8 | 5 | 5 | 8 | 9 | 5 | 2 | 10 | 17 |
| Brooks | 3 | 5 | 4 | 9 | 5 | 1 | 3 | 0 | 2 | 4 | 3 | 1 | 7 | 1 | 0 |
| Brown | 126 | 117 | 137 | 87 | 61 | 40 | 18 | 18 | 10 | 7 | 8 | 20 | 26 | 28 | 45 |
| Burleson | 32 | 35 | 36 | 29 | 24 | 10 | 11 | 7 | 2 | 1 | 1 | 2 | 6 | 9 | 14 |
| Burnet | 29 | 32 | 52 | 82 | 140 | 37 | 140 | 43 | 30 | 27 | 25 | 24 | 28 | 125 | 201 |
| Caldwell | 42 | 40 | 67 | 82 | 113 | 68 | 68 | 28 | 18 | 12 | 8 | 7 | 9 | 16 | 35 |
| Calhoun | 124 | 83 | 73 | 103 | 91 | 107 | 59 | 36 | 31 | 38 | 39 | 38 | 55 | 34 | 49 |
| Callahan | 10 | 26 | 23 | 30 | 20 | 11 | 9 | 7 | 4 | 0 | 0 | 4 | 5 | 5 | 13 |
| Cameron | 1,597 | 1,701 | 1,091 | 1,256 | 909 | 1,098 | 820 | 582 | 549 | 547 | 641 | 1,009 | 1,308 | 1,486 | 1,694 |
| Camp | 31 | 10 | 33 | 22 | 22 | 16 | 15 | 5 | 7 | 6 | 4 | 6 | 13 | 8 | 7 |
| Carson | 7 | 6 | 42 | 10 | 7 | 6 | 8 | 7 | 3 | 3 | 1 | 2 | 8 | 8 | 2 |
| Cass | 21 | 14 | 20 | 17 | 18 | 16 | 12 | 9 | 9 | 8 | 3 | 2 | 5 | 5 | 6 |

| Year | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Castro | 6 | 0 | 0 | 2 | 5 | 1 | 2 | 0 | 0 | 4 | 7 | 3 | 0 | 3 | 0 |
| Chambers | 10 | 10 | 6 | 27 | 24 | 26 | 20 | 31 | 7 | 21 | 21 | 78 | 125 | 182 | 170 |
| Cherokee | 27 | 31 | 38 | 64 | 49 | 49 | 39 | 39 | 68 | 35 | 31 | 21 | 18 | 16 | 32 |
| Childress | 18 | 26 | 27 | 35 | 35 | 0 | 3 | 0 | 1 | 1 | 3 | 2 | 1 | 0 | 0 |
| Clay | 13 | 11 | 13 | 20 | 23 | 12 | 2 | 4 | 1 | 2 | 3 | 2 | 12 | 6 | 6 |
| Cochran | 7 | 4 | 6 | 3 | 2 | 1 | 1 | 0 | 1 | 1 | 0 | 3 | 0 | 0 | 0 |
| Coke | 10 | 8 | 6 | 3 | 4 | 5 | 6 | 2 | 3 | 0 | 6 | 1 | 1 | 0 | 1 |
| Coleman | 13 | 12 | 11 | 7 | 13 | 0 | 13 | 5 | 3 | 2 | 0 | 1 | 0 | 0 | 0 |
| Collin | 1,684 | 1,662 | 1,850 | 3,542 | 3,495 | 2,974 | 2,520 | 2,123 | 2,326 | 2,170 | 2,658 | 2,962 | 4,373 | 5,174 | 5,708 |
| Collingsworth | 4 | 5 | 4 | 6 | 5 | 4 | 2 | 0 | 1 | 0 | 3 | 0 | 3 | 4 | 2 |
| Colorado | 22 | 22 | 46 | 23 | 17 | 11 | 9 | 11 | 3 | 1 | 7 | 3 | 8 | 13 | 6 |
| Comal | 472 | 356 | 439 | 646 | 801 | 630 | 491 | 403 | 302 | 234 | 209 | 246 | 418 | 629 | 886 |
| Comanche | 11 | 20 | 13 | 22 | 21 | 13 | 6 | 4 | 1 | 1 | 0 | 3 | 1 | 2 | 2 |
| Cooke | 63 | 48 | 29 | 58 | 55 | 35 | 20 | 11 | 14 | 10 | 5 | 8 | 8 | 19 | 23 |
| Coryell | 28 | 38 | 177 | 216 | 204 | 242 | 268 | 222 | 137 | 120 | 61 | 99 | 259 | 304 | 221 |
| Cottle | 9 | 10 | 7 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Crane | 3 | 0 | 5 | 2 | 5 | 1 | 16 | 13 | 15 | 13 | 3 | 2 | 1 | 1 | 1 |
| Crosby | 7 | 22 | 20 | 13 | 6 | 7 | 0 | 8 | 1 | 1 | 2 | 2 | 1 | 0 | 0 |
| Culberson | 0 | 2 | 8 | 2 | 2 | 3 | 6 | 1 | 1 | 4 | 2 | 1 | 1 | 0 | 2 |
| Dallam | 26 | 31 | 56 | 35 | 18 | 4 | 1 | 0 | 2 | 2 | 2 | 4 | 3 | 8 | 43 |
| Dallas | 8,275 | 6,354 | 8,601 | 14,744 | 13,480 | 13,477 | 11,962 | 8,388 | 5,282 | 5,355 | 5,640 | 6,032 | 7,410 | 7,312 | 6,391 |
| Dawson | 10 | 4 | 6 | 1 | 12 | 12 | 7 | 8 | 3 | 8 | 5 | 4 | 2 | 6 | 6 |
| Deaf Smith | 28 | 2 | 4 | 14 | 12 | 8 | 3 | 13 | 8 | 1 | 4 | 2 | 1 | 2 | 3 |
| Delta | 15 | 10 | 4 | 4 | 0 | 0 | 7 | 4 | 5 | 5 | 6 | 6 | 8 | 5 | 15 |
| Denton | 955 | 839 | 1,239 | 2,342 | 2,479 | 2,784 | 2,305 | 1,472 | 1,057 | 1,188 | 1,241 | 1,783 | 2,339 | 2,616 | 2,985 |
| DeWitt | 20 | 25 | 42 | 24 | 80 | 18 | 20 | 12 | 12 | 8 | 5 | 5 | 7 | 8 | 8 |
| Dickens | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dimmit | 16 | 21 | 34 | 26 | 20 | 9 | 5 | 7 | 5 | 10 | 6 | 7 | 15 | 11 | 6 |
| Donley | 5 | 3 | 1 | 3 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Duval | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eastland | 7 | 8 | 58 | 15 | 8 | 5 | 2 | 3 | 0 | 0 | 2 | 1 | 1 | 1 | 2 |
| Ector | 562 | 541 | 416 | 150 | 68 | 80 | 46 | 18 | 39 | 46 | 45 | 61 | 113 | 103 | 102 |
| Ellis | 143 | 139 | 186 | 346 | 307 | 266 | 273 | 189 | 122 | 126 | 141 | 158 | 234 | 192 | 255 |
| El Paso | 2,297 | 1,099 | 1,941 | 2,865 | 2,050 | 2,272 | 2,935 | 2,176 | 1,557 | 1,598 | 1,851 | 1,631 | 2,270 | 2,296 | 2,323 |

| Year | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Erath | 71 | 52 | 49 | 101 | 92 | 70 | 62 | 41 | 30 | 15 | 10 | 19 | 30 | 31 | 53 |
| Falls | 22 | 6 | 14 | 62 | 23 | 12 | 11 | 4 | 31 | 6 | 9 | 7 | 3 | 3 | 7 |
| Fannin | 26 | 30 | 18 | 32 | 40 | 21 | 33 | 31 | 34 | 22 | 22 | 13 | 19 | 20 | 27 |
| Fayette | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| Fisher | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| Floyd | 6 | 6 | 2 | 7 | 9 | 6 | 5 | 2 | 5 | 6 | 2 | 1 | 2 | 4 | 5 |
| Foard | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fort Bend | 841 | 1,205 | 1,303 | 1,345 | 941 | 589 | 557 | 699 | 518 | 793 | 697 | 724 | 798 | 577 | 736 |
| Franklin | 8 | 8 | 12 | 12 | 10 | 0 | 7 | 6 | 8 | 5 | 6 | 2 | 5 | 3 | 9 |
| Freestone | 43 | 39 | 27 | 34 | 28 | 26 | 13 | 10 | 4 | 12 | 8 | 5 | 6 | 7 | 7 |
| Frio | 27 | 33 | 52 | 24 | 33 | 24 | 17 | 16 | 16 | 13 | 15 | 13 | 20 | 13 | 12 |
| Gaines | 24 | 15 | 33 | 12 | 40 | 21 | 13 | 3 | 3 | 4 | 3 | 3 | 4 | 11 | 9 |
| Galveston | 912 | 1,251 | 2,081 | 1,972 | 1,672 | 978 | 1,068 | 712 | 618 | 811 | 942 | 997 | 1,413 | 1,319 | 1,316 |
| Garza | 1 | 1 | 3 | 4 | 5 | 6 | 3 | 1 | 4 | 0 | 0 | 2 | 1 | 0 | 1 |
| Gillespie | 62 | 44 | 53 | 57 | 43 | 42 | 35 | 26 | 29 | 18 | 23 | 22 | 46 | 48 | 59 |
| Goliad | 62 | 23 | 7 | 10 | 8 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gonzales | 12 | 15 | 20 | 25 | 15 | 16 | 13 | 9 | 11 | 9 | 9 | 8 | 9 | 3 | 3 |
| Gray | 50 | 49 | 84 | 85 | 76 | 36 | 19 | 11 | 6 | 10 | 4 | 7 | 20 | 16 | 6 |
| Grayson | 141 | 53 | 72 | 194 | 202 | 229 | 153 | 88 | 52 | 57 | 59 | 49 | 90 | 107 | 115 |
| Gregg | 352 | 337 | 550 | 581 | 319 | 222 | 162 | 132 | 107 | 106 | 99 | 110 | 144 | 178 | 265 |
| Grimes | 33 | 31 | 22 | 17 | 33 | 32 | 13 | 7 | 12 | 8 | 5 | 5 | 5 | 2 | 10 |
| Guadalupe | 79 | 63 | 136 | 142 | 238 | 213 | 349 | 186 | 132 | 74 | 53 | 47 | 120 | 261 | 135 |
| Hale | 26 | 55 | 15 | 19 | 17 | 22 | 29 | 22 | 13 | 10 | 11 | 7 | 11 | 22 | 46 |
| Hall | 6 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hamilton | 15 | 1 | 6 | 6 | 3 | 0 | 6 | 9 | 0 | 0 | 1 | 0 | 0 | 1 | 2 |
| Hansford | 8 | 9 | 11 | 18 | 10 | 15 | 17 | 2 | 3 | 3 | 2 | 2 | 0 | 0 | 0 |
| Hardeman | 0 | 0 | 2 | 3 | 11 | 4 | 3 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hardin | 18 | 16 | 15 | 23 | 20 | 27 | 33 | 21 | 6 | 6 | 15 | 11 | 15 | 21 | 14 |
| Harris | 17,566 | 21,540 | 25,446 | 24,525 | 12,738 | 5,877 | 5,017 | 5,191 | 6,070 | 7,372 | 8,141 | 9,018 | 9,614 | 10,065 | 9,934 |
| Harrison | 160 | 83 | 77 | 75 | 61 | 29 | 30 | 38 | 22 | 26 | 18 | 20 | 24 | 43 | 45 |
| Haskell | 6 | 7 | 7 | 7 | 11 | 7 | 5 | 1 | 1 | 5 | 0 | 0 | 9 | 1 | 0 |
| Hays | 161 | 108 | 60 | 114 | 70 | 132 | 88 | 73 | 26 | 12 | 18 | 21 | 22 | 47 | 82 |
| Hemphill | 12 | 8 | 8 | 8 | 4 | 4 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Henderson | 87 | 71 | 92 | 135 | 171 | 156 | 112 | 90 | 60 | 48 | 53 | 35 | 42 | 73 | 67 |

| Year | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hidalgo | 1,304 | 1,756 | 1,363 | 1,371 | 1,342 | 1,216 | 1,388 | 1,178 | 1,113 | 1,191 | 1,217 | 3,401 | 3,230 | 5,565 | 3,955 |
| Hill | 24 | 12 | 15 | 25 | 25 | 32 | 16 | 29 | 43 | 9 | 13 | 9 | 7 | 11 | 27 |
| Hockley | 83 | 54 | 65 | 70 | 50 | 39 | 30 | 25 | 16 | 16 | 10 | 7 | 17 | 20 | 26 |
| Hood | 13 | 4 | 24 | 89 | 42 | 36 | 35 | 34 | 30 | 20 | 12 | 13 | 10 | 17 | 18 |
| Hopkins | 76 | 116 | 88 | 127 | 114 | 127 | 92 | 68 | 46 | 31 | 25 | 48 | 37 | 45 | 46 |
| Houston | 52 | 23 | 14 | 40 | 29 | 54 | 54 | 56 | 60 | 18 | 2 | 1 | 8 | 7 | 7 |
| Howard | 26 | 29 | 46 | 27 | 17 | 2 | 3 | 5 | 8 | 8 | 6 | 14 | 4 | 10 | 26 |
| Hunt | 69 | 71 | 131 | 204 | 142 | 85 | 121 | 129 | 61 | 29 | 22 | 25 | 63 | 67 | 80 |
| Hutchinson | 76 | 88 | 59 | 36 | 32 | 33 | 24 | 32 | 11 | 17 | 13 | 16 | 26 | 13 | 12 |
| Jack | 14 | 15 | 11 | 5 | 3 | 6 | 2 | 4 | 3 | 2 | 3 | 2 | 2 | 1 | 1 |
| Jackson | 12 | 10 | 21 | 8 | 7 | 8 | 9 | 8 | 2 | 8 | 1 | 12 | 12 | 27 | 28 |
| Jasper | 44 | 17 | 31 | 33 | 24 | 22 | 16 | 15 | 11 | 15 | 15 | 6 | 7 | 7 | 16 |
| Jefferson | 797 | 651 | 726 | 1,118 | 977 | 287 | 210 | 223 | 239 | 287 | 306 | 507 | 583 | 538 | 415 |
| Jim Wells | 142 | 139 | 110 | 68 | 57 | 56 | 27 | 19 | 16 | 10 | 15 | 17 | 10 | 43 | 53 |
| Johnson | 272 | 179 | 186 | 398 | 357 | 354 | 278 | 263 | 166 | 116 | 105 | 128 | 222 | 311 | 337 |
| Jones | 27 | 20 | 17 | 13 | 8 | 4 | 3 | 5 | 3 | 2 | 0 | 1 | 1 | 2 | 4 |
| Karnes | 24 | 12 | 19 | 26 | 9 | 2 | 1 | 5 | 2 | 4 | 0 | 3 | 5 | 4 | 5 |
| Kaufman | 104 | 154 | 104 | 164 | 235 | 199 | 159 | 117 | 86 | 72 | 76 | 78 | 141 | 187 | 144 |
| Kendall | 74 | 55 | 116 | 139 | 142 | 174 | 165 | 71 | 68 | 36 | 78 | 142 | 280 | 194 | 216 |
| Kent | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kerr | 63 | 64 | 76 | 136 | 124 | 69 | 62 | 54 | 31 | 46 | 43 | 49 | 63 | 119 | 151 |
| Kimble | 4 | 8 | 7 | 6 | 0 | 8 | 6 | 2 | 5 | 3 | 4 | 2 | 0 | 1 | 0 |
| Kinney | 7 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 |
| Kleberg | 28 | 30 | 38 | 54 | 30 | 30 | 20 | 7 | 8 | 3 | 6 | 28 | 6 | 15 | 18 |
| Knox | 6 | 7 | 3 | 4 | 7 | 2 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lamar | 79 | 88 | 127 | 229 | 192 | 150 | 182 | 144 | 74 | 63 | 53 | 68 | 78 | 106 | 140 |
| Lamb | 13 | 26 | 24 | 32 | 19 | 22 | 13 | 2 | 5 | 6 | 3 | 3 | 2 | 2 | 6 |
| Lampasas | 13 | 8 | 28 | 26 | 23 | 12 | 16 | 9 | 2 | 2 | 2 | 3 | 4 | 4 | 5 |
| La Salle | 2 | 5 | 4 | 2 | 2 | 0 | 2 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Lavaca | 28 | 30 | 20 | 25 | 31 | 22 | 24 | 22 | 23 | 14 | 10 | 7 | 10 | 9 | 8 |
| Lee | 15 | 18 | 35 | 21 | 10 | 31 | 11 | 9 | 10 | 6 | 0 | 5 | 3 | 10 | 7 |
| Liberty | 525 | 664 | 429 | 549 | 405 | 259 | 187 | 160 | 127 | 150 | 174 | 155 | 175 | 213 | 212 |
| Limestone | 39 | 28 | 38 | 80 | 52 | 30 | 27 | 22 | 14 | 13 | 19 | 7 | 6 | 11 | 13 |
| Lipscomb | 15 | 24 | 17 | 7 | 2 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Year | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Live Oak | 13 | 11 | 25 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 6 | 5 | 3 | 9 | 6 |
| Llano | 3 | 1 | 9 | 13 | 21 | 19 | 15 | 12 | 15 | 17 | 15 | 21 | 51 | 28 | 39 |
| Lubbock | 946 | 709 | 841 | 1,299 | 972 | 631 | 620 | 519 | 438 | 391 | 394 | 441 | 628 | 717 | 730 |
| Lynn | 4 | 3 | 6 | 8 | 6 | 3 | 2 | 2 | 3 | 1 | 1 | 1 | 2 | 1 | 2 |
| McCulloch | 26 | 19 | 6 | 6 | 11 | 14 | 14 | 9 | 6 | 5 | 3 | 3 | 3 | 1 | 4 |
| McLennan | 256 | 275 | 291 | 602 | 692 | 543 | 440 | 339 | 266 | 197 | 214 | 254 | 298 | 368 | 421 |
| Madison | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 4 | 1 |
| Marion | 5 | 3 | 4 | 4 | 1 | 7 | 4 | 2 | 0 | 4 | 2 | 1 | 6 | 3 | 0 |
| Martin | 6 | 2 | 14 | 7 | 6 | 5 | 3 | 0 | 0 | 1 | 4 | 2 | 0 | 0 | 1 |
| Mason | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 2 | 1 |
| Matagorda | 52 | 58 | 66 | 179 | 138 | 68 | 20 | 19 | 20 | 8 | 13 | 50 | 65 | 43 | 63 |
| Maverick | 128 | 77 | 66 | 35 | 26 | 44 | 44 | 69 | 39 | 35 | 52 | 51 | 61 | 87 | 127 |
| Medina | 25 | 21 | 16 | 41 | 32 | 53 | 19 | 31 | 28 | 28 | 21 | 18 | 44 | 31 | 38 |
| Menard | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Midland | 801 | 1,642 | 1,230 | 692 | 382 | 361 | 143 | 198 | 207 | 196 | 216 | 223 | 177 | 274 | 226 |
| Milam | 25 | 27 | 32 | 38 | 56 | 45 | 29 | 29 | 16 | 16 | 15 | 7 | 13 | 17 | 11 |
| Mitchell | 1 | 6 | 11 | 20 | 14 | 3 | 5 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| Montague | 4 | 1 | 12 | 4 | 2 | 1 | 4 | 1 | 5 | 0 | 1 | 0 | 2 | 3 | 7 |
| Montgomery | 130 | 137 | 153 | 231 | 237 | 140 | 81 | 37 | 56 | 53 | 49 | 1,603 | 1,769 | 1,992 | 2,232 |
| Moore | 51 | 15 | 34 | 55 | 50 | 43 | 27 | 14 | 15 | 3 | 2 | 3 | 13 | 27 | 16 |
| Morris | 36 | 23 | 20 | 8 | 6 | 2 | 2 | 0 | 0 | 1 | 3 | 3 | 0 | 0 | 4 |
| Motley | 2 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Nacogdoches | 102 | 106 | 119 | 201 | 204 | 49 | 84 | 75 | 74 | 43 | 34 | 30 | 49 | 109 | 87 |
| Navarro | 88 | 66 | 62 | 103 | 120 | 70 | 41 | 35 | 23 | 20 | 17 | 14 | 19 | 30 | 28 |
| Newton | 2 | 2 | 0 | 4 | 10 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| Nolan | 10 | 9 | 14 | 24 | 8 | 12 | 26 | 8 | 1 | 3 | 9 | 6 | 2 | 8 | 13 |
| Nueces | 1,369 | 1,375 | 1,512 | 1,994 | 1,530 | 1,018 | 945 | 728 | 551 | 502 | 435 | 451 | 669 | 880 | 891 |
| Ochiltree | 24 | 69 | 46 | 59 | 66 | 35 | 15 | 6 | 2 | 2 | 3 | 1 | 1 | 4 | 2 |
| Oldham | 1 | 0 | 0 | 7 | 5 | 2 | 1 | 1 | 2 | 2 | 0 | 0 | 0 | 2 | 1 |
| Orange | 447 | 288 | 258 | 299 | 303 | 261 | 175 | 179 | 136 | 137 | 171 | 194 | 295 | 653 | 264 |
| Palo Pinto | 64 | 60 | 12 | 31 | 15 | 13 | 17 | 3 | 5 | 4 | 3 | 1 | 4 | 3 | 1 |
| Panola | 37 | 19 | 19 | 18 | 15 | 22 | 27 | 19 | 18 | 12 | 8 | 14 | 13 | 22 | 18 |
| Parker | 102 | 64 | 61 | 168 | 198 | 211 | 111 | 83 | 52 | 60 | 58 | 44 | 60 | 111 | 159 |
| Parmer | 9 | 5 | 0 | 4 | 6 | 5 | 10 | 7 | 1 | 9 | 4 | 5 | 3 | 2 | 6 |

| Year | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pecos | 12 | 12 | 31 | 28 | 4 | 0 | 4 | 5 | 5 | 6 | 4 | 0 | 3 | 5 | 6 |
| Polk | 21 | 11 | 18 | 27 | 38 | 20 | 6 | 7 | 13 | 2 | 6 | 5 | 6 | 16 | 18 |
| Potter | 592 | 397 | 484 | 1,036 | 667 | 412 | 435 | 419 | 178 | 102 | 115 | 177 | 292 | 435 | 440 |
| Presidio | 1 | 26 | 2 | 3 | 3 | 0 | 3 | 3 | 3 | 1 | 1 | 1 | 34 | 61 | 31 |
| Rains | 9 | 16 | 9 | 13 | 7 | 11 | 6 | 7 | 5 | 5 | 1 | 2 | 5 | 4 | 10 |
| Randall | 40 | 36 | 78 | 116 | 182 | 130 | 73 | 82 | 50 | 40 | 37 | 40 | 61 | 105 | 110 |
| Reagan | 10 | 25 | 19 | 15 | 7 | 0 | 2 | 5 | 2 | 8 | 5 | 5 | 1 | 0 | 0 |
| Real | 2 | 2 | 3 | 4 | 1 | 0 | 3 | 1 | 1 | 0 | 1 | 0 | 0 | 3 | 6 |
| Red River | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 3 | 6 | 1 |
| Reeves | 20 | 19 | 11 | 8 | 13 | 6 | 6 | 4 | 7 | 3 | 2 | 0 | 0 | 1 | 1 |
| Refugio | 7 | 8 | 16 | 8 | 7 | 4 | 5 | 0 | 3 | 0 | 1 | 8 | 5 | 0 | 1 |
| Robertson | 9 | 18 | 15 | 13 | 11 | 27 | 26 | 25 | 13 | 9 | 10 | 9 | 8 | 3 | 3 |
| Rockwall | 196 | 106 | 180 | 443 | 343 | 348 | 206 | 187 | 142 | 156 | 162 | 151 | 167 | 206 | 251 |
| Runnels | 26 | 31 | 26 | 18 | 21 | 7 | 5 | 4 | 4 | 0 | 3 | 4 | 4 | 4 | 7 |
| Rusk | 46 | 41 | 53 | 66 | 54 | 36 | 34 | 32 | 26 | 14 | 14 | 12 | 20 | 27 | 13 |
| Sabine | 0 | 1 | 3 | 1 | 1 | 2 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 3 |
| San Augustine | 5 | 1 | 2 | 2 | 2 | 0 | 7 | 2 | 1 | 0 | 1 | 1 | 2 | 5 | 6 |
| San Jacinto | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 6 | 4 |
| San Patricio | 275 | 209 | 216 | 265 | 227 | 88 | 153 | 118 | 95 | 69 | 66 | 52 | 83 | 115 | 149 |
| San Saba | 8 | 7 | 8 | 5 | 10 | 5 | 10 | 2 | 2 | 2 | 4 | 1 | 0 | 0 | 2 |
| Schleicher | 5 | 4 | 7 | 12 | 5 | 6 | 1 | 6 | 2 | 1 | 0 | 4 | 2 | 2 | 2 |
| Scurry | 44 | 54 | 45 | 53 | 50 | 37 | 19 | 3 | 5 | 4 | 3 | 3 | 2 | 4 | 5 |
| Shackelford | 3 | 3 | 0 | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Shelby | 9 | 8 | 41 | 13 | 8 | 7 | 16 | 3 | 6 | 3 | 3 | 2 | 2 | 2 | 0 |
| Sherman | 0 | 0 | 2 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 |
| Smith | 237 | 265 | 296 | 531 | 528 | 193 | 185 | 156 | 141 | 116 | 95 | 133 | 261 | 290 | 322 |
| Somervell | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 9 |
| Starr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Stephens | 22 | 16 | 19 | 12 | 4 | 11 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 2 |
| Sutton | 6 | 8 | 9 | 9 | 1 | 3 | 3 | 2 | 2 | 2 | 1 | 3 | 4 | 1 | 1 |
| Swisher | 12 | 0 | 2 | 4 | 4 | 3 | 1 | 3 | 2 | 1 | 2 | 1 | 3 | 0 | 0 |
| Tarrant | 6,185 | 4,602 | 6,831 | 11,957 | 11,356 | 10,846 | 8,825 | 6,101 | 4,801 | 4,791 | 4,571 | 4,139 | 5,065 | 5,612 | 6,012 |
| Taylor | 532 | 504 | 748 | 1,029 | 501 | 348 | 335 | 208 | 144 | 106 | 109 | 143 | 269 | 293 | 311 |
| Terry | 22 | 19 | 13 | 19 | 15 | 16 | 9 | 6 | 8 | 8 | 3 | 3 | 5 | 7 | 8 |

| Year | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Titus | 45 | 37 | 31 | 65 | 74 | 29 | 26 | 15 | 14 | 27 | 25 | 35 | 34 | 28 | 36 |
| Tom Green | 522 | 599 | 425 | 555 | 363 | 254 | 188 | 284 | 166 | 125 | 131 | 137 | 197 | 305 | 254 |
| Travis | 3,424 | 2,917 | 3,943 | 6,176 | 6,658 | 4,237 | 3,493 | 1,941 | 1,878 | 1,726 | 1,708 | 2,570 | 3,830 | 4,897 | 4,569 |
| Trinity | 10 | 7 | 5 | 3 | 11 | 5 | 5 | 6 | 5 | 4 | 3 | 3 | 32 | 0 | 4 |
| Tyler | 11 | 3 | 4 | 11 | 7 | 3 | 1 | 0 | 10 | 1 | 3 | 1 | 2 | 5 | 4 |
| Upshur | 34 | 37 | 35 | 31 | 32 | 4 | 14 | 19 | 17 | 7 | 11 | 8 | 19 | 29 | 15 |
| Upton | 0 | 7 | 6 | 4 | 2 | 7 | 18 | 17 | 1 | 3 | 2 | 3 | 0 | 3 | 0 |
| Uvalde | 63 | 37 | 42 | 44 | 34 | 32 | 25 | 24 | 12 | 24 | 13 | 8 | 14 | 18 | 17 |
| Val Verde | 162 | 115 | 86 | 120 | 73 | 61 | 56 | 54 | 56 | 49 | 58 | 62 | 73 | 73 | 92 |
| Van Zandt | 29 | 75 | 44 | 43 | 53 | 42 | 35 | 28 | 31 | 21 | 25 | 17 | 14 | 25 | 31 |
| Victoria | 420 | 508 | 439 | 415 | 223 | 251 | 175 | 76 | 63 | 112 | 107 | 129 | 161 | 185 | 202 |
| Walker | 67 | 28 | 19 | 55 | 26 | 29 | 15 | 12 | 5 | 9 | 10 | 61 | 126 | 101 | 105 |
| Waller | 23 | 14 | 11 | 19 | 30 | 8 | 7 | 5 | 10 | 7 | 4 | 9 | 18 | 22 | 25 |
| Ward | 13 | 27 | 27 | 7 | 5 | 7 | 7 | 2 | 8 | 3 | 2 | 2 | 0 | 3 | 1 |
| Washington | 69 | 60 | 75 | 59 | 51 | 60 | 32 | 24 | 12 | 5 | 11 | 10 | 26 | 50 | 63 |
| Webb | 376 | 295 | 270 | 272 | 406 | 495 | 584 | 522 | 596 | 610 | 603 | 550 | 818 | 869 | 954 |
| Wharton | 71 | 51 | 58 | 59 | 41 | 48 | 17 | 14 | 12 | 41 | 12 | 14 | 24 | 16 | 15 |
| Wheeler | 3 | 11 | 27 | 13 | 7 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Wichita | 400 | 296 | 408 | 607 | 499 | 396 | 170 | 126 | 93 | 108 | 82 | 82 | 190 | 342 | 328 |
| Wilbarger | 28 | 34 | 31 | 31 | 29 | 22 | 9 | 4 | 2 | 3 | 2 | 2 | 4 | 2 | 6 |
| Willacy | 40 | 30 | 54 | 35 | 66 | 41 | 66 | 37 | 38 | 65 | 38 | 11 | 17 | 12 | 53 |
| Williamson | 565 | 327 | 501 | 1,140 | 1,838 | 1,051 | 1,435 | 360 | 116 | 150 | 174 | 380 | 767 | 1,397 | 1,537 |
| Wilson | 17 | 33 | 24 | 26 | 55 | 24 | 12 | 25 | 23 | 15 | 17 | 25 | 15 | 17 | 20 |
| Winkler | 18 | 24 | 11 | 10 | 9 | 6 | 5 | 1 | 1 | 1 | 0 | 0 | 0 | 25 | 23 |
| Wise | 28 | 31 | 49 | 47 | 48 | 20 | 49 | 34 | 22 | 21 | 19 | 18 | 22 | 38 | 29 |
| Wood | 32 | 34 | 29 | 27 | 29 | 29 | 31 | 16 | 13 | 9 | 9 | 2 | 19 | 25 | 16 |
| Yoakum | 2 | 5 | 12 | 36 | 24 | 23 | 6 | 7 | 7 | 3 | 2 | 2 | 1 | 3 | 1 |
| Young | 48 | 66 | 97 | 102 | 74 | 60 | 24 | 7 | 4 | 0 | 2 | 4 | 4 | 2 | 5 |
| Zavala | 7 | 3 | 2 | 4 | 7 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 7 |

Source: Texas A&M Real Estate Center

## Table C-2 continued. County Level Single Family Housing Permit Data, 1995 - 2006

| Year | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Anderson | 32 | 26 | 20 | 26 | 21 | 34 | 24 | 12 | 24 | 17 | 23 | 18 |
| Andrews | 3 | 10 | 10 | 8 | 6 | 24 | 11 | 13 | 11 | 12 | 24 | 40 |
| Angelina | 119 | 136 | 137 | 152 | 159 | 132 | 144 | 156 | 166 | 107 | 104 | 128 |
| Aransas | 57 | 116 | 125 | 122 | 68 | 101 | 8 | 87 | 177 | 220 | 256 | 213 |
| Archer | 8 | 12 | 7 | 13 | 9 | 10 | 3 | 8 | 9 | 10 | 10 | 21 |
| Armstrong | 1 | 3 | 0 | 2 | 1 | 2 | 2 | 3 | 3 | 4 | 1 | 1 |
| Atacosa | 45 | 58 | 47 | 51 | 45 | 66 | 43 | 54 | 55 | 64 | 64 | 119 |
| Austin | 24 | 27 | 28 | 27 | 25 | 114 | 34 | 45 | 45 | 28 | 46 | 39 |
| Bailey | 2 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 3 | 2 | 6 | 4 |
| Bandera | 0 | 0 | 0 | 2 | 4 | 3 | 2 | 2 | 2 | 0 | 0 | 2 |
| Bastrop | 26 | 30 | 58 | 74 | 143 | 146 | 146 | 284 | 302 | 280 | 269 | 226 |
| Baylor | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bee | 16 | 21 | 16 | 8 | 1 | 4 | 5 | 9 | 4 | 16 | 11 | 16 |
| Bell | 1,325 | 1,315 | 1,082 | 1,155 | 1,179 | 1,321 | 1,515 | 1,769 | 1,857 | 2,351 | 3,047 | 2,514 |
| Bexar | 5,119 | 5,419 | 5,238 | 6,993 | 7,117 | 6,873 | 7,462 | 7,880 | 7,699 | 8,987 | 10,298 | 9,219 |
| Blanco | 25 | 35 | 16 | 17 | 12 | 12 | 20 | 21 | 21 | 22 | 25 | 19 |
| Bosque | 12 | 15 | 6 | 4 | 6 | 6 | 8 | 5 | 4 | 2 | 5 | 8 |
| Bowie | 126 | 121 | 122 | 78 | 117 | 102 | 115 | 124 | 188 | 154 | 136 | 99 |
| Brazoria | 1,210 | 1,633 | 1,778 | 1,960 | 1,717 | 1,903 | 2,405 | 2,738 | 3,025 | 3,288 | 3,989 | 3,287 |
| Brazos | 538 | 601 | 757 | 769 | 757 | 752 | 816 | 967 | 1,120 | 859 | 789 | 882 |
| Brewster | 12 | 19 | 12 | 13 | 8 | 13 | 35 | 19 | 18 | 15 | 7 | 7 |
| Brooks | 3 | 1 | 0 | 0 | 1 | 3 | 2 | 2 | 2 | 2 | 3 | 3 |
| Brown | 22 | 24 | 25 | 37 | 12 | 31 | 13 | 14 | 10 | 20 | 41 | 182 |
| Burleson | 8 | 10 | 9 | 8 | 6 | 2 | 20 | 14 | 22 | 18 | 9 | 15 |
| Burnet | 220 | 245 | 248 | 397 | 422 | 427 | 428 | 440 | 403 | 447 | 433 | 496 |
| Caldwell | 45 | 60 | 51 | 25 | 81 | 57 | 145 | 112 | 122 | 103 | 84 | 84 |
| Calhoun | 71 | 148 | 49 | 48 | 55 | 64 | 77 | 109 | 125 | 135 | 115 | 96 |
| Callahan | 11 | 13 | 9 | 10 | 10 | 7 | 4 | 4 | 5 | 15 | 31 | 12 |
| Cameron | 1,642 | 1,729 | 1,602 | 1,926 | 2,017 | 2,706 | 2,713 | 3,178 | 3,132 | 3,070 | 3,069 | 2,852 |
| Camp | 8 | 8 | 6 | 5 | 3 | 3 | 2 | 9 | 12 | 17 | 8 | 3 |
| Carson | 2 | 4 | 0 | 4 | 2 | 1 | 10 | 7 | 14 | 7 | 7 | 5 |
| Cass | 5 | 5 | 5 | 4 | 7 | 15 | 21 | 22 | 22 | 18 | 17 | 14 |

| Year | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Castro | 7 | 2 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 4 |
| Chambers | 145 | 183 | 128 | 171 | 213 | 309 | 326 | 270 | 417 | 571 | 517 | 368 |
| Cherokee | 38 | 41 | 46 | 50 | 25 | 43 | 76 | 49 | 22 | 27 | 28 | 25 |
| Childress | 0 | 3 | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 3 |
| Clay | 10 | 6 | 7 | 22 | 18 | 12 | 7 | 4 | 5 | 0 | 9 | 4 |
| Cochran | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Coke | 1 | 2 | 2 | 4 | 3 | 0 | 4 | 0 | 0 | 0 | 0 | 1 |
| Coleman | 0 | 6 | 1 | 3 | 3 | 2 | 4 | 2 | 0 | 6 | 2 | 2 |
| Collin | 5,386 | 6,513 | 7,198 | 8,031 | 7,704 | 9,621 | 9,657 | 9,685 | 10,434 | 11,079 | 12,558 | 11,580 |
| Collingsworth | 2 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Colorado | 10 | 11 | 7 | 9 | 8 | 12 | 9 | 16 | 17 | 9 | 20 | 9 |
| Comal | 846 | 878 | 841 | 865 | 926 | 1,050 | 1,172 | 1,323 | 1,552 | 1,589 | 2,182 | 2,477 |
| Comanche | 3 | 2 | 4 | 5 | 2 | 1 | 1 | 2 | 3 | 4 | 5 | 1 |
| Cooke | 42 | 40 | 41 | 35 | 40 | 38 | 48 | 31 | 60 | 109 | 42 | 26 |
| Coryell | 279 | 174 | 90 | 86 | 85 | 78 | 77 | 81 | 95 | 173 | 331 | 267 |
| Cottle | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Crane | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| Crosby | 1 | 10 | 4 | 2 | 2 | 2 | 0 | 0 | 0 | 2 | 1 | 14 |
| Culberson | 1 | 2 | 4 | 5 | 2 | 0 | 9 | 2 | 2 | 1 | 18 | 2 |
| Dallam | 17 | 15 | 20 | 18 | 13 | 30 | 4 | 3 | 3 | 2 | 5 | 31 |
| Dallas | 6,063 | 6,630 | 7,065 | 8,367 | 8,392 | 8,856 | 8,334 | 8,006 | 9,293 | 10,046 | 10,520 | 9,941 |
| Dawson | 5 | 4 | 5 | 5 | 5 | 4 | 4 | 0 | 0 | 1 | 1 | 0 |
| Deaf Smith | 10 | 2 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 6 | 17 | 17 |
| Delta | 8 | 4 | 7 | 1 | 3 | 2 | 2 | 5 | 6 | 7 | 0 | 11 |
| Denton | 3,385 | 3,913 | 4,085 | 5,005 | 5,222 | 5,245 | 5,430 | 4,492 | 4,126 | 6,461 | 3,816 | 3,157 |
| DeWitt | 11 | 13 | 6 | 12 | 29 | 10 | 12 | 2 | 8 | 5 | 5 | 6 |
| Dickens | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dimmit | 1 | 10 | 4 | 8 | 9 | 0 | 13 | 0 | 14 | 15 | 15 | 7 |
| Donley | 4 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 3 | 4 | 0 |
| Duval | - | - | - | - | - | - | - | - | - | - | - | - |
| Eastland | 2 | 1 | 2 | 1 | 3 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Ector | 101 | 71 | 124 | 147 | 101 | 104 | 99 | 128 | 173 | 194 | 149 | 261 |
| Ellis | 249 | 351 | 388 | 366 | 481 | 669 | 628 | 786 | 1,471 | 1,798 | 1,810 | 1,666 |
| El Paso | 2,259 | 2,347 | 2,316 | 3,039 | 3,472 | 2,879 | 3,317 | 3,459 | 4,829 | 3,407 | 4,333 | 3,877 |

| Year | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Erath | 49 | 41 | 37 | 20 | 27 | 23 | 22 | 33 | 111 | 46 | 45 | 28 |
| Falls | 4 | 8 | 8 | 8 | 12 | 9 | 9 | 10 | 12 | 9 | 18 | 9 |
| Fannin | 36 | 35 | 32 | 49 | 40 | 36 | 38 | 38 | 46 | 58 | 71 | 33 |
| Fayette | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fisher | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Floyd | 3 | 7 | 7 | 6 | 1 | 3 | 2 | 4 | 1 | 2 | 8 | 0 |
| Foard | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fort Bend | 910 | 1,094 | 1,044 | 1,368 | 1,148 | 1,063 | 936 | 1,130 | 3,476 | 3,858 | 4,097 | 7,910 |
| Franklin | 16 | 15 | 5 | 5 | 3 | 3 | 2 | 4 | 5 | 4 | 6 | 4 |
| Freestone | 8 | 12 | 13 | 17 | 12 | 21 | 24 | 23 | 24 | 27 | 25 | 26 |
| Frio | 15 | 17 | 23 | 28 | 22 | 15 | 12 | 8 | 7 | 81 | 19 | 20 |
| Gaines | 9 | 7 | 7 | 6 | 3 | 1 | 10 | 3 | 4 | 13 | 17 | 10 |
| Galveston | 1,153 | 1,321 | 1,112 | 1,684 | 1,627 | 2,235 | 2,441 | 2,687 | 2,733 | 2,995 | 3,148 | 2,732 |
| Garza | 1 | 2 | 0 | 1 | 1 | 3 | 7 | 0 | 0 | 0 | 0 | 13 |
| Gillespie | 54 | 37 | 38 | 47 | 76 | 61 | 86 | 99 | 81 | 79 | 80 | 76 |
| Goliad | - | - | - | - | - | - | - | - | - | - | - | - |
| Gonzales | 4 | 4 | 7 | 8 | 7 | 3 | 4 | 20 | 9 | 4 | 9 | 8 |
| Gray | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 1 | 3 | 3 |
| Grayson | 133 | 186 | 134 | 220 | 215 | 171 | 247 | 383 | 351 | 411 | 423 | 355 |
| Gregg | 202 | 226 | 215 | 193 | 194 | 160 | 227 | 285 | 301 | 298 | 357 | 354 |
| Grimes | 7 | 4 | 2 | 4 | 12 | 13 | 10 | 15 | 14 | 7 | 28 | 38 |
| Guadalupe | 382 | 589 | 658 | 651 | 628 | 473 | 483 | 809 | 1,127 | 1,303 | 1,531 | 1,406 |
| Hale | 29 | 40 | 45 | 47 | 16 | 24 | 18 | 14 | 17 | 19 | 86 | 41 |
| Hall | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hamilton | 1 | 2 | 3 | 3 | 3 | 4 | 3 | 1 | 1 | 2 | 3 | 2 |
| Hansford | 0 | 1 | 3 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hardeman | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| Hardin | 18 | 15 | 21 | 54 | 33 | 21 | 16 | 77 | 120 | 115 | 98 | 129 |
| Harris | 9,708 | 11,677 | 13,439 | 16,191 | 16,055 | 18,244 | 20,122 | 23,052 | 26,450 | 28,020 | 32,465 | 33,023 |
| Harrison | 61 | 42 | 35 | 44 | 22 | 28 | 38 | 46 | 37 | 44 | 40 | 38 |
| Haskell | 3 | 4 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 2 |
| Hays | 148 | 175 | 157 | 363 | 754 | 727 | 746 | 1,091 | 1,156 | 1,960 | 2,124 | 1,992 |
| Hemphill | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| Henderson | 99 | 86 | 100 | 107 | 139 | 111 | 94 | 127 | 137 | 139 | 125 | 131 |

| Year | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hidalgo | 3,761 | 4,287 | 4,155 | 5,219 | 5,069 | 5,038 | 5,606 | 6,418 | 6,461 | 6,744 | 6,763 | 6,870 |
| Hill | 18 | 11 | 14 | 31 | 33 | 16 | 22 | 25 | 20 | 24 | 15 | 28 |
| Hockley | 17 | 7 | 11 | 18 | 10 | 16 | 20 | 13 | 12 | 13 | 20 | 33 |
| Hood | 52 | 56 | 63 | 80 | 64 | 29 | 20 | 87 | 91 | 92 | 131 | 130 |
| Hopkins | 39 | 26 | 31 | 36 | 36 | 33 | 58 | 49 | 84 | 93 | 29 | 14 |
| Houston | 16 | 13 | 16 | 8 | 5 | 5 | 6 | 7 | 8 | 7 | 8 | 7 |
| Howard | 20 | 10 | 22 | 22 | 13 | 15 | 3 | 0 | 3 | 0 | 2 | 2 |
| Hunt | 62 | 57 | 59 | 71 | 97 | 67 | 46 | 85 | 90 | 191 | 197 | 127 |
| Hutchinson | 3 | 4 | 4 | 4 | 6 | 1 | 1 | 0 | 0 | 3 | 1 | 4 |
| Jack | 9 | 2 | 0 | 0 | 1 | 0 | 3 | 0 | 2 | 3 | 1 | 4 |
| Jackson | 27 | 42 | 32 | 36 | 29 | 25 | 16 | 19 | 24 | 20 | 20 | 21 |
| Jasper | 10 | 20 | 4 | 11 | 18 | 9 | 5 | 6 | 6 | 7 | 7 | 2 |
| Jefferson | 324 | 423 | 382 | 578 | 581 | 596 | 624 | 566 | 646 | 711 | 427 | 540 |
| Jim Wells | 21 | 26 | 37 | 27 | 37 | 24 | 23 | 34 | 38 | 45 | 82 | 57 |
| Johnson | 231 | 299 | 361 | 496 | 514 | 639 | 618 | 755 | 898 | 913 | 1,145 | 1,086 |
| Jones | 2 | 1 | 0 | 2 | 0 | 0 | 2 | 3 | 4 | 3 | 3 | 0 |
| Karnes | 4 | 11 | 9 | 1 | 15 | 2 | 3 | 13 | 18 | 26 | 8 | 8 |
| Kaufman | 160 | 112 | 148 | 203 | 178 | 202 | 233 | 573 | 648 | 789 | 914 | 721 |
| Kendall | 190 | 189 | 279 | 290 | 323 | 278 | 313 | 344 | 414 | 539 | 552 | 547 |
| Kent | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kerr | 107 | 110 | 74 | 69 | 90 | 79 | 74 | 89 | 88 | 104 | 88 | 0 |
| Kimble | 7 | 4 | 0 | 1 | 3 | 0 | 1 | 2 | 0 | 5 | 13 | 1 |
| Kinney | 0 | 2 | 2 | 1 | 0 | 3 | 2 | 2 | 2 | 2 | 0 | 1 |
| Kleberg | 32 | 20 | 11 | 11 | 12 | 11 | 11 | 8 | 9 | 6 | 7 | 40 |
| Knox | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Lamar | 134 | 95 | 81 | 78 | 106 | 96 | 96 | 105 | 84 | 77 | 58 | 62 |
| Lamb | 10 | 7 | 3 | 4 | 2 | 1 | 4 | 4 | 0 | 0 | 0 | 1 |
| Lampasas | 4 | 6 | 5 | 6 | 13 | 12 | 21 | 23 | 25 | 10 | 27 | 27 |
| La Salle | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 3 | 39 |
| Lavaca | 8 | 12 | 8 | 9 | 11 | 10 | 7 | 13 | 6 | 10 | 16 | 15 |
| Lee | 2 | 10 | 4 | 11 | 13 | 10 | 10 | 52 | 19 | 15 | 23 | 19 |
| Liberty | 210 | 244 | 195 | 317 | 310 | 213 | 212 | 235 | 258 | 263 | 287 | 293 |
| Limestone | 11 | 6 | 7 | 7 | 29 | 11 | 24 | 10 | 21 | 23 | 9 | 3 |
| Lipscomb | 0 | 0 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |

| Year | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Live Oak | 2 | 5 | 7 | 7 | 2 | 4 | 1 | 3 | 3 | 1 | 3 | 16 |
| Llano | 34 | 240 | 70 | 139 | 16 | 24 | 210 | 227 | 240 | 201 | 252 | 294 |
| Lubbock | 603 | 827 | 662 | 738 | 837 | 804 | 983 | 1,347 | 1,364 | 1,392 | 1,291 | 1,229 |
| Lynn | 1 | 3 | 3 | 2 | 3 | 3 | 0 | 2 | 2 | 3 | 2 | 3 |
| McCulloch | 11 | 3 | 1 | 4 | 1 | 4 | 5 | 5 | 3 | 4 | 2 | 0 |
| McLennan | 330 | 362 | 371 | 395 | 494 | 523 | 549 | 532 | 620 | 788 | 997 | 958 |
| Madison | 1 | 1 | 1 | 2 | 12 | 6 | 12 | 16 | 14 | 11 | 12 | 12 |
| Marion | 3 | 7 | 3 | 2 | 1 | 0 | 1 | 6 | 1 | 1 | 0 | 7 |
| Martin | 0 | 5 | 2 | 2 | 1 | 1 | 8 | 1 | 0 | 3 | 10 | 0 |
| Mason | 5 | 3 | 3 | 4 | 8 | 3 | 11 | 0 | 1 | 14 | 14 | 12 |
| Matagorda | 64 | 68 | 77 | 106 | 82 | 90 | 92 | 101 | 115 | 137 | 97 | 107 |
| Maverick | 122 | 101 | 95 | 130 | 169 | 148 | 180 | 178 | 165 | 203 | 213 | 168 |
| Medina | 39 | 37 | 28 | 38 | 35 | 35 | 33 | 21 | 104 | 111 | 43 | 31 |
| Menard | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Midland | 249 | 287 | 266 | 244 | 127 | 158 | 154 | 227 | 260 | 289 | 390 | 470 |
| Milam | 18 | 8 | 10 | 14 | 13 | 6 | 7 | 28 | 12 | 13 | 15 | 11 |
| Mitchell | 0 | 2 | 4 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Montague | 7 | 11 | 8 | 8 | 9 | 8 | 9 | 11 | 14 | 3 | 0 | 1 |
| Montgomery | 2,496 | 3,259 | 3,110 | 3,674 | 4,493 | 4,067 | 3,997 | 4,497 | 5,581 | 6,023 | 6,586 | 7,417 |
| Moore | 16 | 18 | 6 | 10 | 13 | 14 | 12 | 32 | 28 | 33 | 26 | 28 |
| Morris | 2 | 8 | 3 | 3 | 3 | 2 | 4 | 14 | 12 | 4 | 4 | 11 |
| Motley | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nacogdoches | 61 | 45 | 34 | 44 | 2 | 42 | 86 | 64 | 62 | 69 | 101 | 52 |
| Navarro | 22 | 40 | 34 | 32 | 37 | 35 | 31 | 51 | 22 | 41 | 69 | 47 |
| Newton | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nolan | 10 | 3 | 6 | 5 | 6 | 2 | 5 | 4 | 2 | 3 | 4 | 1 |
| Nueces | 795 | 1,087 | 889 | 991 | 694 | 737 | 945 | 1,079 | 1,362 | 1,448 | 1,553 | 1,543 |
| Ochiltree | 7 | 9 | 4 | 9 | 4 | 3 | 6 | 2 | 6 | 6 | 7 | 7 |
| Oldham | 1 | 1 | 0 | 2 | 0 | 0 | 1 | 1 | 3 | 4 | 3 | 3 |
| Orange | 189 | 202 | 200 | 225 | 218 | 174 | 170 | 224 | 277 | 251 | 283 | 276 |
| Palo Pinto | 4 | 0 | 12 | 6 | 6 | 4 | 5 | 8 | 6 | 7 | 13 | 15 |
| Panola | 19 | 14 | 15 | 8 | 16 | 6 | 7 | 9 | 20 | 7 | 16 | 8 |
| Parker | 205 | 219 | 233 | 277 | 242 | 282 | 321 | 360 | 363 | 357 | 480 | 489 |
| Parmer | 13 | 3 | 1 | 3 | 3 | 5 | 3 | 1 | 3 | 4 | 1 | 6 |

| Year | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pecos | 8 | 5 | 8 | 4 | 6 | 4 | 5 | 5 | 3 | 1 | 16 | 6 |
| Polk | 16 | 16 | 14 | 9 | 13 | 7 | 14 | 172 | 165 | 187 | 185 | 460 |
| Potter | 390 | 507 | 382 | 446 | 510 | 518 | 535 | 676 | 737 | 697 | 824 | 671 |
| Presidio | 26 | 100 | 64 | 63 | 67 | 67 | 63 | 72 | 78 | 89 | 101 | 32 |
| Rains | 8 | 4 | 3 | 3 | 9 | 9 | 11 | 15 | 16 | 8 | 14 | 2 |
| Randall | 61 | 61 | 56 | 44 | 28 | 29 | 30 | 46 | 29 | 29 | 31 | 32 |
| Reagan | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 1 | 3 | 3 |
| Real | 2 | 2 | 24 | 21 | 136 | 31 | 9 | 10 | 11 | 8 | 0 | 0 |
| Red River | 4 | 0 | 0 | 1 | 4 | 5 | 12 | 2 | 2 | 4 | 3 | 3 |
| Reeves | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| Refugio | 1 | 5 | 4 | 7 | 2 | 1 | 4 | 5 | 5 | 12 | 12 | 7 |
| Robertson | 4 | 3 | 9 | 6 | 13 | 9 | 20 | 18 | 14 | 15 | 4 | 23 |
| Rockwall | 247 | 410 | 391 | 495 | 761 | 955 | 1,267 | 1,224 | 1,219 | 1,598 | 1,756 | 1,190 |
| Runnels | 2 | 3 | 2 | 10 | 4 | 1 | 4 | 1 | 0 | 0 | 1 | 2 |
| Rusk | 12 | 13 | 12 | 13 | 18 | 13 | 19 | 17 | 16 | 13 | 22 | 8 |
| Sabine | 5 | 4 | 2 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 |
| San Augustine | 4 | 4 | 1 | 2 | 2 | 0 | 1 | 2 | 2 | 0 | 0 | 1 |
| San Jacinto | 6 | 4 | 5 | 1 | 1 | 11 | 6 | 0 | 13 | 11 | 3 | 3 |
| San Patricio | 214 | 312 | 212 | 295 | 248 | 233 | 203 | 254 | 297 | 301 | 332 | 357 |
| San Saba | 0 | 3 | 4 | 9 | 0 | 23 | 19 | 3 | 1 | 5 | 1 | 3 |
| Schleicher | 3 | 4 | 1 | 1 | 0 | 0 | 3 | 4 | 0 | 1 | 0 | 2 |
| Scurry | 5 | 4 | 5 | 5 | 5 | 8 | 1 | 2 | 1 | 4 | 7 | 10 |
| Shackelford | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Shelby | 5 | 3 | 5 | 1 | 7 | 1 | 2 | 2 | 0 | 20 | 3 | 3 |
| Sherman | 0 | 0 | 4 | 4 | 111 | 14 | 14 | 15 | 17 | 19 | 21 | 20 |
| Smith | 298 | 354 | 414 | 440 | 440 | 467 | 463 | 548 | 593 | 608 | 604 | 576 |
| Somervell | 4 | 5 | 10 | 10 | 20 | 6 | 11 | 12 | 50 | 18 | 24 | 70 |
| Starr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - |
| Stephens | 0 | 0 | 0 | 1 | 2 | 1 | 0 | 1 | 0 | 2 | 1 | 1 |
| Sutton | 1 | 0 | 2 | 2 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| Swisher | 2 | 0 | 3 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tarrant | 6,004 | 6,886 | 6,470 | 8,521 | 8,785 | 9,505 | 11,210 | 12,189 | 12,462 | 14,705 | 16,121 | 13,507 |
| Taylor | 230 | 244 | 215 | 250 | 179 | 164 | 172 | 158 | 194 | 265 | 276 | 321 |
| Terry | 6 | 4 | 6 | 12 | 8 | 3 | 1 | 2 | 1 | 0 | 5 | 4 |

| Year | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Titus | 22 | 27 | 20 | 37 | 27 | 28 | 33 | 23 | 40 | 51 | 46 | 32 |
| Tom Green | 221 | 252 | 192 | 230 | 267 | 239 | 247 | 251 | 265 | 231 | 270 | 369 |
| Travis | 4,400 | 6,145 | 5,127 | 6,618 | 6,742 | 7,451 | 4,393 | 5,246 | 6,118 | 7,757 | 9,425 | 9,575 |
| Trinity | 3 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Tyler | 3 | 3 | 4 | 3 | 3 | 1 | 1 | 1 | 1 | 4 | 3 | 9 |
| Upshur | 17 | 15 | 13 | 21 | 14 | 13 | 24 | 17 | 13 | 9 | 7 | 14 |
| Upton | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Uvalde | 14 | 23 | 18 | 25 | 25 | 31 | 25 | 41 | 41 | 20 | 35 | 37 |
| Val Verde | 124 | 148 | 127 | 135 | 122 | 117 | 118 | 122 | 113 | 127 | 148 | 155 |
| Van Zandt | 23 | 28 | 29 | 32 | 48 | 32 | 39 | 49 | 40 | 51 | 47 | 50 |
| Victoria | 172 | 160 | 189 | 212 | 196 | 167 | 144 | 212 | 117 | 138 | 123 | 143 |
| Walker | 176 | 289 | 211 | 226 | 225 | 56 | 109 | 74 | 80 | 193 | 84 | 54 |
| Waller | 17 | 25 | 20 | 22 | 29 | 21 | 17 | 31 | 55 | 46 | 67 | 90 |
| Ward | 2 | 5 | 3 | 4 | 1 | 2 | 2 | 2 | 6 | 4 | 3 | 6 |
| Washington | 47 | 29 | 34 | 32 | 33 | 26 | 38 | 31 | 38 | 39 | 64 | 80 |
| Webb | 881 | 1,156 | 1,198 | 1,402 | 1,336 | 1,423 | 1,477 | 1,439 | 1,580 | 1,617 | 1,886 | 1,941 |
| Wharton | 16 | 22 | 26 | 14 | 17 | 32 | 23 | 27 | 37 | 105 | 122 | 146 |
| Wheeler | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| Wichita | 199 | 186 | 195 | 156 | 201 | 211 | 229 | 248 | 316 | 309 | 260 | 303 |
| Wilbarger | 2 | 10 | 4 | 5 | 5 | 3 | 5 | 2 | 4 | 63 | 0 | 4 |
| Willacy | 67 | 66 | 48 | 19 | 57 | 42 | 49 | 86 | 64 | 33 | 36 | 42 |
| Williamson | 2,816 | 3,685 | 3,063 | 3,725 | 3,984 | 4,664 | 3,685 | 4,339 | 4,418 | 4,209 | 5,444 | 5,738 |
| Wilson | 17 | 15 | 10 | 9 | 7 | 11 | 21 | 51 | 29 | 41 | 36 | 40 |
| Winkler | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 5 | 6 | 7 | 7 |
| Wise | 77 | 89 | 109 | 141 | 136 | 88 | 69 | 103 | 138 | 173 | 172 | 116 |
| Wood | 14 | 16 | 20 | 15 | 30 | 13 | 27 | 14 | 13 | 17 | 12 | 10 |
| Yoakum | 0 | 1 | 2 | 1 | 1 | 1 | 6 | 1 | 0 | 0 | 0 | 7 |
| Young | 2 | 8 | 7 | 9 | 7 | 7 | 3 | 4 | 8 | 7 | 6 | 11 |
| Zavala | 6 | 28 | 16 | 16 | 18 | 4 | 5 | 6 | 3 | 3 | 3 | 3 |

Source: Texas A&M Real Estate Center (3)

**Table C-3. Housing Unit Starts, U.S. South Region, 1970 – 1980**

| Year | Units |
|---|---|
| 1970 | 611,600,000 |
| 1971 | 868,700,000 |
| 1972 | 1,057,00,000 |
| 1973 | 899,400,000 |
| 1974 | 552,800,000 |
| 1975 | 442,100,000 |
| 1976 | 568,500,000 |
| 1977 | 783,100,000 |
| 1978 | 823,700,000 |
| 1979 | 747,500,000 |
| 1980 | 642,700,000 |

Source: U.S. Census Bureau

## Table C-4. Texas County Highway Construction and Maintenance Annual Expenditures, 1998 – 2006 (1998 Dollars)

| County | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|
| Anderson | 5,124,542 | 3,958,905 | 2,954,470 | 4,425,090 | 4,690,773 | 9,759,420 | 5,926,584 | 7,872,415 | 13,263,945 |
| Andrews | 1,365,674 | 1,271,832 | 1,370,313 | 1,057,516 | 1,311,797 | 3,252,713 | 1,912,427 | 1,223,741 | 2,075,892 |
| Angelina | 12,791,304 | 18,751,434 | 19,178,686 | 15,851,620 | 15,520,322 | 11,932,660 | 8,536,784 | 13,404,715 | 25,319,284 |
| Aransas | 1,071,658 | 4,184,851 | 832,475 | 1,795,594 | 8,473,238 | 6,963,086 | 7,094,060 | 12,288,267 | 6,818,702 |
| Archer | 2,626,703 | 3,783,834 | 3,796,404 | 2,902,996 | 1,181,548 | 3,036,752 | 2,407,810 | 11,603,312 | 9,300,179 |
| Armstrong | 1,127,184 | 870,790 | 353,171 | 1,266,373 | 6,032,865 | 4,861,968 | 623,025 | 2,961,828 | 14,458,078 |
| Atascosa | 6,242,984 | 6,227,877 | 14,343,218 | 10,813,452 | 6,669,028 | 3,509,698 | 4,351,363 | 9,406,880 | 18,931,744 |
| Austin | 1,451,001 | 5,265,176 | 5,003,001 | 3,570,529 | 1,810,815 | 1,879,751 | 6,379,872 | 5,051,067 | 9,793,187 |
| Bailey | 1,069,742 | 1,088,981 | 399,019 | 227,278 | 776,838 | 2,933,557 | 2,400,609 | 2,268,740 | 3,287,706 |
| Bandera | 1,577,668 | 1,520,285 | 1,546,917 | 2,105,156 | 1,031,585 | 2,184,196 | 690,741 | 3,271,402 | 7,149,518 |
| Bastrop | 3,865,632 | 5,910,993 | 9,273,896 | 10,043,314 | 10,380,683 | 6,512,413 | 13,053,347 | 12,136,832 | 9,741,061 |
| Baylor | 3,737,878 | 2,968,608 | 1,278,929 | 1,868,406 | 835,226 | 969,978 | 391,887 | 1,199,672 | 9,086,777 |
| Bee | 1,883,207 | 4,401,673 | 4,108,261 | 3,138,253 | 6,215,132 | 5,418,328 | 5,674,843 | 5,545,809 | 14,102,678 |
| Bell | 15,237,891 | 16,912,318 | 19,028,977 | 14,194,542 | 16,165,621 | 27,659,277 | 32,910,746 | 44,193,834 | 43,189,053 |
| Bexar | 97,586,219 | 93,562,587 | 114,061,692 | 129,109,446 | 172,414,366 | 144,838,275 | 161,228,650 | 186,276,947 | 187,447,544 |
| Blanco | 1,762,878 | 1,046,070 | 470,595 | 2,024,031 | 2,084,017 | 900,302 | 222,269 | 1,115,567 | 1,054,214 |
| Borden | 943,331 | 1,192,234 | 807,101 | 1,076,305 | 3,700,571 | 361,873 | 1,615,855 | 1,530,340 | 1,509,573 |
| Bosque | 1,864,375 | 1,483,845 | 1,027,633 | 2,281,195 | 1,048,293 | 1,469,936 | 2,761,856 | 3,190,323 | 5,977,935 |
| Bowie | 21,761,970 | 13,216,609 | 26,165,359 | 32,089,992 | 20,608,429 | 19,773,816 | 10,620,636 | 10,063,267 | 7,831,220 |
| Brazoria | 27,728,932 | 33,610,686 | 25,091,696 | 13,193,087 | 29,669,712 | 27,964,994 | 31,157,433 | 46,585,721 | 32,491,478 |
| Brazos | 13,820,633 | 16,449,451 | 18,266,254 | 16,834,076 | 18,003,650 | 17,909,225 | 27,659,410 | 25,872,455 | 37,025,475 |
| Brewster | 4,239,493 | 2,139,267 | 351,147 | 3,834,756 | 3,285,197 | 1,781,662 | 5,214,037 | 3,116,221 | 3,064,185 |
| Briscoe | 1,028,900 | 1,676,859 | 1,350,949 | 1,438,927 | 504,745 | 746,540 | 420,146 | 1,195,208 | 1,621,224 |
| Brooks | 1,342,219 | 2,170,086 | 4,177,946 | 7,215,188 | 775,715 | 861,097 | 1,526,692 | 705,714 | 1,255,175 |
| Brown | 5,496,309 | 6,546,800 | 4,278,200 | 11,339,609 | 6,992,665 | 9,356,531 | 4,896,708 | 6,354,629 | 8,801,978 |
| Burleson | 2,916,175 | 4,824,096 | 12,938,408 | 9,736,548 | 4,893,913 | 2,449,338 | 3,491,297 | 8,903,958 | 8,992,888 |
| Burnet | 2,084,467 | 3,668,855 | 6,865,653 | 12,547,040 | 9,553,889 | 4,847,348 | 2,262,741 | 5,687,220 | 7,970,300 |
| Caldwell | 3,084,724 | 4,746,091 | 6,131,149 | 5,012,614 | 2,544,270 | 1,981,151 | 2,579,098 | 6,471,450 | 4,161,207 |
| Calhoun | 2,249,815 | 6,520,856 | 6,015,741 | 1,384,339 | 1,106,695 | 930,216 | 2,891,414 | 3,488,153 | 11,177,153 |
| Callahan | 2,568,775 | 5,777,637 | 2,967,374 | 7,794,625 | 9,457,958 | 3,735,993 | 5,124,013 | 2,061,803 | 4,808,014 |
| Cameron | 25,898,715 | 26,601,096 | 63,299,179 | 50,887,710 | 49,874,471 | 63,886,766 | 74,909,971 | 79,480,182 | 82,314,398 |
| Camp | 983,844 | 4,041,843 | 761,705 | 3,520,280 | 2,808,539 | 2,473,355 | 5,259,451 | 2,078,031 | 4,042,032 |
| Carson | 1,781,265 | 3,737,480 | 4,233,866 | 1,729,230 | 13,308,374 | 9,216,750 | 3,953,168 | 3,552,921 | 4,765,745 |
| Cass | 10,155,107 | 9,112,751 | 11,510,382 | 11,252,988 | 10,339,971 | 11,570,827 | 5,289,157 | 11,570,561 | 16,075,245 |
| Castro | 1,033,490 | 1,366,025 | 1,375,194 | 1,146,629 | 1,077,002 | 2,924,166 | 4,184,976 | 3,887,494 | 4,870,154 |
| Chambers | 5,305,404 | 7,628,437 | 15,230,446 | 5,183,717 | 2,156,864 | 3,603,919 | 17,595,699 | 20,959,700 | 36,728,044 |
| Cherokee | 11,323,447 | 9,774,799 | 5,658,823 | 2,684,054 | 7,552,556 | 9,245,929 | 11,825,613 | 7,942,464 | 4,425,397 |
| Childress | 3,882,611 | 6,016,065 | 11,832,775 | 15,083,483 | 7,884,763 | 4,286,223 | 7,540,409 | 3,730,096 | 4,723,179 |

| County | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|
| Clay | 5,166,427 | 4,078,856 | 5,572,190 | 6,453,220 | 7,049,538 | 3,727,057 | 4,486,547 | 6,571,936 | 5,003,028 |
| Cochran | 3,562,070 | 3,258,758 | 726,819 | 2,365,363 | 2,234,882 | 1,357,739 | 123,139 | 305,637 | 602,096 |
| Coke | 493,081 | 1,361,127 | 1,085,968 | 1,231,859 | 2,154,264 | 1,260,900 | 813,588 | 885,716 | 422,808 |
| Coleman | 2,073,688 | 2,323,356 | 4,546,974 | 2,705,239 | 1,656,106 | 2,246,959 | 3,870,718 | 4,600,790 | 1,640,639 |
| Collin | 56,721,016 | 50,551,544 | 107,739,716 | 58,462,973 | 45,459,717 | 71,508,929 | 44,325,124 | 68,079,508 | 55,056,105 |
| Collingsworth | 1,024,659 | 868,344 | 1,552,178 | 1,330,039 | 698,749 | 6,881,708 | 769,255 | 5,320,621 | 2,611,906 |
| Colorado | 3,164,962 | 8,726,090 | 3,130,437 | 4,031,748 | 4,375,540 | 7,049,287 | 3,351,556 | 6,382,877 | 8,981,284 |
| Comal | 10,088,778 | 16,688,371 | 16,894,870 | 19,099,873 | 17,276,519 | 19,187,222 | 19,711,709 | 24,857,436 | 28,360,640 |
| Comanche | 2,032,331 | 4,804,118 | 3,858,699 | 4,424,447 | 2,772,205 | 3,787,409 | 2,606,879 | 3,517,229 | 5,766,004 |
| Concho | 3,017,295 | 1,590,530 | 1,709,653 | 3,327,936 | 3,215,635 | 1,287,722 | 1,395,692 | 2,543,921 | 2,265,521 |
| Cooke | 6,762,967 | 7,564,890 | 7,975,416 | 5,299,640 | 6,423,652 | 2,728,990 | 3,600,102 | 11,395,974 | 5,961,571 |
| Coryell | 5,519,567 | 3,833,390 | 5,632,266 | 3,133,481 | 3,244,942 | 1,552,483 | 2,357,127 | 5,056,869 | 12,265,547 |
| Cottle | 2,838,991 | 723,398 | 565,188 | 1,344,617 | 5,020,748 | 5,031,988 | 10,184,451 | 796,001 | 4,574,469 |
| Crane | 4,215,200 | 1,438,088 | 1,432,625 | 1,703,229 | 904,932 | 95,075 | 929,069 | 173,068 | 99,209 |
| Crockett | 2,051,215 | 2,362,362 | 5,627,498 | 1,761,654 | 5,033,407 | 1,773,326 | 1,479,689 | 3,600,318 | 6,318,487 |
| Crosby | 1,435,451 | 1,289,977 | 4,168,039 | 2,490,409 | 779,238 | 2,101,794 | 1,189,138 | 3,759,323 | 5,496,313 |
| Culberson | 2,414,119 | 1,685,282 | 1,812,679 | 6,388,469 | 2,005,735 | 730,681 | 4,205,393 | 4,150,812 | 8,713,288 |
| Dallam | 1,580,991 | 5,654,560 | 5,755,749 | 10,610,976 | 3,958,205 | 2,051,051 | 4,121,474 | 5,702,192 | 12,865,974 |
| Dallas | 163,340,408 | 196,360,053 | 285,608,908 | 242,668,153 | 237,914,211 | 241,018,493 | 253,394,962 | 258,903,422 | 242,307,745 |
| Dawson | 3,236,419 | 2,029,531 | 1,271,950 | 3,944,700 | 6,477,573 | 1,330,593 | 549,702 | 384,309 | 3,968,420 |
| De Witt | 4,699,569 | 1,180,155 | 2,656,508 | 2,314,083 | 9,636,132 | 7,860,537 | 3,880,952 | 4,596,969 | 3,211,066 |
| Deaf Smith | 2,559,154 | 4,921,396 | 817,309 | 1,358,197 | 2,355,987 | 915,565 | 708,705 | 1,542,031 | 1,847,355 |
| Delta | 35,993,414 | 42,269,955 | 31,015,827 | 46,368,165 | 42,343,848 | 64,097,647 | 93,965,476 | 100,816,378 | 53,619,351 |
| Denton | 6,274,957 | 9,935,353 | 9,187,145 | 5,339,156 | 10,915,663 | 8,952,586 | 7,668,491 | 5,045,207 | 8,722,066 |
| Dickens | 2,545,341 | 1,205,201 | 2,306,231 | 2,238,890 | 801,173 | 1,428,908 | 815,162 | 1,206,730 | 400,126 |
| Dimmit | 6,217,298 | 4,192,436 | 545,738 | 3,685,891 | 9,257,014 | 5,899,330 | 3,718,578 | 4,602,274 | 7,728,348 |
| Donley | 5,492,208 | 2,384,788 | 5,100,030 | 1,010,846 | 5,026,830 | 10,913,747 | 2,657,331 | 3,427,352 | 3,777,334 |
| Duval | 1,839,817 | 2,481,152 | 2,774,857 | 4,231,627 | 3,335,250 | 4,990,099 | 2,704,531 | 1,527,388 | 1,339,119 |
| Eastland | 6,103,915 | 9,655,067 | 2,343,715 | 4,898,833 | 4,651,814 | 10,732,377 | 6,039,732 | 5,502,099 | 9,816,993 |
| Ector | 4,318,253 | 11,037,213 | 13,906,739 | 7,359,151 | 12,869,563 | 12,137,488 | 13,262,149 | 12,671,046 | 14,851,971 |
| Edwards | 2,227,062 | 4,472,083 | 1,971,941 | 1,897,686 | 2,454,110 | 1,665,418 | 1,683,511 | 1,164,610 | 476,026 |
| El Paso | 21,342,671 | 18,311,419 | 21,780,057 | 24,702,361 | 18,683,413 | 39,537,727 | 58,123,325 | 56,230,412 | 57,063,504 |
| Ellis | 67,001,442 | 79,621,436 | 64,191,587 | 52,492,833 | 66,778,279 | 71,370,288 | 85,652,362 | 96,040,745 | 75,100,181 |
| Erath | 8,084,666 | 12,895,364 | 10,232,061 | 5,757,472 | 3,519,930 | 3,905,372 | 8,040,261 | 5,714,714 | 10,004,917 |
| Falls | 3,046,373 | 2,544,180 | 7,295,901 | 3,302,489 | 13,109,067 | 8,768,052 | 9,839,250 | 9,527,825 | 11,937,419 |
| Fannin | 13,478,415 | 10,830,434 | 6,993,676 | 10,497,550 | 8,550,021 | 13,316,181 | 4,514,360 | 6,262,082 | 2,831,094 |
| Fayette | 2,931,435 | 5,907,224 | 6,537,874 | 8,883,418 | 9,502,750 | 5,910,382 | 5,264,880 | 13,711,940 | 7,812,235 |
| Fisher | 1,356,205 | 2,213,219 | 4,123,460 | 1,308,602 | 974,729 | 530,620 | 1,878,629 | 3,298,014 | 2,026,849 |
| Floyd | 2,137,957 | 5,707,208 | 1,004,082 | 708,544 | 4,382,279 | 2,656,836 | 1,812,260 | 5,012,856 | 4,278,354 |
| Foard | 504,313 | 1,650,739 | 2,979,199 | 1,287,450 | 246,876 | 400,723 | 803,351 | 530,154 | 773,528 |
| Fort Bend | 39,006,097 | 34,246,635 | 67,072,539 | 43,871,935 | 62,632,677 | 66,026,547 | 54,934,457 | 130,951,369 | 119,164,404 |
| Franklin | 4,855,532 | 2,344,822 | 2,454,339 | 2,237,327 | 2,587,540 | 4,294,631 | 3,616,896 | 2,844,203 | 3,362,859 |

| County | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|
| Freestone | 6,109,464 | 9,870,023 | 6,672,606 | 4,876,285 | 7,079,528 | 6,964,902 | 8,348,756 | 9,416,281 | 8,375,156 |
| Frio | 3,795,976 | 5,010,562 | 1,266,126 | 5,668,266 | 2,155,081 | 4,087,218 | 1,332,370 | 3,288,443 | 7,964,075 |
| Gaines | 2,560,026 | 2,433,267 | 3,182,270 | 7,585,392 | 1,339,694 | 1,290,351 | 1,061,060 | 906,817 | 1,300,420 |
| Galveston | 21,419,078 | 35,148,298 | 52,554,553 | 30,919,882 | 21,502,595 | 17,852,118 | 52,959,679 | 79,188,667 | 64,109,983 |
| Garza | 6,739,500 | 5,365,000 | 6,488,539 | 409,518 | 2,589,433 | 3,249,221 | 15,195,340 | 8,683,320 | 1,101,341 |
| Gillespie | 1,648,654 | 2,059,122 | 2,225,567 | 1,608,194 | 4,126,354 | 1,952,582 | 1,208,071 | 1,372,285 | 5,421,773 |
| Glasscock | 1,171,386 | 856,671 | 2,399,601 | 1,743,040 | 791,350 | 4,354,396 | 4,689,933 | 4,893,029 | 1,367,383 |
| Goliad | 1,794,074 | 3,128,056 | 1,737,853 | 3,176,633 | 3,479,454 | 1,413,849 | 1,751,289 | 1,997,702 | 13,675,043 |
| Gonzales | 3,735,922 | 2,880,799 | 5,150,807 | 6,313,424 | 7,046,863 | 2,335,667 | 5,090,192 | 14,160,333 | 11,747,429 |
| Gray | 6,049,687 | 5,160,732 | 2,590,473 | 5,302,824 | 12,514,832 | 6,314,621 | 1,949,143 | 3,138,072 | 5,078,233 |
| Grayson | 16,188,257 | 26,716,410 | 23,679,041 | 20,660,285 | 23,404,045 | 32,799,250 | 29,109,745 | 15,283,282 | 11,617,115 |
| Gregg | 13,685,389 | 8,266,358 | 11,197,712 | 8,872,321 | 17,711,421 | 17,212,430 | 12,003,338 | 13,119,890 | 8,789,535 |
| Grimes | 7,762,388 | 3,372,836 | 4,053,309 | 1,498,924 | 1,506,177 | 4,862,230 | 4,867,259 | 4,974,716 | 8,930,027 |
| Guadalupe | 8,703,544 | 9,332,945 | 15,949,348 | 17,557,161 | 11,707,321 | 6,907,981 | 11,557,252 | 21,456,487 | 27,261,620 |
| Hale | 4,363,479 | 5,873,974 | 4,033,965 | 14,054,624 | 16,265,069 | 9,492,937 | 1,897,799 | 2,023,471 | 2,728,562 |
| Hall | 1,661,336 | 3,452,874 | 4,125,287 | 1,853,054 | 4,865,175 | 3,357,354 | 997,994 | 1,556,534 | 3,497,975 |
| Hamilton | 4,802,633 | 3,885,904 | 5,458,583 | 2,949,559 | 2,612,628 | 1,924,979 | 1,042,711 | 1,154,292 | 1,069,354 |
| Hansford | 1,528,613 | 2,878,887 | 3,990,206 | 4,637,009 | 4,813,972 | 1,745,752 | 1,029,592 | 1,203,686 | 1,677,612 |
| Hardeman | 1,505,035 | 2,032,695 | 2,867,038 | 2,256,035 | 9,140,554 | 4,671,608 | 5,270,203 | 4,280,043 | 4,537,431 |
| Hardin | 5,639,293 | 4,454,374 | 7,820,510 | 6,453,616 | 6,006,622 | 7,149,464 | 11,788,064 | 9,666,036 | 12,523,286 |
| Harris | 243,803,820 | 284,925,834 | 291,047,900 | 267,980,763 | 284,097,799 | 392,077,997 | 504,281,296 | 804,691,305 | 661,655,066 |
| Harrison | 8,146,670 | 8,476,771 | 11,604,215 | 14,367,758 | 12,270,324 | 9,748,440 | 6,168,589 | 6,122,455 | 18,629,019 |
| Hartley | 4,550,583 | 7,257,293 | 3,984,677 | 875,490 | 2,750,118 | 3,869,714 | 820,448 | 999,234 | 3,101,018 |
| Haskell | 1,564,759 | 3,330,521 | 3,438,789 | 2,452,883 | 3,450,230 | 2,712,266 | 2,382,596 | 9,884,089 | 7,319,234 |
| Hays | 7,395,844 | 5,195,196 | 12,138,478 | 11,037,535 | 18,800,169 | 19,900,479 | 14,907,612 | 27,653,213 | 29,555,191 |
| Hemphill | 4,336,370 | 1,498,379 | 669,085 | 2,225,033 | 303,408 | 1,766,095 | 2,397,127 | 8,645,546 | 8,035,464 |
| Henderson | 12,806,615 | 16,774,027 | 11,388,930 | 12,791,527 | 8,527,734 | 5,210,751 | 14,498,861 | 22,352,362 | 12,318,310 |
| Hidalgo | 49,766,108 | 45,752,135 | 44,579,331 | 82,714,933 | 86,803,706 | 81,936,288 | 75,687,062 | 96,666,425 | 99,590,152 |
| Hill | 8,549,949 | 14,595,799 | 34,952,218 | 27,438,118 | 7,414,693 | 13,269,885 | 15,488,361 | 16,481,556 | 24,322,113 |
| Hockley | 1,910,054 | 7,427,966 | 6,533,521 | 3,221,941 | 2,072,012 | 1,145,215 | 788,576 | 4,602,144 | 4,479,908 |
| Hood | 2,240,931 | 4,840,702 | 2,224,039 | 4,458,358 | 13,330,932 | 8,158,810 | 2,505,580 | 4,008,093 | 1,108,196 |
| Hopkins | 4,940,947 | 16,078,528 | 12,957,014 | 7,747,405 | 13,882,194 | 10,687,021 | 6,857,251 | 6,215,980 | 14,115,220 |
| Houston | 3,506,340 | 6,608,797 | 5,350,721 | 10,161,287 | 12,708,209 | 6,875,221 | 5,701,425 | 8,073,566 | 7,210,291 |
| Howard | 6,211,279 | 3,475,864 | 3,789,996 | 12,034,362 | 7,399,026 | 4,366,493 | 1,809,941 | 8,623,843 | 5,682,865 |
| Hudspeth | 3,332,935 | 3,371,988 | 7,203,277 | 19,942,752 | 41,394,240 | 31,622,888 | 15,869,383 | 4,073,399 | 3,037,682 |
| Hunt | 14,828,541 | 28,151,469 | 37,521,468 | 31,254,147 | 21,713,630 | 15,703,729 | 10,392,535 | 5,353,853 | 13,956,320 |
| Hutchinson | 6,281,316 | 2,072,087 | 2,404,399 | 1,310,050 | 849,909 | 2,338,026 | 3,636,913 | 2,659,217 | 2,388,201 |
| Irion | 2,045,677 | 1,238,083 | 362,406 | 525,866 | 667,078 | 1,174,249 | 1,475,024 | 803,676 | 149,769 |
| Jack | 2,020,393 | 1,802,142 | 1,338,498 | 2,980,781 | 5,810,031 | 2,431,589 | 1,417,086 | 2,806,463 | 2,096,583 |
| Jackson | 5,729,063 | 6,105,917 | 8,548,796 | 7,439,520 | 5,858,512 | 5,337,660 | 4,377,851 | 5,797,801 | 4,895,077 |
| Jasper | 10,188,589 | 10,494,953 | 7,584,980 | 6,569,632 | 12,365,399 | 13,969,170 | 16,414,658 | 25,062,500 | 15,233,337 |
| Jeff Davis | 1,419,961 | 2,819,446 | 5,050,708 | 2,593,017 | 5,962,346 | 1,353,745 | 99,500 | 13,181,464 | 12,728,303 |

| County | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|
| Jefferson | 27,830,127 | 27,196,223 | 27,776,025 | 26,327,002 | 23,618,482 | 25,781,069 | 26,854,450 | 34,480,357 | 37,315,279 |
| Jim Hogg | 2,579,596 | 2,808,280 | 909,776 | 828,286 | 10,794,078 | 974,655 | 1,038,787 | 239,867 | 533,535 |
| Jim Wells | 12,821,262 | 12,939,735 | 6,254,295 | 9,472,716 | 3,577,756 | 3,918,362 | 3,707,124 | 3,664,449 | 5,393,268 |
| Johnson | 13,972,434 | 11,189,083 | 16,687,469 | 18,258,382 | 19,643,375 | 12,417,123 | 10,783,648 | 16,185,262 | 17,535,332 |
| Jones | 4,014,407 | 3,760,766 | 5,824,958 | 5,308,697 | 7,832,857 | 5,328,299 | 5,358,132 | 3,241,153 | 1,353,343 |
| Karnes | 1,583,510 | 2,045,398 | 1,376,581 | 7,955,935 | 1,921,348 | 987,030 | 3,663,676 | 1,589,388 | 2,468,589 |
| Kaufman | 10,694,759 | 11,079,713 | 5,045,004 | 11,456,647 | 16,373,459 | 7,264,546 | 21,190,875 | 16,368,021 | 12,773,225 |
| Kendall | 3,146,396 | 2,930,632 | 3,130,028 | 1,295,296 | 1,052,751 | 1,110,013 | 401,012 | 1,074,189 | 1,807,231 |
| Kenedy | 1,262,970 | 1,806,383 | 1,274,235 | 2,382,550 | 620,954 | 264,633 | 492,729 | 367,350 | 1,079,225 |
| Kent | 2,268,902 | 5,051,868 | 2,815,011 | 878,836 | 354,618 | 393,997 | 2,593,686 | 2,527,939 | 1,739,637 |
| Kerr | 5,131,694 | 2,653,238 | 6,589,594 | 1,849,872 | 1,720,611 | 5,307,756 | 5,040,438 | 6,748,880 | 13,256,144 |
| Kimble | 1,424,844 | 1,927,814 | 1,796,026 | 2,451,755 | 891,440 | 1,229,621 | 7,953,324 | 2,028,140 | 2,539,543 |
| King | 2,109,922 | 900,333 | 1,125,298 | 1,009,848 | 454,990 | 742,982 | 613,151 | 352,213 | 3,178,451 |
| Kinney | 876,095 | 917,197 | 1,846,325 | 632,328 | 681,283 | 1,184,501 | 347,643 | 3,820,270 | 1,124,629 |
| Kleberg | 1,129,698 | 4,446,085 | 4,240,351 | 3,612,814 | 818,170 | 8,517,151 | 14,349,512 | 7,720,331 | 2,160,027 |
| Knox | 2,759,043 | 2,497,222 | 3,524,953 | 3,390,287 | 7,001,719 | 2,415,190 | 2,230,875 | 8,671,875 | 10,551,531 |
| La Salle | 18,381,142 | 19,426,040 | 17,553,473 | 13,422,517 | 9,703,503 | 9,052,820 | 7,400,081 | 6,481,480 | 9,767,057 |
| Lamar | 3,934,264 | 4,625,349 | 3,903,304 | 7,055,128 | 11,673,126 | 4,137,804 | 159,187 | 901,993 | 1,705,603 |
| Lamb | 6,253,629 | 5,377,211 | 3,863,781 | 3,401,135 | 2,412,157 | 2,622,117 | 3,101,475 | 966,838 | 2,794,265 |
| Lampasas | 6,484,998 | 3,249,756 | 3,836,674 | 7,813,255 | 17,925,138 | 4,871,044 | 5,603,605 | 12,759,997 | 7,194,054 |
| Lavaca | 4,813,625 | 2,629,903 | 6,573,248 | 6,718,357 | 2,034,658 | 3,788,388 | 5,500,232 | 9,091,358 | 7,414,096 |
| Lee | 5,178,933 | 4,746,642 | 979,247 | 4,760,237 | 6,872,107 | 2,053,448 | 2,158,351 | 9,902,042 | 4,205,348 |
| Leon | 4,824,617 | 6,525,097 | 6,195,895 | 7,180,650 | 5,883,865 | 11,116,308 | 6,598,824 | 8,851,185 | 10,114,430 |
| Liberty | 10,764,379 | 12,973,862 | 15,463,130 | 6,951,572 | 4,993,048 | 10,084,475 | 8,461,541 | 12,292,403 | 17,869,803 |
| Limestone | 4,231,633 | 6,862,508 | 4,097,041 | 5,349,229 | 2,626,564 | 1,865,601 | 4,095,046 | 6,006,946 | 6,245,440 |
| Lipscomb | 961,959 | 727,358 | 221,588 | 382,214 | 620,308 | 643,479 | 226,204 | 2,775,353 | 3,785,237 |
| Live Oak | 3,141,671 | 2,947,500 | 4,354,790 | 6,424,241 | 14,358,391 | 5,334,477 | 10,750,352 | 7,224,760 | 5,560,425 |
| Llano | 880,910 | 1,215,820 | 1,026,694 | 3,802,174 | 1,561,572 | 4,914,185 | 2,389,130 | 1,163,270 | 3,303,327 |
| Loving | 107,576 | 63,843 | 23,804 | 0 | 7,035 | 136,800 | 407,842 | 4,451 | 3,671 |
| Lubbock | 27,091,949 | 40,334,087 | 51,496,605 | 46,308,943 | 78,041,149 | 48,907,080 | 48,016,878 | 55,475,967 | 61,007,792 |
| Lynn | 1,402,124 | 1,702,758 | 691,261 | 3,079,618 | 8,783,878 | 12,521,456 | 3,432,404 | 3,955,468 | 6,664,218 |
| Madison | 4,116,068 | 8,921,412 | 6,860,010 | 1,775,639 | 4,535,707 | 7,153,177 | 6,917,714 | 1,925,071 | 2,561,652 |
| Marion | 2,984,095 | 1,788,513 | 3,496,138 | 1,966,469 | 1,956,087 | 2,958,787 | 1,598,497 | 3,385,850 | 4,084,669 |
| Martin | 1,051,909 | 2,348,407 | 2,558,013 | 2,115,240 | 1,174,263 | 1,000,676 | 3,660,886 | 399,390 | 2,778,618 |
| Mason | 849,142 | 1,200,481 | 520,363 | 619,746 | 316,178 | 725,287 | 172,025 | 704,203 | 1,044,177 |
| Matagorda | 4,738,618 | 10,345,624 | 6,628,961 | 11,672,963 | 9,069,013 | 4,352,344 | 5,154,931 | 5,529,525 | 10,269,104 |
| Maverick | 6,305,360 | 4,911,210 | 8,067,067 | 6,049,375 | 9,068,966 | 11,146,752 | 2,188,081 | 3,230,312 | 4,949,597 |
| McCulloch | 2,430,344 | 1,867,957 | 1,586,593 | 4,167,989 | 4,115,752 | 2,755,306 | 918,798 | 867,921 | 2,855,326 |
| McLennan | 16,143,222 | 12,998,468 | 17,035,696 | 19,536,771 | 24,263,704 | 28,260,524 | 48,325,498 | 57,576,961 | 47,722,644 |
| McMullen | 1,733,267 | 3,392,599 | 3,554,730 | 3,607,953 | 1,688,665 | 1,257,621 | 838,846 | 2,711,853 | 3,440,485 |
| Medina | 10,183,081 | 7,183,441 | 4,191,504 | 5,291,522 | 2,796,740 | 9,607,856 | 4,646,108 | 8,482,970 | 10,404,607 |
| Menard | 438,306 | 1,047,564 | 366,439 | 1,556,317 | 2,350,162 | 708,846 | 380,259 | 837,000 | 1,159,188 |

| County | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|
| Midland | 6,702,070 | 12,747,346 | 6,074,997 | 15,501,523 | 10,473,937 | 6,609,951 | 11,061,586 | 7,255,722 | 5,633,393 |
| Milam | 5,295,601 | 7,788,693 | 17,008,528 | 13,942,072 | 14,122,091 | 6,735,468 | 3,082,697 | 13,971,739 | 11,647,534 |
| Mills | 1,707,051 | 1,734,185 | 580,393 | 678,703 | 549,438 | 993,527 | 1,202,267 | 1,044,888 | 986,266 |
| Mitchell | 2,682,908 | 6,504,193 | 3,745,131 | 2,664,675 | 1,004,838 | 5,481,234 | 4,592,699 | 2,093,021 | 1,782,263 |
| Montague | 2,624,505 | 4,306,451 | 3,005,928 | 3,185,299 | 3,824,812 | 3,029,762 | 2,290,557 | 2,581,575 | 6,415,645 |
| Montgomery | 19,546,513 | 34,313,596 | 33,710,010 | 51,866,100 | 41,365,518 | 25,923,408 | 27,973,472 | 59,946,195 | 55,222,661 |
| Moore | 5,929,406 | 5,237,217 | 1,355,922 | 2,820,027 | 1,077,078 | 6,827,782 | 9,434,225 | 3,753,900 | 1,515,700 |
| Morris | 4,599,398 | 2,816,936 | 1,303,722 | 2,646,937 | 2,474,983 | 2,206,974 | 3,434,217 | 7,349,703 | 6,354,667 |
| Motley | 1,186,798 | 2,201,428 | 1,955,826 | 987,661 | 464,715 | 407,669 | 712,130 | 3,869,845 | 479,310 |
| Nacogdoches | 8,177,313 | 11,841,654 | 10,423,854 | 6,713,254 | 12,586,356 | 13,459,236 | 10,108,750 | 12,339,697 | 11,089,979 |
| Navarro | 11,526,853 | 10,357,797 | 16,888,781 | 15,666,845 | 15,899,120 | 23,979,713 | 25,265,699 | 21,972,332 | 19,882,153 |
| Newton | 4,177,121 | 3,779,543 | 4,162,172 | 2,233,150 | 2,606,640 | 5,080,150 | 11,484,251 | 4,808,139 | 4,704,814 |
| Nolan | 7,957,425 | 7,712,945 | 6,174,480 | 1,625,493 | 4,959,764 | 7,791,192 | 4,005,519 | 3,065,324 | 3,090,223 |
| Nueces | 19,922,751 | 20,694,433 | 15,029,726 | 34,451,385 | 52,932,308 | 53,277,145 | 60,480,218 | 77,197,527 | 54,444,265 |
| Ochiltree | 2,876,298 | 1,520,923 | 6,732,090 | 4,036,588 | 5,915,422 | 5,692,720 | 3,707,173 | 991,972 | 2,334,203 |
| Oldham | 3,663,052 | 5,449,003 | 5,385,943 | 5,663,176 | 12,055,664 | 21,279,115 | 10,918,724 | 5,090,722 | 11,132,996 |
| Orange | 12,447,698 | 10,268,827 | 30,008,986 | 30,196,979 | 27,357,868 | 20,035,986 | 39,871,162 | 27,369,024 | 39,461,046 |
| Palo Pinto | 3,169,607 | 3,077,440 | 3,253,682 | 2,586,204 | 4,145,100 | 5,498,592 | 13,217,466 | 19,234,115 | 8,072,007 |
| Panola | 7,447,945 | 7,282,137 | 8,732,286 | 15,246,436 | 20,535,765 | 13,864,142 | 12,091,812 | 8,432,303 | 8,271,533 |
| Parker | 8,887,162 | 9,231,378 | 11,617,581 | 6,103,791 | 6,528,668 | 9,509,769 | 6,649,236 | 10,805,705 | 10,567,781 |
| Parmer | 1,354,730 | 1,155,838 | 1,201,284 | 395,138 | 1,089,394 | 7,499,181 | 3,633,894 | 3,755,318 | 8,935,615 |
| Pecos | 6,174,859 | 8,055,429 | 1,861,327 | 6,346,199 | 5,059,094 | 7,653,509 | 5,367,880 | 2,235,012 | 7,005,597 |
| Polk | 11,167,505 | 17,078,842 | 16,262,113 | 16,748,706 | 9,185,365 | 6,207,029 | 10,054,952 | 10,238,437 | 16,312,144 |
| Potter | 16,165,689 | 21,796,695 | 29,554,408 | 24,097,866 | 28,642,154 | 18,434,713 | 18,952,061 | 23,748,203 | 15,776,983 |
| Presidio | 2,102,349 | 2,807,626 | 1,035,403 | 3,382,574 | 4,767,750 | 784,852 | 2,163,216 | 633,235 | 1,629,974 |
| Rains | 2,255,483 | 4,133,589 | 3,548,079 | 3,273,979 | 2,137,244 | 1,273,454 | 819,697 | 3,906,445 | 3,685,790 |
| Randall | 2,943,714 | 9,058,006 | 5,656,140 | 15,580,973 | 15,508,174 | 5,743,894 | 8,698,531 | 5,332,126 | 5,149,982 |
| Reagan | 514,935 | 598,740 | 1,734,098 | 444,152 | 1,110,358 | 5,433,657 | 3,930,743 | 1,065,746 | 158,824 |
| Real | 1,397,670 | 5,106,326 | 2,503,791 | 438,597 | 212,447 | 2,671,240 | 2,985,224 | 6,117,150 | 2,272,787 |
| Red River | 15,097,596 | 7,199,948 | 3,985,098 | 3,948,393 | 3,925,744 | 4,511,282 | 8,818,876 | 7,268,832 | 7,152,023 |
| Reeves | 4,131,406 | 9,411,252 | 5,753,152 | 1,045,107 | 2,569,617 | 4,272,714 | 9,065,510 | 8,019,140 | 2,544,047 |
| Refugio | 3,593,372 | 4,759,193 | 12,293,559 | 1,446,407 | 6,318,042 | 3,153,671 | 2,742,820 | 2,192,065 | 4,233,648 |
| Roberts | 695,055 | 1,539,480 | 3,132,772 | 3,893,489 | 1,995,447 | 3,118,787 | 324,333 | 410,327 | 1,617,999 |
| Robertson | 5,636,360 | 8,505,553 | 2,561,348 | 2,907,906 | 8,174,615 | 3,388,612 | 5,091,190 | 5,508,374 | 11,855,844 |
| Rockwall | 8,028,452 | 3,639,891 | 11,683,824 | 22,386,872 | 19,419,679 | 6,054,228 | 2,961,787 | 3,818,844 | 3,571,965 |
| Runnels | 3,986,467 | 3,908,952 | 1,815,743 | 2,469,566 | 3,229,610 | 695,810 | 2,245,057 | 4,603,990 | 2,018,922 |
| Rusk | 4,432,179 | 7,011,584 | 8,676,385 | 11,388,104 | 21,287,497 | 11,740,721 | 7,517,432 | 6,326,102 | 6,704,872 |
| Sabine | 3,841,831 | 2,891,560 | 2,561,842 | 2,481,946 | 3,202,838 | 3,586,665 | 2,229,643 | 2,626,440 | 3,478,636 |
| San Augustine | 3,107,659 | 5,098,950 | 4,993,762 | 3,876,206 | 4,835,884 | 1,120,605 | 1,601,653 | 2,510,260 | 3,214,784 |
| San Jacinto | 2,725,618 | 5,092,363 | 2,768,105 | 7,576,809 | 7,037,041 | 6,406,992 | 8,702,749 | 9,270,915 | 8,956,624 |
| San Patricio | 18,807,696 | 12,771,810 | 12,195,792 | 8,682,286 | 4,483,237 | 8,477,960 | 16,928,412 | 10,102,505 | 22,431,510 |
| San Saba | 1,678,338 | 1,077,566 | 1,357,865 | 1,524,322 | 5,242,900 | 1,289,089 | 1,068,616 | 768,280 | 1,273,257 |

| County | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|
| Schleicher | 440,191 | 599,983 | 2,506,239 | 1,972,147 | 1,315,931 | 182,005 | 820,132 | 1,516,849 | 766,437 |
| Scurry | 3,044,413 | 1,729,186 | 3,264,042 | 7,899,217 | 4,645,471 | 6,796,703 | 7,065,966 | 9,405,790 | 3,212,329 |
| Shackelford | 4,503,904 | 1,108,349 | 554,868 | 2,131,562 | 5,032,149 | 4,594,984 | 1,475,144 | 405,511 | 216,368 |
| Shelby | 5,883,401 | 9,343,450 | 4,670,658 | 20,151,429 | 20,403,960 | 13,584,067 | 11,081,252 | 7,525,888 | 14,244,445 |
| Sherman | 1,151,334 | 2,623,671 | 8,497,088 | 11,875,471 | 7,964,616 | 1,960,774 | 705,825 | 950,778 | 1,103,854 |
| Smith | 24,782,173 | 23,750,884 | 21,802,830 | 20,609,912 | 13,271,387 | 29,020,464 | 30,902,882 | 30,677,800 | 41,751,914 |
| Somervell | 966,836 | 1,546,664 | 333,160 | 1,890,679 | 5,601,336 | 3,943,789 | 795,182 | 3,599,076 | 6,349,917 |
| Starr | 8,599,839 | 4,808,503 | 10,721,037 | 4,611,889 | 2,265,648 | 4,437,919 | 4,849,076 | 3,349,993 | 2,821,731 |
| Stephens | 1,723,546 | 2,462,448 | 1,095,646 | 953,888 | 1,413,386 | 1,775,925 | 2,009,684 | 2,034,917 | 1,211,730 |
| Sterling | 3,228,611 | 1,594,954 | 7,508,128 | 1,532,385 | 4,041,769 | 5,605,858 | 3,142,879 | 1,566,120 | 754,711 |
| Stonewall | 2,237,275 | 1,458,587 | 307,644 | 2,617,781 | 3,009,869 | 1,103,916 | 745,132 | 2,835,353 | 1,699,961 |
| Sutton | 6,924,904 | 4,066,926 | 2,243,279 | 3,985,601 | 4,501,743 | 2,365,312 | 2,835,424 | 1,634,683 | 1,743,091 |
| Swisher | 1,949,548 | 1,355,028 | 4,523,307 | 3,674,366 | 1,086,990 | 320,020 | 478,626 | 1,344,873 | 2,777,070 |
| Tarrant | 104,938,452 | 137,997,223 | 154,577,584 | 141,309,374 | 129,768,660 | 97,710,604 | 104,011,530 | 118,880,186 | 98,433,857 |
| Taylor | 9,035,876 | 17,799,724 | 14,454,557 | 11,094,480 | 15,773,302 | 30,244,747 | 17,161,836 | 11,642,024 | 17,266,857 |
| Terrell | 1,012,907 | 3,097,319 | 3,271,718 | 229,821 | 1,023,484 | 1,451,936 | 182,503 | 1,966,665 | 2,205,357 |
| Terry | 2,571,849 | 1,128,131 | 243,945 | 633,448 | 1,908,423 | 676,600 | 734,555 | 396,728 | 7,877,610 |
| Throckmorton | 1,163,258 | 1,137,967 | 391,293 | 1,967,507 | 918,602 | 1,158,147 | 728,730 | 1,293,631 | 2,383,121 |
| Titus | 6,402,023 | 10,224,223 | 13,013,971 | 6,815,249 | 8,604,897 | 7,328,619 | 6,460,760 | 5,416,262 | 5,640,499 |
| Tom Green | 15,215,194 | 10,019,532 | 19,764,595 | 8,202,627 | 23,662,524 | 27,474,162 | 16,681,584 | 17,508,834 | 12,875,549 |
| Travis | 57,887,814 | 64,462,545 | 78,290,577 | 75,903,424 | 76,644,576 | 150,819,908 | 216,271,574 | 375,433,147 | 464,391,496 |
| Trinity | 2,722,681 | 3,379,725 | 11,569,527 | 12,740,674 | 10,825,796 | 5,377,237 | 7,900,552 | 3,477,381 | 2,119,843 |
| Tyler | 2,446,325 | 2,426,119 | 3,177,655 | 2,904,630 | 961,464 | 686,104 | 1,642,659 | 3,145,056 | 5,353,553 |
| Upshur | 8,191,142 | 7,777,432 | 15,327,462 | 16,004,465 | 18,978,323 | 14,014,458 | 6,831,365 | 4,937,984 | 7,526,897 |
| Upton | 743,980 | 2,172,781 | 722,904 | 720,494 | 333,205 | 1,808,128 | 4,592,820 | 2,166,822 | 490,850 |
| Uvalde | 2,839,253 | 4,794,870 | 9,914,301 | 8,414,509 | 5,177,867 | 5,533,815 | 2,376,211 | 9,305,542 | 9,738,494 |
| Val Verde | 6,604,797 | 3,004,918 | 3,746,187 | 14,378,696 | 4,241,091 | 1,174,530 | 5,530,647 | 7,345,215 | 5,498,430 |
| Van Zandt | 7,284,267 | 13,162,732 | 15,529,796 | 7,825,262 | 8,819,329 | 20,642,163 | 4,703,527 | 4,010,339 | 6,926,817 |
| Victoria | 14,245,013 | 14,735,076 | 16,300,953 | 16,992,737 | 31,098,129 | 26,049,307 | 29,256,928 | 27,941,234 | 12,431,531 |
| Walker | 7,302,810 | 11,418,407 | 16,620,259 | 8,601,301 | 11,585,965 | 8,122,265 | 6,583,200 | 12,288,642 | 16,865,484 |
| Waller | 5,691,629 | 4,182,508 | 2,682,429 | 4,337,396 | 7,330,223 | 12,724,566 | 6,584,134 | 9,152,025 | 13,607,023 |
| Ward | 1,704,426 | 1,918,398 | 12,596,458 | 2,336,754 | 5,050,683 | 1,257,294 | 8,002,653 | 1,866,164 | 8,364,676 |
| Washington | 8,456,985 | 10,967,963 | 10,184,924 | 5,867,416 | 12,158,841 | 17,687,503 | 3,445,760 | 3,653,222 | 4,889,630 |
| Webb | 19,678,006 | 32,503,009 | 66,105,446 | 42,351,052 | 28,704,941 | 24,270,389 | 24,182,259 | 56,700,578 | 53,048,894 |
| Wharton | 3,190,011 | 6,862,992 | 9,316,299 | 6,419,684 | 6,801,261 | 8,334,664 | 8,110,973 | 10,311,153 | 16,066,598 |
| Wheeler | 11,596,990 | 14,117,910 | 15,808,928 | 13,124,702 | 20,449,564 | 2,756,543 | 1,843,204 | 2,797,040 | 2,875,995 |
| Wichita | 11,704,420 | 18,626,139 | 37,439,234 | 29,824,915 | 22,688,841 | 30,860,681 | 17,016,161 | 12,651,800 | 28,689,934 |
| Wilbarger | 2,003,981 | 4,680,093 | 2,069,866 | 6,585,803 | 8,267,431 | 4,313,338 | 7,077,586 | 4,532,374 | 10,047,851 |
| Willacy | 3,383,344 | 1,661,582 | 2,164,880 | 1,865,753 | 10,818,957 | 34,535,253 | 5,488,054 | 334,321 | 2,080,683 |
| Williamson | 17,422,406 | 21,531,459 | 26,240,050 | 61,572,287 | 69,552,227 | 119,063,700 | 222,636,640 | 243,004,178 | 208,032,514 |
| Wilson | 2,483,079 | 1,871,604 | 5,789,808 | 6,627,778 | 7,439,631 | 4,280,918 | 2,931,042 | 8,088,554 | 5,909,168 |
| Winkler | 1,215,196 | 527,211 | 337,896 | 1,197,406 | 703,459 | 538,345 | 1,011,276 | 279,708 | 702,584 |

| County | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|
| Wise | 8,048,410 | 8,852,378 | 6,154,273 | 5,695,367 | 7,753,998 | 5,428,494 | 14,446,355 | 22,838,276 | 23,358,640 |
| Wood | 5,519,120 | 3,778,877 | 1,530,489 | 2,696,041 | 2,314,951 | 4,482,336 | 3,846,161 | 4,890,247 | 10,285,503 |
| Yoakum | 911,810 | 2,797,912 | 951,714 | 231,431 | 913,834 | 283,364 | 83,179 | 277,339 | 1,757,853 |
| Young | 2,047,052 | 5,710,468 | 4,926,482 | 3,744,129 | 2,890,952 | 2,042,182 | 3,734,571 | 6,259,068 | 4,514,386 |
| Zapata | 3,365,791 | 1,298,114 | 242,971 | 301,683 | 842,223 | 1,690,007 | 2,918,872 | 1,589,459 | 516,727 |
| Zavala | 1,837,393 | 2,372,493 | 1,657,641 | 2,845,836 | 2,439,680 | 1,613,665 | 5,096,864 | 4,333,723 | 3,453,464 |

Source: Texas Comptroller's Office

## Table C-5. Historical Census Population by County (1970 / 80 / 90 / 2000)

| County | 1970 | 1980 | 1990 | 2000 |
|---|---|---|---|---|
| Anderson | 27,789 | 38,381 | 48,024 | 55,109 |
| Andrews | 10,372 | 13,323 | 14,338 | 13,004 |
| Angelina | 49,349 | 64,172 | 69,884 | 80,130 |
| Aransas | 8,902 | 14,260 | 17,892 | 22,497 |
| Archer | 5,759 | 7,266 | 7,973 | 8,854 |
| Armstrong | 1,895 | 1,994 | 2,021 | 2,148 |
| Atascosa | 18,696 | 25,055 | 30,533 | 38,628 |
| Austin | 13,831 | 17,726 | 19,832 | 23,590 |
| Bailey | 8,487 | 8,168 | 7,064 | 6,594 |
| Bandera | 4,747 | 7,084 | 10,562 | 17,645 |
| Bastrop | 17,297 | 24,726 | 38,263 | 57,733 |
| Baylor | 5,221 | 4,919 | 4,385 | 4,093 |
| Bee | 22,737 | 26,030 | 25,135 | 32,359 |
| Bell | 124,483 | 157,889 | 191,088 | 237,974 |
| Bexar | 830,460 | 988,800 | 1,185,394 | 1,392,931 |
| Blanco | 3,567 | 4,681 | 5,972 | 8,418 |
| Borden | 888 | 859 | 799 | 729 |
| Bosque | 10,966 | 13,401 | 15,125 | 17,204 |
| Bowie | 67,813 | 75,301 | 81,665 | 89,306 |
| Brazoria | 108,312 | 169,587 | 191,707 | 241,767 |
| Brazos | 57,978 | 93,588 | 121,862 | 152,415 |
| Brewster | 7,780 | 7,573 | 8,681 | 8,866 |
| Briscoe | 2,794 | 2,579 | 1,971 | 1,790 |
| Brooks | 8,005 | 8,428 | 8,204 | 7,976 |
| Brown | 25,877 | 33,057 | 34,371 | 37,674 |
| Burleson | 9,999 | 12,313 | 13,625 | 16,470 |
| Burnet | 11,420 | 17,803 | 22,677 | 34,147 |
| Caldwell | 21,178 | 23,637 | 26,392 | 32,194 |
| Calhoun | 17,831 | 19,574 | 19,053 | 20,647 |
| Callahan | 8,205 | 10,992 | 11,859 | 12,905 |
| Cameron | 140,368 | 209,727 | 260,120 | 335,227 |
| Camp | 8,005 | 9,275 | 9,904 | 11,549 |
| Carson | 6,358 | 6,672 | 6,576 | 6,516 |
| Cass | 24,133 | 29,430 | 29,982 | 30,438 |
| Castro | 10,394 | 10,556 | 9,070 | 8,285 |
| Chambers | 12,187 | 18,538 | 20,088 | 26,031 |
| Cherokee | 32,008 | 38,127 | 41,049 | 46,659 |
| Childress | 6,605 | 6,950 | 5,953 | 7,688 |
| Clay | 8,079 | 9,582 | 10,024 | 11,006 |
| Cochran | 5,326 | 4,825 | 4,377 | 3,730 |
| Coke | 3,087 | 3,196 | 3,424 | 3,864 |
| Coleman | 10,288 | 10,439 | 9,710 | 9,235 |
| Collin | 66,920 | 144,576 | 264,036 | 491,675 |
| Collingsworth | 4,755 | 4,648 | 3,573 | 3,206 |
| Colorado | 17,638 | 18,823 | 18,383 | 20,390 |
| Comal | 24,165 | 36,446 | 51,832 | 78,021 |

| County | 1970 | 1980 | 1990 | 2000 |
|---|---|---|---|---|
| Comanche | 11,898 | 12,617 | 13,381 | 14,026 |
| Concho | 2,937 | 2,915 | 3,044 | 3,966 |
| Cooke | 23,471 | 27,656 | 30,777 | 36,363 |
| Coryell | 35,311 | 56,767 | 64,213 | 74,978 |
| Cottle | 3,204 | 2,947 | 2,247 | 1,904 |
| Crane | 4,172 | 4,600 | 4,652 | 3,996 |
| Crockett | 3,885 | 4,608 | 4,078 | 4,099 |
| Crosby | 9,085 | 8,859 | 7,304 | 7,072 |
| Culberson | 3,429 | 3,315 | 3,407 | 2,975 |
| Dallam | 6,012 | 6,531 | 5,461 | 6,222 |
| Dallas | 1,327,321 | 1,556,390 | 1,852,810 | 2,218,899 |
| Dawson | 16,604 | 16,184 | 14,349 | 14,985 |
| De Witt | 18,660 | 18,903 | 18,840 | 20,013 |
| Deaf Smith | 18,999 | 21,165 | 19,153 | 18,561 |
| Delta | 4,927 | 4,839 | 4,857 | 5,327 |
| Denton | 75,633 | 143,126 | 273,525 | 432,976 |
| Dickens | 3,737 | 3,539 | 2,571 | 2,762 |
| Dimmit | 9,039 | 11,367 | 10,433 | 10,248 |
| Donley | 3,641 | 4,075 | 3,696 | 3,828 |
| Duval | 11,722 | 12,517 | 12,918 | 13,120 |
| Eastland | 18,092 | 19,480 | 18,488 | 18,297 |
| Ector | 91,805 | 115,374 | 118,934 | 121,123 |
| Edwards | 2,107 | 2,033 | 2,266 | 2,162 |
| El Paso | 359,291 | 479,899 | 591,610 | 679,622 |
| Ellis | 46,638 | 59,743 | 85,167 | 111,360 |
| Erath | 18,141 | 22,560 | 27,991 | 33,001 |
| Falls | 17,300 | 17,946 | 17,712 | 18,576 |
| Fannin | 22,705 | 24,285 | 24,804 | 31,242 |
| Fayette | 17,650 | 18,832 | 20,095 | 21,804 |
| Fisher | 6,344 | 5,891 | 4,842 | 4,344 |
| Floyd | 11,044 | 9,834 | 8,497 | 7,771 |
| Foard | 2,211 | 2,158 | 1,794 | 1,622 |
| Fort Bend | 52,314 | 130,846 | 225,421 | 354,452 |
| Franklin | 5,291 | 6,893 | 7,802 | 9,458 |
| Freestone | 11,116 | 14,830 | 15,818 | 17,867 |
| Frio | 11,159 | 13,785 | 13,472 | 16,252 |
| Gaines | 11,593 | 13,150 | 14,123 | 14,467 |
| Galveston | 169,812 | 195,940 | 217,399 | 250,158 |
| Garza | 5,289 | 5,336 | 5,143 | 4,872 |
| Gillespie | 10,553 | 13,532 | 17,204 | 20,814 |
| Glasscock | 1,155 | 1,304 | 1,447 | 1,406 |
| Goliad | 4,869 | 5,193 | 5,980 | 6,928 |
| Gonzales | 16,375 | 16,883 | 17,205 | 18,628 |
| Gray | 26,949 | 26,386 | 23,967 | 22,744 |
| Grayson | 83,225 | 89,796 | 95,021 | 110,595 |
| Gregg | 75,929 | 99,487 | 104,948 | 111,379 |
| Grimes | 11,855 | 13,580 | 18,828 | 23,552 |
| Guadalupe | 33,554 | 46,708 | 64,873 | 89,023 |

| County | 1970 | 1980 | 1990 | 2000 |
|---|---|---|---|---|
| Hale | 34,137 | 37,592 | 34,671 | 36,602 |
| Hall | 6,015 | 5,594 | 3,905 | 3,782 |
| Hamilton | 7,198 | 8,297 | 7,733 | 8,229 |
| Hansford | 6,351 | 6,209 | 5,848 | 5,369 |
| Hardeman | 6,795 | 6,368 | 5,283 | 4,724 |
| Hardin | 29,996 | 40,721 | 41,320 | 48,073 |
| Harris | 1,741,912 | 2,409,547 | 2,818,199 | 3,400,578 |
| Harrison | 44,841 | 52,265 | 57,483 | 62,110 |
| Hartley | 2,782 | 3,987 | 3,634 | 5,537 |
| Haskell | 8,512 | 7,725 | 6,820 | 6,093 |
| Hays | 27,642 | 40,594 | 65,614 | 97,589 |
| Hemphill | 3,084 | 5,304 | 3,720 | 3,351 |
| Henderson | 26,466 | 42,606 | 58,543 | 73,277 |
| Hidalgo | 181,535 | 283,229 | 383,545 | 569,463 |
| Hill | 22,596 | 25,024 | 27,146 | 32,321 |
| Hockley | 20,396 | 23,230 | 24,199 | 22,716 |
| Hood | 6,368 | 17,714 | 28,981 | 41,100 |
| Hopkins | 20,710 | 25,247 | 28,833 | 31,960 |
| Houston | 17,855 | 22,299 | 21,375 | 23,185 |
| Howard | 37,796 | 33,142 | 32,343 | 33,627 |
| Hudspeth | 2,392 | 2,728 | 2,915 | 3,344 |
| Hunt | 47,948 | 55,248 | 64,343 | 76,596 |
| Hutchinson | 24,443 | 26,304 | 25,689 | 23,857 |
| Irion | 1,070 | 1,386 | 1,629 | 1,771 |
| Jack | 6,711 | 7,408 | 6,981 | 8,763 |
| Jackson | 12,975 | 13,352 | 13,039 | 14,391 |
| Jasper | 24,692 | 30,781 | 31,102 | 35,604 |
| Jeff Davis | 1,527 | 1,647 | 1,946 | 2,207 |
| Jefferson | 244,773 | 250,938 | 239,397 | 252,051 |
| Jim Hogg | 4,654 | 5,168 | 5,109 | 5,281 |
| Jim Wells | 33,032 | 36,498 | 37,679 | 39,326 |
| Johnson | 45,769 | 67,649 | 97,165 | 126,811 |
| Jones | 16,106 | 17,268 | 16,490 | 20,785 |
| Karnes | 13,462 | 13,593 | 12,455 | 15,446 |
| Kaufman | 32,392 | 39,015 | 52,220 | 71,313 |
| Kendall | 6,964 | 10,635 | 14,589 | 23,743 |
| Kenedy | 678 | 543 | 460 | 414 |
| Kent | 1,434 | 1,145 | 1,010 | 859 |
| Kerr | 19,454 | 28,780 | 36,304 | 43,653 |
| Kimble | 3,904 | 4,063 | 4,122 | 4,468 |
| King | 464 | 425 | 354 | 356 |
| Kinney | 2,006 | 2,279 | 3,119 | 3,379 |
| Kleberg | 33,166 | 33,358 | 30,274 | 31,549 |
| Knox | 5,972 | 5,329 | 4,837 | 4,253 |
| La Salle | 5,014 | 5,514 | 5,254 | 5,866 |
| Lamar | 36,062 | 42,156 | 43,949 | 48,499 |
| Lamb | 17,770 | 18,669 | 15,072 | 14,709 |
| Lampasas | 9,323 | 12,005 | 13,521 | 17,762 |

| County | 1970 | 1980 | 1990 | 2000 |
|---|---|---|---|---|
| Lavaca | 17,903 | 19,004 | 18,690 | 19,210 |
| Lee | 8,048 | 10,952 | 12,854 | 15,657 |
| Leon | 8,738 | 9,594 | 12,665 | 15,335 |
| Liberty | 33,014 | 47,088 | 52,726 | 70,154 |
| Limestone | 18,100 | 20,224 | 20,946 | 22,051 |
| Lipscomb | 3,486 | 3,766 | 3,143 | 3,057 |
| Live Oak | 6,697 | 9,606 | 9,556 | 12,309 |
| Llano | 6,979 | 10,144 | 11,631 | 17,044 |
| Loving | 164 | 91 | 107 | 67 |
| Lubbock | 179,295 | 211,651 | 222,636 | 242,628 |
| Lynn | 9,107 | 8,605 | 6,758 | 6,550 |
| Madison | 7,693 | 10,649 | 10,931 | 12,940 |
| Marion | 8,517 | 10,360 | 9,984 | 10,941 |
| Martin | 4,774 | 4,684 | 4,956 | 4,746 |
| Mason | 3,356 | 3,683 | 3,423 | 3,738 |
| Matagorda | 27,913 | 37,828 | 36,928 | 37,957 |
| Maverick | 18,093 | 31,398 | 36,378 | 47,297 |
| McCulloch | 8,571 | 8,735 | 8,778 | 8,205 |
| McLennan | 147,553 | 170,755 | 189,123 | 213,517 |
| McMullen | 1,095 | 789 | 817 | 851 |
| Medina | 20,249 | 23,164 | 27,312 | 39,304 |
| Menard | 2,646 | 2,346 | 2,252 | 2,360 |
| Midland | 65,433 | 82,636 | 106,611 | 116,009 |
| Milam | 20,028 | 22,732 | 22,946 | 24,238 |
| Mills | 4,212 | 4,477 | 4,531 | 5,151 |
| Mitchell | 9,073 | 9,088 | 8,016 | 9,698 |
| Montague | 15,326 | 17,410 | 17,274 | 19,117 |
| Montgomery | 49,479 | 128,487 | 182,201 | 293,768 |
| Moore | 14,060 | 16,575 | 17,865 | 20,121 |
| Morris | 12,310 | 14,629 | 13,200 | 13,048 |
| Motley | 2,178 | 1,950 | 1,532 | 1,426 |
| Nacogdoches | 36,362 | 46,786 | 54,753 | 59,203 |
| Navarro | 31,150 | 35,323 | 39,926 | 45,124 |
| Newton | 11,657 | 13,254 | 13,569 | 15,072 |
| Nolan | 16,220 | 17,359 | 16,594 | 15,802 |
| Nueces | 237,544 | 268,215 | 291,145 | 313,645 |
| Ochiltree | 9,704 | 9,588 | 9,128 | 9,006 |
| Oldham | 2,258 | 2,283 | 2,278 | 2,185 |
| Orange | 71,170 | 83,838 | 80,509 | 84,966 |
| Palo Pinto | 28,962 | 24,062 | 25,055 | 27,026 |
| Panola | 15,894 | 20,724 | 22,035 | 22,756 |
| Parker | 33,888 | 44,609 | 64,785 | 88,495 |
| Parmer | 10,509 | 11,038 | 9,863 | 10,016 |
| Pecos | 13,748 | 14,618 | 14,675 | 16,809 |
| Polk | 14,457 | 24,407 | 30,687 | 41,133 |
| Potter | 90,511 | 98,637 | 97,874 | 113,546 |
| Presidio | 4,842 | 5,188 | 6,637 | 7,304 |
| Rains | 3,752 | 4,839 | 6,715 | 9,139 |

| County | 1970 | 1980 | 1990 | 2000 |
|---|---|---|---|---|
| Randall | 53,885 | 75,062 | 89,673 | 104,312 |
| Reagan | 3,239 | 4,135 | 4,514 | 3,326 |
| Real | 2,013 | 2,469 | 2,412 | 3,047 |
| Red River | 14,298 | 16,101 | 14,317 | 14,314 |
| Reeves | 16,526 | 15,801 | 15,852 | 13,137 |
| Refugio | 9,494 | 9,289 | 7,976 | 7,828 |
| Roberts | 967 | 1,187 | 1,025 | 887 |
| Robertson | 14,389 | 14,653 | 15,511 | 16,000 |
| Rockwall | 7,046 | 14,528 | 25,604 | 43,080 |
| Runnels | 12,108 | 11,872 | 11,294 | 11,495 |
| Rusk | 34,102 | 41,382 | 43,735 | 47,372 |
| Sabine | 7,187 | 8,702 | 9,586 | 10,469 |
| San Augustine | 7,858 | 8,785 | 7,999 | 8,946 |
| San Jacinto | 6,702 | 11,434 | 16,372 | 22,246 |
| San Patricio | 47,288 | 58,013 | 58,749 | 67,138 |
| San Saba | 5,540 | 6,204 | 5,401 | 6,186 |
| Schleicher | 2,277 | 2,820 | 2,990 | 2,935 |
| Scurry | 15,760 | 18,192 | 18,634 | 16,361 |
| Shackelford | 3,323 | 3,915 | 3,316 | 3,302 |
| Shelby | 19,672 | 23,084 | 22,034 | 25,224 |
| Sherman | 3,657 | 3,174 | 2,858 | 3,186 |
| Smith | 97,096 | 128,366 | 151,309 | 174,706 |
| Somervell | 2,793 | 4,154 | 5,360 | 6,809 |
| Starr | 17,707 | 27,266 | 40,518 | 53,597 |
| Stephens | 8,414 | 9,926 | 9,010 | 9,674 |
| Sterling | 1,056 | 1,206 | 1,438 | 1,393 |
| Stonewall | 2,397 | 2,406 | 2,013 | 1,693 |
| Sutton | 3,175 | 5,130 | 4,135 | 4,077 |
| Swisher | 10,373 | 9,723 | 8,133 | 8,378 |
| Tarrant | 716,317 | 860,880 | 1,170,103 | 1,446,219 |
| Taylor | 97,853 | 110,932 | 119,655 | 126,555 |
| Terrell | 1,940 | 1,595 | 1,410 | 1,081 |
| Terry | 14,118 | 14,581 | 13,218 | 12,761 |
| Throckmorton | 2,205 | 2,053 | 1,880 | 1,850 |
| Titus | 16,702 | 21,442 | 24,009 | 28,118 |
| Tom Green | 71,047 | 84,784 | 98,458 | 104,010 |
| Travis | 295,516 | 419,573 | 576,407 | 812,280 |
| Trinity | 7,628 | 9,450 | 11,445 | 13,779 |
| Tyler | 12,417 | 16,223 | 16,646 | 20,871 |
| Upshur | 20,976 | 28,595 | 31,370 | 35,291 |
| Upton | 4,697 | 4,619 | 4,447 | 3,404 |
| Uvalde | 17,348 | 22,441 | 23,340 | 25,926 |
| Val Verde | 27,471 | 35,910 | 38,721 | 44,856 |
| Van Zandt | 22,155 | 31,426 | 37,944 | 48,140 |
| Victoria | 53,766 | 68,807 | 74,361 | 84,088 |
| Walker | 27,680 | 41,789 | 50,917 | 61,758 |
| Waller | 14,285 | 19,798 | 23,390 | 32,663 |
| Ward | 13,019 | 13,976 | 13,115 | 10,909 |

| County | 1970 | 1980 | 1990 | 2000 |
|---|---|---|---|---|
| Washington | 18,842 | 21,998 | 26,154 | 30,373 |
| Webb | 72,859 | 99,258 | 133,239 | 193,117 |
| Wharton | 36,729 | 40,242 | 39,955 | 41,188 |
| Wheeler | 6,434 | 7,137 | 5,879 | 5,284 |
| Wichita | 121,862 | 121,082 | 122,378 | 131,664 |
| Wilbarger | 15,355 | 15,931 | 15,121 | 14,676 |
| Willacy | 15,570 | 17,495 | 17,705 | 20,082 |
| Williamson | 37,305 | 76,521 | 139,551 | 249,967 |
| Wilson | 13,041 | 16,756 | 22,650 | 32,408 |
| Winkler | 9,640 | 9,944 | 8,626 | 7,173 |
| Wise | 19,687 | 26,575 | 34,679 | 48,793 |
| Wood | 18,589 | 24,697 | 29,380 | 36,752 |
| Yoakum | 7,344 | 8,299 | 8,786 | 7,322 |
| Young | 15,400 | 19,083 | 18,126 | 17,943 |
| Zapata | 4,352 | 6,628 | 9,279 | 12,182 |
| Zavala | 11,370 | 11,666 | 12,162 | 11,600 |

Source: Texas State Data Center

## Table C-6. Landscaping Sector Output by County, 1999 – 2013 (TX REMI – millions of $1996)

| County | Region | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Anderson | 29 | 73.5 | 74.3 | 75 | 75.8 | 76.5 | 77.3 | 78 | 78.8 | 79.5 | 80.3 | 81 | 81.8 | 82.5 | 83.3 | 84.1 |
| Andrews | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Angelina | 30 | 29.6 | 29.8 | 29.9 | 30.1 | 30.2 | 30.4 | 30.5 | 30.7 | 30.8 | 31 | 31.1 | 31.3 | 31.4 | 31.6 | 31.8 |
| Aransas | 24 | 79.5 | 81.8 | 84.1 | 86.4 | 88.6 | 90.9 | 93.2 | 95.5 | 97.8 | 100.1 | 102.4 | 104.7 | 107 | 109.3 | 111.6 |
| Archer | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Armstrong | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Atascosa | 19 | 57.2 | 58.5 | 59.9 | 61.2 | 62.6 | 63.9 | 65.3 | 66.6 | 67.9 | 69.3 | 70.6 | 72 | 73.3 | 74.7 | 76 |
| Austin | 31 | 61.7 | 62.7 | 63.7 | 64.8 | 65.8 | 66.8 | 67.9 | 68.9 | 69.9 | 71 | 72 | 73 | 74.1 | 75.1 | 76.1 |
| Bailey | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Bandera | 19 | 57.2 | 58.5 | 59.9 | 61.2 | 62.6 | 63.9 | 65.3 | 66.6 | 67.9 | 69.3 | 70.6 | 72 | 73.3 | 74.7 | 76 |
| Bastrop | 23 | 16.6 | 17 | 17.3 | 17.7 | 18.1 | 18.5 | 18.9 | 19.3 | 19.7 | 20 | 20.4 | 20.8 | 21.2 | 21.6 | 22 |
| Baylor | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Bee | 35 | 23.8 | 24 | 24.2 | 24.4 | 24.5 | 24.7 | 24.9 | 25.1 | 25.3 | 25.5 | 25.6 | 25.8 | 26 | 26.2 | 26.4 |
| Bell | 32 | 167.2 | 170.6 | 174 | 177.4 | 180.8 | 184.2 | 187.6 | 191 | 194.4 | 197.8 | 201.2 | 204.6 | 208 | 211.4 | 214.9 |
| Bexar | 17 | 191.2 | 197.8 | 204.3 | 210.9 | 217.5 | 224.1 | 230.7 | 237.2 | 243.8 | 250.4 | 257 | 263.6 | 270.1 | 276.7 | 283.3 |
| Blanco | 43 | 39.8 | 40.5 | 41.3 | 42 | 42.8 | 43.6 | 44.3 | 45.1 | 45.8 | 46.6 | 47.3 | 48.1 | 48.8 | 49.6 | 50.3 |
| Borden | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Bosque | 43 | 39.8 | 40.5 | 41.3 | 42 | 42.8 | 43.6 | 44.3 | 45.1 | 45.8 | 46.6 | 47.3 | 48.1 | 48.8 | 49.6 | 50.3 |
| Bowie | 29 | 73.5 | 74.3 | 75 | 75.8 | 76.5 | 77.3 | 78 | 78.8 | 79.5 | 80.3 | 81 | 81.8 | 82.5 | 83.3 | 84.1 |
| Brazoria | 9 | 47.1 | 48.4 | 49.8 | 51.1 | 52.4 | 53.8 | 55.1 | 56.5 | 57.8 | 59.2 | 60.5 | 61.8 | 63.2 | 64.5 | 65.9 |
| Brazos | 32 | 167.2 | 170.6 | 174 | 177.4 | 180.8 | 184.2 | 187.6 | 191 | 194.4 | 197.8 | 201.2 | 204.6 | 208 | 211.4 | 214.9 |
| Brewster | 37 | 11.7 | 12 | 12.3 | 12.6 | 12.8 | 13.1 | 13.4 | 13.7 | 13.9 | 14.2 | 14.5 | 14.8 | 15 | 15.3 | 15.6 |
| Briscoe | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Brooks | 40 | 1395.1 | 1470.3 | 1545.5 | 1620.7 | 1695.9 | 1771.2 | 1846.4 | 1921.6 | 1996.8 | 2072 | 2147.3 | 2222.5 | 2297.7 | 2372.9 | 2448.2 |
| Brown | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Burleson | 32 | 167.2 | 170.6 | 174 | 177.4 | 180.8 | 184.2 | 187.6 | 191 | 194.4 | 197.8 | 201.2 | 204.6 | 208 | 211.4 | 214.9 |
| Burnet | 43 | 39.8 | 40.5 | 41.3 | 42 | 42.8 | 43.6 | 44.3 | 45.1 | 45.8 | 46.6 | 47.3 | 48.1 | 48.8 | 49.6 | 50.3 |
| Caldwell | 23 | 16.6 | 17 | 17.3 | 17.7 | 18.1 | 18.5 | 18.9 | 19.3 | 19.7 | 20 | 20.4 | 20.8 | 21.2 | 21.6 | 22 |
| Calhoun | 28 | 42.1 | 42.8 | 43.5 | 44.2 | 44.9 | 45.6 | 46.3 | 46.9 | 47.6 | 48.3 | 49 | 49.7 | 50.4 | 51.1 | 51.7 |
| Callahan | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Cameron | 44 | 261.8 | 270.5 | 279.3 | 288 | 296.7 | 305.5 | 314.2 | 322.9 | 331.7 | 340.4 | 349.1 | 357.9 | 366.6 | 375.4 | 384.1 |
| Camp | 29 | 73.5 | 74.3 | 75 | 75.8 | 76.5 | 77.3 | 78 | 78.8 | 79.5 | 80.3 | 81 | 81.8 | 82.5 | 83.3 | 84.1 |

| County | Region | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carson | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Cass | 29 | 73.5 | 74.3 | 75 | 75.8 | 76.5 | 77.3 | 78 | 78.8 | 79.5 | 80.3 | 81 | 81.8 | 82.5 | 83.3 | 84.1 |
| Castro | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Chambers | 10 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Cherokee | 29 | 73.5 | 74.3 | 75 | 75.8 | 76.5 | 77.3 | 78 | 78.8 | 79.5 | 80.3 | 81 | 81.8 | 82.5 | 83.3 | 84.1 |
| Childress | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Clay | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Cochran | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Coke | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Coleman | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Collin | 1 | 98.4 | 102.9 | 107.3 | 111.8 | 116.3 | 120.8 | 125.3 | 129.8 | 134.3 | 138.8 | 143.2 | 147.7 | 152.2 | 156.7 | 161.2 |
| Collingsworth | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Colorado | 31 | 61.7 | 62.7 | 63.7 | 64.8 | 65.8 | 66.8 | 67.9 | 68.9 | 69.9 | 71 | 72 | 73 | 74.1 | 75.1 | 76.1 |
| Comal | 18 | 15.6 | 16.2 | 16.7 | 17.3 | 17.9 | 18.5 | 19.1 | 19.7 | 20.3 | 20.9 | 21.5 | 22.1 | 22.7 | 23.3 | 23.9 |
| Comanche | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Concho | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Cooke | 34 | 27 | 27.7 | 28.5 | 29.2 | 29.9 | 30.7 | 31.4 | 32.1 | 32.9 | 33.6 | 34.4 | 35.1 | 35.8 | 36.6 | 37.3 |
| Coryell | 43 | 39.8 | 40.5 | 41.3 | 42 | 42.8 | 43.6 | 44.3 | 45.1 | 45.8 | 46.6 | 47.3 | 48.1 | 48.8 | 49.6 | 50.3 |
| Cottle | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Crane | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Crockett | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Crosby | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Culberson | 37 | 11.7 | 12 | 12.3 | 12.6 | 12.8 | 13.1 | 13.4 | 13.7 | 13.9 | 14.2 | 14.5 | 14.8 | 15 | 15.3 | 15.6 |
| Dallam | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Dallas | 2 | 399.2 | 411.4 | 423.6 | 435.9 | 448.1 | 460.4 | 472.6 | 484.9 | 497.1 | 509.3 | 521.6 | 533.8 | 546.1 | 558.3 | 570.6 |
| Dawson | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| De Witt | 28 | 42.1 | 42.8 | 43.5 | 44.2 | 44.9 | 45.6 | 46.3 | 46.9 | 47.6 | 48.3 | 49 | 49.7 | 50.4 | 51.1 | 51.7 |
| Deaf Smith | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Delta | 29 | 73.5 | 74.3 | 75 | 75.8 | 76.5 | 77.3 | 78 | 78.8 | 79.5 | 80.3 | 81 | 81.8 | 82.5 | 83.3 | 84.1 |
| Denton | 3 | 89 | 92.6 | 96.3 | 100 | 103.7 | 107.4 | 111.1 | 114.8 | 118.5 | 122.2 | 125.9 | 129.6 | 133.3 | 136.9 | 140.6 |
| Dickens | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Dimmit | 42 | 107.4 | 109.6 | 111.8 | 114 | 116.2 | 118.5 | 120.7 | 122.9 | 125.1 | 127.4 | 129.6 | 131.8 | 134 | 136.3 | 138.5 |
| Donley | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Duval | 42 | 107.4 | 109.6 | 111.8 | 114 | 116.2 | 118.5 | 120.7 | 122.9 | 125.1 | 127.4 | 129.6 | 131.8 | 134 | 136.3 | 138.5 |

| County | Region | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Eastland | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Ector | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Edwards | 42 | 107.4 | 109.6 | 111.8 | 114 | 116.2 | 118.5 | 120.7 | 122.9 | 125.1 | 127.4 | 129.6 | 131.8 | 134 | 136.3 | 138.5 |
| El Paso | 8 | 64.9 | 67.4 | 69.8 | 72.3 | 74.7 | 77.2 | 79.6 | 82.1 | 84.5 | 87 | 89.4 | 91.9 | 94.3 | 96.8 | 99.2 |
| Ellis | 33 | 128.9 | 131.4 | 134 | 136.5 | 139.1 | 141.7 | 144.2 | 146.8 | 149.3 | 151.9 | 154.5 | 157 | 159.6 | 162.1 | 164.7 |
| Erath | 33 | 128.9 | 131.4 | 134 | 136.5 | 139.1 | 141.7 | 144.2 | 146.8 | 149.3 | 151.9 | 154.5 | 157 | 159.6 | 162.1 | 164.7 |
| Falls | 32 | 167.2 | 170.6 | 174 | 177.4 | 180.8 | 184.2 | 187.6 | 191 | 194.4 | 197.8 | 201.2 | 204.6 | 208 | 211.4 | 214.9 |
| Fannin | 29 | 73.5 | 74.3 | 75 | 75.8 | 76.5 | 77.3 | 78 | 78.8 | 79.5 | 80.3 | 81 | 81.8 | 82.5 | 83.3 | 84.1 |
| Fayette | 32 | 167.2 | 170.6 | 174 | 177.4 | 180.8 | 184.2 | 187.6 | 191 | 194.4 | 197.8 | 201.2 | 204.6 | 208 | 211.4 | 214.9 |
| Fisher | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Floyd | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Foard | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Fort Bend | 11 | 73.7 | 76.6 | 79.5 | 82.5 | 85.4 | 88.3 | 91.2 | 94.1 | 97.1 | 100 | 102.9 | 105.8 | 108.7 | 111.7 | 114.6 |
| Franklin | 29 | 73.5 | 74.3 | 75 | 75.8 | 76.5 | 77.3 | 78 | 78.8 | 79.5 | 80.3 | 81 | 81.8 | 82.5 | 83.3 | 84.1 |
| Freestone | 32 | 167.2 | 170.6 | 174 | 177.4 | 180.8 | 184.2 | 187.6 | 191 | 194.4 | 197.8 | 201.2 | 204.6 | 208 | 211.4 | 214.9 |
| Frio | 42 | 107.4 | 109.6 | 111.8 | 114 | 116.2 | 118.5 | 120.7 | 122.9 | 125.1 | 127.4 | 129.6 | 131.8 | 134 | 136.3 | 138.5 |
| Gaines | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Galveston | 12 | 20.6 | 21.1 | 21.5 | 21.9 | 22.4 | 22.8 | 23.2 | 23.7 | 24.1 | 24.5 | 25 | 25.4 | 25.9 | 26.3 | 26.7 |
| Garza | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Gillespie | 42 | 107.4 | 109.6 | 111.8 | 114 | 116.2 | 118.5 | 120.7 | 122.9 | 125.1 | 127.4 | 129.6 | 131.8 | 134 | 136.3 | 138.5 |
| Glasscock | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Goliad | 28 | 42.1 | 42.8 | 43.5 | 44.2 | 44.9 | 45.6 | 46.3 | 46.9 | 47.6 | 48.3 | 49 | 49.7 | 50.4 | 51.1 | 51.7 |
| Gonzales | 35 | 23.8 | 24 | 24.2 | 24.4 | 24.5 | 24.7 | 24.9 | 25.1 | 25.3 | 25.5 | 25.6 | 25.8 | 26 | 26.2 | 26.4 |
| Gray | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Grayson | 34 | 27 | 27.7 | 28.5 | 29.2 | 29.9 | 30.7 | 31.4 | 32.1 | 32.9 | 33.6 | 34.4 | 35.1 | 35.8 | 36.6 | 37.3 |
| Gregg | 26 | 21.3 | 22.1 | 22.8 | 23.6 | 24.3 | 25.1 | 25.8 | 26.6 | 27.4 | 28.1 | 28.9 | 29.6 | 30.4 | 31.1 | 31.9 |
| Grimes | 32 | 167.2 | 170.6 | 174 | 177.4 | 180.8 | 184.2 | 187.6 | 191 | 194.4 | 197.8 | 201.2 | 204.6 | 208 | 211.4 | 214.9 |
| Guadalupe | 19 | 57.2 | 58.5 | 59.9 | 61.2 | 62.6 | 63.9 | 65.3 | 66.6 | 67.9 | 69.3 | 70.6 | 72 | 73.3 | 74.7 | 76 |
| Hale | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Hall | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Hamilton | 43 | 39.8 | 40.5 | 41.3 | 42 | 42.8 | 43.6 | 44.3 | 45.1 | 45.8 | 46.6 | 47.3 | 48.1 | 48.8 | 49.6 | 50.3 |
| Hansford | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Hardeman | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Hardin | 5 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |

| County | Region | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Harris | 13 | 545 | 561.8 | 578.7 | 595.5 | 612.3 | 629.2 | 646 | 662.8 | 679.7 | 696.5 | 713.4 | 730.2 | 747 | 763.9 | 780.7 |
| Harrison | 27 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Hartley | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Haskell | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Hays | 22 | 17.5 | 18.2 | 18.9 | 19.5 | 20.2 | 20.9 | 21.5 | 22.2 | 22.9 | 23.5 | 24.2 | 24.9 | 25.5 | 26.2 | 26.9 |
| Hemphill | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Henderson | 29 | 73.5 | 74.3 | 75 | 75.8 | 76.5 | 77.3 | 78 | 78.8 | 79.5 | 80.3 | 81 | 81.8 | 82.5 | 83.3 | 84.1 |
| Hidalgo | 44 | 261.8 | 270.5 | 279.3 | 288 | 296.7 | 305.5 | 314.2 | 322.9 | 331.7 | 340.4 | 349.1 | 357.9 | 366.6 | 375.4 | 384.1 |
| Hill | 32 | 167.2 | 170.6 | 174 | 177.4 | 180.8 | 184.2 | 187.6 | 191 | 194.4 | 197.8 | 201.2 | 204.6 | 208 | 211.4 | 214.9 |
| Hockley | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Hood | 33 | 128.9 | 131.4 | 134 | 136.5 | 139.1 | 141.7 | 144.2 | 146.8 | 149.3 | 151.9 | 154.5 | 157 | 159.6 | 162.1 | 164.7 |
| Hopkins | 29 | 73.5 | 74.3 | 75 | 75.8 | 76.5 | 77.3 | 78 | 78.8 | 79.5 | 80.3 | 81 | 81.8 | 82.5 | 83.3 | 84.1 |
| Houston | 30 | 29.6 | 29.8 | 29.9 | 30.1 | 30.2 | 30.4 | 30.5 | 30.7 | 30.8 | 31 | 31.1 | 31.3 | 31.4 | 31.6 | 31.8 |
| Howard | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Hudspeth | 37 | 11.7 | 12 | 12.3 | 12.6 | 12.8 | 13.1 | 13.4 | 13.7 | 13.9 | 14.2 | 14.5 | 14.8 | 15 | 15.3 | 15.6 |
| Hunt | 33 | 128.9 | 131.4 | 134 | 136.5 | 139.1 | 141.7 | 144.2 | 146.8 | 149.3 | 151.9 | 154.5 | 157 | 159.6 | 162.1 | 164.7 |
| Hutchinson | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Irion | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Jack | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Jackson | 28 | 42.1 | 42.8 | 43.5 | 44.2 | 44.9 | 45.6 | 46.3 | 46.9 | 47.6 | 48.3 | 49 | 49.7 | 50.4 | 51.1 | 51.7 |
| Jasper | 30 | 29.6 | 29.8 | 29.9 | 30.1 | 30.2 | 30.4 | 30.5 | 30.7 | 30.8 | 31 | 31.1 | 31.3 | 31.4 | 31.6 | 31.8 |
| Jeff Davis | 37 | 11.7 | 12 | 12.3 | 12.6 | 12.8 | 13.1 | 13.4 | 13.7 | 13.9 | 14.2 | 14.5 | 14.8 | 15 | 15.3 | 15.6 |
| Jefferson | 6 | 52.1 | 53.3 | 54.4 | 55.6 | 56.8 | 57.9 | 59.1 | 60.2 | 61.4 | 62.6 | 63.7 | 64.9 | 66 | 67.2 | 68.4 |
| Jim Hogg | 40 | 1395.1 | 1470.3 | 1545.5 | 1620.7 | 1695.9 | 1771.2 | 1846.4 | 1921.6 | 1996.8 | 2072 | 2147.3 | 2222.5 | 2297.7 | 2372.9 | 2448.2 |
| Jim Wells | 42 | 107.4 | 109.6 | 111.8 | 114 | 116.2 | 118.5 | 120.7 | 122.9 | 125.1 | 127.4 | 129.6 | 131.8 | 134 | 136.3 | 138.5 |
| Johnson | 33 | 128.9 | 131.4 | 134 | 136.5 | 139.1 | 141.7 | 144.2 | 146.8 | 149.3 | 151.9 | 154.5 | 157 | 159.6 | 162.1 | 164.7 |
| Jones | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Karnes | 35 | 23.8 | 24 | 24.2 | 24.4 | 24.5 | 24.7 | 24.9 | 25.1 | 25.3 | 25.5 | 25.6 | 25.8 | 26 | 26.2 | 26.4 |
| Kaufman | 33 | 128.9 | 131.4 | 134 | 136.5 | 139.1 | 141.7 | 144.2 | 146.8 | 149.3 | 151.9 | 154.5 | 157 | 159.6 | 162.1 | 164.7 |
| Kendall | 19 | 57.2 | 58.5 | 59.9 | 61.2 | 62.6 | 63.9 | 65.3 | 66.6 | 67.9 | 69.3 | 70.6 | 72 | 73.3 | 74.7 | 76 |
| Kenedy | 42 | 107.4 | 109.6 | 111.8 | 114 | 116.2 | 118.5 | 120.7 | 122.9 | 125.1 | 127.4 | 129.6 | 131.8 | 134 | 136.3 | 138.5 |
| Kent | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Kerr | 42 | 107.4 | 109.6 | 111.8 | 114 | 116.2 | 118.5 | 120.7 | 122.9 | 125.1 | 127.4 | 129.6 | 131.8 | 134 | 136.3 | 138.5 |
| Kimble | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |

| County | Region | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| King | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Kinney | 42 | 107.4 | 109.6 | 111.8 | 114 | 116.2 | 118.5 | 120.7 | 122.9 | 125.1 | 127.4 | 129.6 | 131.8 | 134 | 136.3 | 138.5 |
| Kleberg | 42 | 107.4 | 109.6 | 111.8 | 114 | 116.2 | 118.5 | 120.7 | 122.9 | 125.1 | 127.4 | 129.6 | 131.8 | 134 | 136.3 | 138.5 |
| Knox | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| La Salle | 42 | 107.4 | 109.6 | 111.8 | 114 | 116.2 | 118.5 | 120.7 | 122.9 | 125.1 | 127.4 | 129.6 | 131.8 | 134 | 136.3 | 138.5 |
| Lamar | 29 | 73.5 | 74.3 | 75 | 75.8 | 76.5 | 77.3 | 78 | 78.8 | 79.5 | 80.3 | 81 | 81.8 | 82.5 | 83.3 | 84.1 |
| Lamb | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Lampasas | 43 | 39.8 | 40.5 | 41.3 | 42 | 42.8 | 43.6 | 44.3 | 45.1 | 45.8 | 46.6 | 47.3 | 48.1 | 48.8 | 49.6 | 50.3 |
| Lavaca | 28 | 42.1 | 42.8 | 43.5 | 44.2 | 44.9 | 45.6 | 46.3 | 46.9 | 47.6 | 48.3 | 49 | 49.7 | 50.4 | 51.1 | 51.7 |
| Lee | 32 | 167.2 | 170.6 | 174 | 177.4 | 180.8 | 184.2 | 187.6 | 191 | 194.4 | 197.8 | 201.2 | 204.6 | 208 | 211.4 | 214.9 |
| Leon | 32 | 167.2 | 170.6 | 174 | 177.4 | 180.8 | 184.2 | 187.6 | 191 | 194.4 | 197.8 | 201.2 | 204.6 | 208 | 211.4 | 214.9 |
| Liberty | 14 | 4.4 | 4.4 | 4.5 | 4.6 | 4.6 | 4.7 | 4.7 | 4.8 | 4.8 | 4.9 | 4.9 | 5 | 5 | 5.1 | 5.2 |
| Limestone | 32 | 167.2 | 170.6 | 174 | 177.4 | 180.8 | 184.2 | 187.6 | 191 | 194.4 | 197.8 | 201.2 | 204.6 | 208 | 211.4 | 214.9 |
| Lipscomb | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Live Oak | 42 | 107.4 | 109.6 | 111.8 | 114 | 116.2 | 118.5 | 120.7 | 122.9 | 125.1 | 127.4 | 129.6 | 131.8 | 134 | 136.3 | 138.5 |
| Llano | 43 | 39.8 | 40.5 | 41.3 | 42 | 42.8 | 43.6 | 44.3 | 45.1 | 45.8 | 46.6 | 47.3 | 48.1 | 48.8 | 49.6 | 50.3 |
| Loving | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Lubbock | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Lynn | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Madison | 32 | 167.2 | 170.6 | 174 | 177.4 | 180.8 | 184.2 | 187.6 | 191 | 194.4 | 197.8 | 201.2 | 204.6 | 208 | 211.4 | 214.9 |
| Marion | 29 | 73.5 | 74.3 | 75 | 75.8 | 76.5 | 77.3 | 78 | 78.8 | 79.5 | 80.3 | 81 | 81.8 | 82.5 | 83.3 | 84.1 |
| Martin | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Mason | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Matagorda | 31 | 61.7 | 62.7 | 63.7 | 64.8 | 65.8 | 66.8 | 67.9 | 68.9 | 69.9 | 71 | 72 | 73 | 74.1 | 75.1 | 76.1 |
| Maverick | 42 | 107.4 | 109.6 | 111.8 | 114 | 116.2 | 118.5 | 120.7 | 122.9 | 125.1 | 127.4 | 129.6 | 131.8 | 134 | 136.3 | 138.5 |
| McCulloch | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| McLennan | 32 | 167.2 | 170.6 | 174 | 177.4 | 180.8 | 184.2 | 187.6 | 191 | 194.4 | 197.8 | 201.2 | 204.6 | 208 | 211.4 | 214.9 |
| McMullen | 42 | 107.4 | 109.6 | 111.8 | 114 | 116.2 | 118.5 | 120.7 | 122.9 | 125.1 | 127.4 | 129.6 | 131.8 | 134 | 136.3 | 138.5 |
| Medina | 19 | 57.2 | 58.5 | 59.9 | 61.2 | 62.6 | 63.9 | 65.3 | 66.6 | 67.9 | 69.3 | 70.6 | 72 | 73.3 | 74.7 | 76 |
| Menard | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Midland | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Milam | 32 | 167.2 | 170.6 | 174 | 177.4 | 180.8 | 184.2 | 187.6 | 191 | 194.4 | 197.8 | 201.2 | 204.6 | 208 | 211.4 | 214.9 |
| Mills | 43 | 39.8 | 40.5 | 41.3 | 42 | 42.8 | 43.6 | 44.3 | 45.1 | 45.8 | 46.6 | 47.3 | 48.1 | 48.8 | 49.6 | 50.3 |
| Mitchell | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |

| County | Region | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Montague | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Montgomery | 15 | 60.7 | 63.1 | 65.4 | 67.7 | 70 | 72.4 | 74.7 | 77 | 79.4 | 81.7 | 84 | 86.4 | 88.7 | 91 | 93.3 |
| Moore | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Morris | 29 | 73.5 | 74.3 | 75 | 75.8 | 76.5 | 77.3 | 78 | 78.8 | 79.5 | 80.3 | 81 | 81.8 | 82.5 | 83.3 | 84.1 |
| Motley | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Nacogdoches | 30 | 29.6 | 29.8 | 29.9 | 30.1 | 30.2 | 30.4 | 30.5 | 30.7 | 30.8 | 31 | 31.1 | 31.3 | 31.4 | 31.6 | 31.8 |
| Navarro | 33 | 128.9 | 131.4 | 134 | 136.5 | 139.1 | 141.7 | 144.2 | 146.8 | 149.3 | 151.9 | 154.5 | 157 | 159.6 | 162.1 | 164.7 |
| Newton | 30 | 29.6 | 29.8 | 29.9 | 30.1 | 30.2 | 30.4 | 30.5 | 30.7 | 30.8 | 31 | 31.1 | 31.3 | 31.4 | 31.6 | 31.8 |
| Nolan | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Nueces | 24 | 79.5 | 81.8 | 84.1 | 86.4 | 88.6 | 90.9 | 93.2 | 95.5 | 97.8 | 100.1 | 102.4 | 104.7 | 107 | 109.3 | 111.6 |
| Ochiltree | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Oldham | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Orange | 7 | 12.1 | 12.4 | 12.6 | 12.9 | 13.1 | 13.3 | 13.6 | 13.8 | 14.1 | 14.3 | 14.6 | 14.8 | 15 | 15.3 | 15.5 |
| Palo Pinto | 33 | 128.9 | 131.4 | 134 | 136.5 | 139.1 | 141.7 | 144.2 | 146.8 | 149.3 | 151.9 | 154.5 | 157 | 159.6 | 162.1 | 164.7 |
| Panola | 30 | 29.6 | 29.8 | 29.9 | 30.1 | 30.2 | 30.4 | 30.5 | 30.7 | 30.8 | 31 | 31.1 | 31.3 | 31.4 | 31.6 | 31.8 |
| Parker | 33 | 128.9 | 131.4 | 134 | 136.5 | 139.1 | 141.7 | 144.2 | 146.8 | 149.3 | 151.9 | 154.5 | 157 | 159.6 | 162.1 | 164.7 |
| Parmer | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Pecos | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Polk | 30 | 29.6 | 29.8 | 29.9 | 30.1 | 30.2 | 30.4 | 30.5 | 30.7 | 30.8 | 31 | 31.1 | 31.3 | 31.4 | 31.6 | 31.8 |
| Potter | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Presidio | 37 | 11.7 | 12 | 12.3 | 12.6 | 12.8 | 13.1 | 13.4 | 13.7 | 13.9 | 14.2 | 14.5 | 14.8 | 15 | 15.3 | 15.6 |
| Rains | 29 | 73.5 | 74.3 | 75 | 75.8 | 76.5 | 77.3 | 78 | 78.8 | 79.5 | 80.3 | 81 | 81.8 | 82.5 | 83.3 | 84.1 |
| Randall | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Reagan | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Real | 42 | 107.4 | 109.6 | 111.8 | 114 | 116.2 | 118.5 | 120.7 | 122.9 | 125.1 | 127.4 | 129.6 | 131.8 | 134 | 136.3 | 138.5 |
| Red River | 29 | 73.5 | 74.3 | 75 | 75.8 | 76.5 | 77.3 | 78 | 78.8 | 79.5 | 80.3 | 81 | 81.8 | 82.5 | 83.3 | 84.1 |
| Reeves | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Refugio | 28 | 42.1 | 42.8 | 43.5 | 44.2 | 44.9 | 45.6 | 46.3 | 46.9 | 47.6 | 48.3 | 49 | 49.7 | 50.4 | 51.1 | 51.7 |
| Roberts | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Robertson | 32 | 167.2 | 170.6 | 174 | 177.4 | 180.8 | 184.2 | 187.6 | 191 | 194.4 | 197.8 | 201.2 | 204.6 | 208 | 211.4 | 214.9 |
| Rockwall | 33 | 128.9 | 131.4 | 134 | 136.5 | 139.1 | 141.7 | 144.2 | 146.8 | 149.3 | 151.9 | 154.5 | 157 | 159.6 | 162.1 | 164.7 |
| Runnels | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Rusk | 27 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Sabine | 30 | 29.6 | 29.8 | 29.9 | 30.1 | 30.2 | 30.4 | 30.5 | 30.7 | 30.8 | 31 | 31.1 | 31.3 | 31.4 | 31.6 | 31.8 |

| County | Region | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San Augustine | 30 | 29.6 | 29.8 | 29.9 | 30.1 | 30.2 | 30.4 | 30.5 | 30.7 | 30.8 | 31 | 31.1 | 31.3 | 31.4 | 31.6 | 31.8 |
| San Jacinto | 30 | 29.6 | 29.8 | 29.9 | 30.1 | 30.2 | 30.4 | 30.5 | 30.7 | 30.8 | 31 | 31.1 | 31.3 | 31.4 | 31.6 | 31.8 |
| San Patricio | 24 | 79.5 | 81.8 | 84.1 | 86.4 | 88.6 | 90.9 | 93.2 | 95.5 | 97.8 | 100.1 | 102.4 | 104.7 | 107 | 109.3 | 111.6 |
| San Saba | 43 | 39.8 | 40.5 | 41.3 | 42 | 42.8 | 43.6 | 44.3 | 45.1 | 45.8 | 46.6 | 47.3 | 48.1 | 48.8 | 49.6 | 50.3 |
| Schleicher | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Scurry | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Shackelford | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Shelby | 30 | 29.6 | 29.8 | 29.9 | 30.1 | 30.2 | 30.4 | 30.5 | 30.7 | 30.8 | 31 | 31.1 | 31.3 | 31.4 | 31.6 | 31.8 |
| Sherman | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Smith | 25 | 43 | 44.3 | 45.6 | 46.8 | 48.1 | 49.4 | 50.7 | 51.9 | 53.2 | 54.5 | 55.8 | 57 | 58.3 | 59.6 | 60.9 |
| Somervell | 33 | 128.9 | 131.4 | 134 | 136.5 | 139.1 | 141.7 | 144.2 | 146.8 | 149.3 | 151.9 | 154.5 | 157 | 159.6 | 162.1 | 164.7 |
| Starr | 40 | 1395.1 | 1470.3 | 1545.5 | 1620.7 | 1695.9 | 1771.2 | 1846.4 | 1921.6 | 1996.8 | 2072 | 2147.3 | 2222.5 | 2297.7 | 2372.9 | 2448.2 |
| Stephens | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Sterling | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Stonewall | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Sutton | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Swisher | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Tarrant | 4 | 226.4 | 234.3 | 242.2 | 250.1 | 258 | 265.9 | 273.8 | 281.7 | 289.7 | 297.6 | 305.5 | 313.4 | 321.3 | 329.2 | 337.1 |
| Taylor | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Terrell | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Terry | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Throckmorton | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Titus | 29 | 73.5 | 74.3 | 75 | 75.8 | 76.5 | 77.3 | 78 | 78.8 | 79.5 | 80.3 | 81 | 81.8 | 82.5 | 83.3 | 84.1 |
| Tom Green | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Travis | 20 | 141.2 | 147.1 | 152.9 | 158.8 | 164.7 | 170.6 | 176.5 | 182.4 | 188.2 | 194.1 | 200 | 205.9 | 211.8 | 217.6 | 223.5 |
| Trinity | 30 | 29.6 | 29.8 | 29.9 | 30.1 | 30.2 | 30.4 | 30.5 | 30.7 | 30.8 | 31 | 31.1 | 31.3 | 31.4 | 31.6 | 31.8 |
| Tyler | 30 | 29.6 | 29.8 | 29.9 | 30.1 | 30.2 | 30.4 | 30.5 | 30.7 | 30.8 | 31 | 31.1 | 31.3 | 31.4 | 31.6 | 31.8 |
| Upshur | 27 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Upton | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Uvalde | 42 | 107.4 | 109.6 | 111.8 | 114 | 116.2 | 118.5 | 120.7 | 122.9 | 125.1 | 127.4 | 129.6 | 131.8 | 134 | 136.3 | 138.5 |
| Val Verde | 42 | 107.4 | 109.6 | 111.8 | 114 | 116.2 | 118.5 | 120.7 | 122.9 | 125.1 | 127.4 | 129.6 | 131.8 | 134 | 136.3 | 138.5 |
| Van Zandt | 29 | 73.5 | 74.3 | 75 | 75.8 | 76.5 | 77.3 | 78 | 78.8 | 79.5 | 80.3 | 81 | 81.8 | 82.5 | 83.3 | 84.1 |
| Victoria | 41 | 14.4 | 14.8 | 15.3 | 15.7 | 16.1 | 16.5 | 16.9 | 17.3 | 17.8 | 18.2 | 18.6 | 19 | 19.4 | 19.8 | 20.3 |
| Walker | 30 | 29.6 | 29.8 | 29.9 | 30.1 | 30.2 | 30.4 | 30.5 | 30.7 | 30.8 | 31 | 31.1 | 31.3 | 31.4 | 31.6 | 31.8 |

| County | Region | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Waller | 16 | 10.1 | 10.3 | 10.6 | 10.9 | 11.2 | 11.5 | 11.8 | 12.1 | 12.3 | 12.6 | 12.9 | 13.2 | 13.5 | 13.8 | 14.1 |
| Ward | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Washington | 32 | 167.2 | 170.6 | 174 | 177.4 | 180.8 | 184.2 | 187.6 | 191 | 194.4 | 197.8 | 201.2 | 204.6 | 208 | 211.4 | 214.9 |
| Webb | 40 | 1395.1 | 1470.3 | 1545.5 | 1620.7 | 1695.9 | 1771.2 | 1846.4 | 1921.6 | 1996.8 | 2072 | 2147.3 | 2222.5 | 2297.7 | 2372.9 | 2448.2 |
| Wharton | 31 | 61.7 | 62.7 | 63.7 | 64.8 | 65.8 | 66.8 | 67.9 | 68.9 | 69.9 | 71 | 72 | 73 | 74.1 | 75.1 | 76.1 |
| Wheeler | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Wichita | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Wilbarger | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Willacy | 44 | 261.8 | 270.5 | 279.3 | 288 | 296.7 | 305.5 | 314.2 | 322.9 | 331.7 | 340.4 | 349.1 | 357.9 | 366.6 | 375.4 | 384.1 |
| Williamson | 21 | 42.3 | 43.9 | 45.4 | 47 | 48.5 | 50.1 | 51.6 | 53.2 | 54.8 | 56.3 | 57.9 | 59.4 | 61 | 62.6 | 64.1 |
| Wilson | 19 | 57.2 | 58.5 | 59.9 | 61.2 | 62.6 | 63.9 | 65.3 | 66.6 | 67.9 | 69.3 | 70.6 | 72 | 73.3 | 74.7 | 76 |
| Winkler | 36 | 179.7 | 184.4 | 189.1 | 193.7 | 198.4 | 203 | 207.7 | 212.4 | 217 | 221.7 | 226.4 | 231 | 235.7 | 240.3 | 245 |
| Wise | 33 | 128.9 | 131.4 | 134 | 136.5 | 139.1 | 141.7 | 144.2 | 146.8 | 149.3 | 151.9 | 154.5 | 157 | 159.6 | 162.1 | 164.7 |
| Wood | 29 | 73.5 | 74.3 | 75 | 75.8 | 76.5 | 77.3 | 78 | 78.8 | 79.5 | 80.3 | 81 | 81.8 | 82.5 | 83.3 | 84.1 |
| Yoakum | 39 | 384.9 | 394.5 | 404.1 | 413.8 | 423.4 | 433 | 442.6 | 452.2 | 461.9 | 471.5 | 481.1 | 490.7 | 500.3 | 510 | 519.6 |
| Young | 38 | 182.1 | 185 | 187.9 | 190.8 | 193.7 | 196.6 | 199.5 | 202.4 | 205.3 | 208.2 | 211.1 | 214 | 216.9 | 219.8 | 222.8 |
| Zapata | 40 | 1395.1 | 1470.3 | 1545.5 | 1620.7 | 1695.9 | 1771.2 | 1846.4 | 1921.6 | 1996.8 | 2072 | 2147.3 | 2222.5 | 2297.7 | 2372.9 | 2448.2 |
| Zavala | 42 | 107.4 | 109.6 | 111.8 | 114 | 116.2 | 118.5 | 120.7 | 122.9 | 125.1 | 127.4 | 129.6 | 131.8 | 134 | 136.3 | 138.5 |

## Table C-7. Scrap/Recycling Sector Output by County, 1999 – 2013 (TX REMI – millions of $1996)

| County | Region | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Anderson | 29 | 75.155 | 76.031 | 76.906 | 77.782 | 78.658 | 79.534 | 80.409 | 81.285 | 82.161 | 83.036 | 83.912 | 84.788 | 85.664 | 86.539 | 87.415 |
| Andrews | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Angelina | 30 | 74.341 | 75.484 | 76.627 | 77.77 | 78.913 | 80.056 | 81.199 | 82.342 | 83.485 | 84.628 | 85.772 | 86.915 | 88.058 | 89.201 | 90.344 |
| Aransas | 24 | 44.946 | 45.817 | 46.689 | 47.56 | 48.432 | 49.303 | 50.175 | 51.046 | 51.918 | 52.789 | 53.661 | 54.532 | 55.404 | 56.275 | 57.147 |
| Archer | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Armstrong | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Atascosa | 19 | 17.115 | 17.434 | 17.752 | 18.071 | 18.389 | 18.707 | 19.026 | 19.344 | 19.663 | 19.981 | 20.3 | 20.618 | 20.937 | 21.255 | 21.574 |
| Austin | 31 | 7.054 | 7.121 | 7.187 | 7.253 | 7.32 | 7.386 | 7.452 | 7.519 | 7.585 | 7.651 | 7.718 | 7.784 | 7.85 | 7.917 | 7.983 |
| Bailey | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Bandera | 19 | 17.115 | 17.434 | 17.752 | 18.071 | 18.389 | 18.707 | 19.026 | 19.344 | 19.663 | 19.981 | 20.3 | 20.618 | 20.937 | 21.255 | 21.574 |
| Bastrop | 23 | 24.174 | 25.108 | 26.043 | 26.977 | 27.911 | 28.846 | 29.78 | 30.715 | 31.649 | 32.584 | 33.518 | 34.452 | 35.387 | 36.321 | 37.256 |
| Baylor | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Bee | 35 | 5.417 | 5.49 | 5.563 | 5.636 | 5.709 | 5.782 | 5.855 | 5.928 | 6.002 | 6.075 | 6.148 | 6.221 | 6.294 | 6.367 | 6.44 |
| Bell | 32 | 88.847 | 90.227 | 91.606 | 92.986 | 94.366 | 95.746 | 97.125 | 98.505 | 99.885 | 101.265 | 102.644 | 104.024 | 105.404 | 106.784 | 108.163 |
| Bexar | 17 | 57.654 | 59.092 | 60.529 | 61.967 | 63.405 | 64.843 | 66.28 | 67.718 | 69.156 | 70.593 | 72.031 | 73.469 | 74.906 | 76.344 | 77.782 |
| Blanco | 43 | 19.318 | 19.683 | 20.048 | 20.413 | 20.778 | 21.142 | 21.507 | 21.872 | 22.237 | 22.602 | 22.967 | 23.331 | 23.696 | 24.061 | 24.426 |
| Borden | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Bosque | 43 | 19.318 | 19.683 | 20.048 | 20.413 | 20.778 | 21.142 | 21.507 | 21.872 | 22.237 | 22.602 | 22.967 | 23.331 | 23.696 | 24.061 | 24.426 |
| Bowie | 29 | 75.155 | 76.031 | 76.906 | 77.782 | 78.658 | 79.534 | 80.409 | 81.285 | 82.161 | 83.036 | 83.912 | 84.788 | 85.664 | 86.539 | 87.415 |
| Brazoria | 9 | 46.503 | 47.822 | 49.14 | 50.459 | 51.777 | 53.095 | 54.414 | 55.732 | 57.051 | 58.369 | 59.688 | 61.006 | 62.325 | 63.643 | 64.962 |
| Brazos | 32 | 88.847 | 90.227 | 91.606 | 92.986 | 94.366 | 95.746 | 97.125 | 98.505 | 99.885 | 101.265 | 102.644 | 104.024 | 105.404 | 106.784 | 108.163 |
| Brewster | 37 | 19.673 | 20.081 | 20.489 | 20.897 | 21.305 | 21.713 | 22.121 | 22.529 | 22.937 | 23.345 | 23.753 | 24.161 | 24.569 | 24.977 | 25.385 |
| Briscoe | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Brooks | 40 | 56.442 | 59.468 | 62.494 | 65.52 | 68.545 | 71.571 | 74.597 | 77.622 | 80.648 | 83.674 | 86.699 | 89.725 | 92.751 | 95.776 | 98.802 |
| Brown | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Burleson | 32 | 88.847 | 90.227 | 91.606 | 92.986 | 94.366 | 95.746 | 97.125 | 98.505 | 99.885 | 101.265 | 102.644 | 104.024 | 105.404 | 106.784 | 108.163 |
| Burnet | 43 | 19.318 | 19.683 | 20.048 | 20.413 | 20.778 | 21.142 | 21.507 | 21.872 | 22.237 | 22.602 | 22.967 | 23.331 | 23.696 | 24.061 | 24.426 |
| Caldwell | 23 | 24.174 | 25.108 | 26.043 | 26.977 | 27.911 | 28.846 | 29.78 | 30.715 | 31.649 | 32.584 | 33.518 | 34.452 | 35.387 | 36.321 | 37.256 |
| Calhoun | 28 | 0.939 | 0.954 | 0.969 | 0.984 | 0.999 | 1.015 | 1.03 | 1.045 | 1.06 | 1.075 | 1.09 | 1.105 | 1.121 | 1.136 | 1.151 |
| Callahan | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Cameron | 44 | 54.657 | 56.501 | 58.344 | 60.188 | 62.032 | 63.875 | 65.719 | 67.562 | 69.406 | 71.25 | 73.093 | 74.937 | 76.781 | 78.624 | 80.468 |
| Camp | 29 | 75.155 | 76.031 | 76.906 | 77.782 | 78.658 | 79.534 | 80.409 | 81.285 | 82.161 | 83.036 | 83.912 | 84.788 | 85.664 | 86.539 | 87.415 |
| Carson | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Cass | 29 | 75.155 | 76.031 | 76.906 | 77.782 | 78.658 | 79.534 | 80.409 | 81.285 | 82.161 | 83.036 | 83.912 | 84.788 | 85.664 | 86.539 | 87.415 |
| Castro | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Chambers | 10 | 21.246 | 21.92 | 22.594 | 23.269 | 23.943 | 24.618 | 25.292 | 25.967 | 26.641 | 27.316 | 27.99 | 28.665 | 29.339 | 30.014 | 30.688 |
| Cherokee | 29 | 75.155 | 76.031 | 76.906 | 77.782 | 78.658 | 79.534 | 80.409 | 81.285 | 82.161 | 83.036 | 83.912 | 84.788 | 85.664 | 86.539 | 87.415 |
| Childress | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Clay | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |

| County | Region | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cochran | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Coke | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Coleman | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Collin | 1 | 15.253 | 15.545 | 15.837 | 16.129 | 16.422 | 16.714 | 17.006 | 17.298 | 17.591 | 17.883 | 18.175 | 18.467 | 18.76 | 19.052 | 19.344 |
| Collingsworth | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Colorado | 31 | 7.054 | 7.121 | 7.187 | 7.253 | 7.32 | 7.386 | 7.452 | 7.519 | 7.585 | 7.651 | 7.718 | 7.784 | 7.85 | 7.917 | 7.983 |
| Comal | 18 | 6.793 | 6.979 | 7.164 | 7.35 | 7.535 | 7.721 | 7.906 | 8.092 | 8.277 | 8.463 | 8.648 | 8.833 | 9.019 | 9.204 | 9.39 |
| Comanche | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Concho | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Cooke | 34 | 15.249 | 15.54 | 15.832 | 16.124 | 16.416 | 16.707 | 16.999 | 17.291 | 17.582 | 17.874 | 18.166 | 18.457 | 18.749 | 19.041 | 19.332 |
| Coryell | 43 | 19.318 | 19.683 | 20.048 | 20.413 | 20.778 | 21.142 | 21.507 | 21.872 | 22.237 | 22.602 | 22.967 | 23.331 | 23.696 | 24.061 | 24.426 |
| Cottle | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Crane | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Crockett | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Crosby | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Culberson | 37 | 19.673 | 20.081 | 20.489 | 20.897 | 21.305 | 21.713 | 22.121 | 22.529 | 22.937 | 23.345 | 23.753 | 24.161 | 24.569 | 24.977 | 25.385 |
| Dallam | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Dallas | 2 | 88.901 | 90.279 | 91.657 | 93.035 | 94.413 | 95.79 | 97.168 | 98.546 | 99.924 | 101.302 | 102.68 | 104.058 | 105.436 | 106.814 | 108.191 |
| Dawson | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| De Witt | 28 | 0.939 | 0.954 | 0.969 | 0.984 | 0.999 | 1.015 | 1.03 | 1.045 | 1.06 | 1.075 | 1.09 | 1.105 | 1.121 | 1.136 | 1.151 |
| Deaf Smith | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Delta | 29 | 75.155 | 76.031 | 76.906 | 77.782 | 78.658 | 79.534 | 80.409 | 81.285 | 82.161 | 83.036 | 83.912 | 84.788 | 85.664 | 86.539 | 87.415 |
| Denton | 3 | 96.268 | 99.178 | 102.087 | 104.996 | 107.906 | 110.815 | 113.725 | 116.634 | 119.544 | 122.453 | 125.363 | 128.272 | 131.182 | 134.091 | 137.001 |
| Dickens | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Dimmit | 42 | 15.862 | 16.145 | 16.429 | 16.712 | 16.995 | 17.279 | 17.562 | 17.845 | 18.128 | 18.412 | 18.695 | 18.978 | 19.262 | 19.545 | 19.828 |
| Donley | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Duval | 42 | 15.862 | 16.145 | 16.429 | 16.712 | 16.995 | 17.279 | 17.562 | 17.845 | 18.128 | 18.412 | 18.695 | 18.978 | 19.262 | 19.545 | 19.828 |
| Eastland | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Ector | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Edwards | 42 | 15.862 | 16.145 | 16.429 | 16.712 | 16.995 | 17.279 | 17.562 | 17.845 | 18.128 | 18.412 | 18.695 | 18.978 | 19.262 | 19.545 | 19.828 |
| El Paso | 8 | 10.692 | 10.939 | 11.186 | 11.433 | 11.68 | 11.927 | 12.174 | 12.421 | 12.668 | 12.915 | 13.162 | 13.409 | 13.655 | 13.902 | 14.149 |
| Ellis | 33 | 114.164 | 116.175 | 118.185 | 120.196 | 122.206 | 124.217 | 126.227 | 128.238 | 130.248 | 132.259 | 134.269 | 136.28 | 138.29 | 140.3 | 142.311 |
| Erath | 33 | 114.164 | 116.175 | 118.185 | 120.196 | 122.206 | 124.217 | 126.227 | 128.238 | 130.248 | 132.259 | 134.269 | 136.28 | 138.29 | 140.3 | 142.311 |
| Falls | 32 | 88.847 | 90.227 | 91.606 | 92.986 | 94.366 | 95.746 | 97.125 | 98.505 | 99.885 | 101.265 | 102.644 | 104.024 | 105.404 | 106.784 | 108.163 |
| Fannin | 29 | 75.155 | 76.031 | 76.906 | 77.782 | 78.658 | 79.534 | 80.409 | 81.285 | 82.161 | 83.036 | 83.912 | 84.788 | 85.664 | 86.539 | 87.415 |
| Fayette | 32 | 88.847 | 90.227 | 91.606 | 92.986 | 94.366 | 95.746 | 97.125 | 98.505 | 99.885 | 101.265 | 102.644 | 104.024 | 105.404 | 106.784 | 108.163 |
| Fisher | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Floyd | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Foard | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Fort Bend | 11 | 158.091 | 161.772 | 165.453 | 169.134 | 172.815 | 176.497 | 180.178 | 183.859 | 187.54 | 191.221 | 194.903 | 198.584 | 202.265 | 205.946 | 209.627 |
| Franklin | 29 | 75.155 | 76.031 | 76.906 | 77.782 | 78.658 | 79.534 | 80.409 | 81.285 | 82.161 | 83.036 | 83.912 | 84.788 | 85.664 | 86.539 | 87.415 |
| Freestone | 32 | 88.847 | 90.227 | 91.606 | 92.986 | 94.366 | 95.746 | 97.125 | 98.505 | 99.885 | 101.265 | 102.644 | 104.024 | 105.404 | 106.784 | 108.163 |

| County | Region | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Frio | 42 | 15.862 | 16.145 | 16.429 | 16.712 | 16.995 | 17.279 | 17.562 | 17.845 | 18.128 | 18.412 | 18.695 | 18.978 | 19.262 | 19.545 | 19.828 |
| Gaines | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Galveston | 12 | 33.808 | 34.147 | 34.486 | 34.826 | 35.165 | 35.505 | 35.844 | 36.183 | 36.523 | 36.862 | 37.202 | 37.541 | 37.88 | 38.22 | 38.559 |
| Garza | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Gillespie | 42 | 15.862 | 16.145 | 16.429 | 16.712 | 16.995 | 17.279 | 17.562 | 17.845 | 18.128 | 18.412 | 18.695 | 18.978 | 19.262 | 19.545 | 19.828 |
| Glasscock | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Goliad | 28 | 0.939 | 0.954 | 0.969 | 0.984 | 0.999 | 1.015 | 1.03 | 1.045 | 1.06 | 1.075 | 1.09 | 1.105 | 1.121 | 1.136 | 1.151 |
| Gonzales | 35 | 5.417 | 5.49 | 5.563 | 5.636 | 5.709 | 5.782 | 5.855 | 5.928 | 6.002 | 6.075 | 6.148 | 6.221 | 6.294 | 6.367 | 6.44 |
| Gray | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Grayson | 34 | 15.249 | 15.54 | 15.832 | 16.124 | 16.416 | 16.707 | 16.999 | 17.291 | 17.582 | 17.874 | 18.166 | 18.457 | 18.749 | 19.041 | 19.332 |
| Gregg | 26 | 29.91 | 30.58 | 31.25 | 31.92 | 32.59 | 33.261 | 33.931 | 34.601 | 35.271 | 35.941 | 36.611 | 37.281 | 37.951 | 38.621 | 39.291 |
| Grimes | 32 | 88.847 | 90.227 | 91.606 | 92.986 | 94.366 | 95.746 | 97.125 | 98.505 | 99.885 | 101.265 | 102.644 | 104.024 | 105.404 | 106.784 | 108.163 |
| Guadalupe | 19 | 17.115 | 17.434 | 17.752 | 18.071 | 18.389 | 18.707 | 19.026 | 19.344 | 19.663 | 19.981 | 20.3 | 20.618 | 20.937 | 21.255 | 21.574 |
| Hale | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Hall | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Hamilton | 43 | 19.318 | 19.683 | 20.048 | 20.413 | 20.778 | 21.142 | 21.507 | 21.872 | 22.237 | 22.602 | 22.967 | 23.331 | 23.696 | 24.061 | 24.426 |
| Hansford | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Hardeman | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Hardin | 5 | 2.36 | 2.363 | 2.365 | 2.367 | 2.37 | 2.372 | 2.375 | 2.377 | 2.38 | 2.382 | 2.384 | 2.387 | 2.389 | 2.392 | 2.394 |
| Harris | 13 | 605.675 | 613.429 | 621.183 | 628.937 | 636.691 | 644.444 | 652.198 | 659.952 | 667.706 | 675.46 | 683.214 | 690.968 | 698.722 | 706.476 | 714.23 |
| Harrison | 27 | 22.141 | 22.338 | 22.535 | 22.733 | 22.93 | 23.127 | 23.324 | 23.522 | 23.719 | 23.916 | 24.114 | 24.311 | 24.508 | 24.705 | 24.903 |
| Hartley | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Haskell | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Hays | 22 | 12.494 | 13.103 | 13.713 | 14.322 | 14.932 | 15.541 | 16.151 | 16.76 | 17.37 | 17.979 | 18.589 | 19.198 | 19.807 | 20.417 | 21.026 |
| Hemphill | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Henderson | 29 | 75.155 | 76.031 | 76.906 | 77.782 | 78.658 | 79.534 | 80.409 | 81.285 | 82.161 | 83.036 | 83.912 | 84.788 | 85.664 | 86.539 | 87.415 |
| Hidalgo | 44 | 54.657 | 56.501 | 58.344 | 60.188 | 62.032 | 63.875 | 65.719 | 67.562 | 69.406 | 71.25 | 73.093 | 74.937 | 76.781 | 78.624 | 80.468 |
| Hill | 32 | 88.847 | 90.227 | 91.606 | 92.986 | 94.366 | 95.746 | 97.125 | 98.505 | 99.885 | 101.265 | 102.644 | 104.024 | 105.404 | 106.784 | 108.163 |
| Hockley | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Hood | 33 | 114.164 | 116.175 | 118.185 | 120.196 | 122.206 | 124.217 | 126.227 | 128.238 | 130.248 | 132.259 | 134.269 | 136.28 | 138.29 | 140.3 | 142.311 |
| Hopkins | 29 | 75.155 | 76.031 | 76.906 | 77.782 | 78.658 | 79.534 | 80.409 | 81.285 | 82.161 | 83.036 | 83.912 | 84.788 | 85.664 | 86.539 | 87.415 |
| Houston | 30 | 74.341 | 75.484 | 76.627 | 77.77 | 78.913 | 80.056 | 81.199 | 82.342 | 83.485 | 84.628 | 85.772 | 86.915 | 88.058 | 89.201 | 90.344 |
| Howard | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Hudspeth | 37 | 19.673 | 20.081 | 20.489 | 20.897 | 21.305 | 21.713 | 22.121 | 22.529 | 22.937 | 23.345 | 23.753 | 24.161 | 24.569 | 24.977 | 25.385 |
| Hunt | 33 | 114.164 | 116.175 | 118.185 | 120.196 | 122.206 | 124.217 | 126.227 | 128.238 | 130.248 | 132.259 | 134.269 | 136.28 | 138.29 | 140.3 | 142.311 |
| Hutchinson | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Irion | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Jack | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Jackson | 28 | 0.939 | 0.954 | 0.969 | 0.984 | 0.999 | 1.015 | 1.03 | 1.045 | 1.06 | 1.075 | 1.09 | 1.105 | 1.121 | 1.136 | 1.151 |
| Jasper | 30 | 74.341 | 75.484 | 76.627 | 77.77 | 78.913 | 80.056 | 81.199 | 82.342 | 83.485 | 84.628 | 85.772 | 86.915 | 88.058 | 89.201 | 90.344 |
| Jeff Davis | 37 | 19.673 | 20.081 | 20.489 | 20.897 | 21.305 | 21.713 | 22.121 | 22.529 | 22.937 | 23.345 | 23.753 | 24.161 | 24.569 | 24.977 | 25.385 |
| Jefferson | 6 | 73.402 | 73.795 | 74.187 | 74.58 | 74.972 | 75.365 | 75.757 | 76.15 | 76.542 | 76.935 | 77.328 | 77.72 | 78.113 | 78.505 | 78.898 |

| County | Region | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jim Hogg | 40 | 56.442 | 59.468 | 62.494 | 65.52 | 68.545 | 71.571 | 74.597 | 77.622 | 80.648 | 83.674 | 86.699 | 89.725 | 92.751 | 95.776 | 98.802 |
| Jim Wells | 42 | 15.862 | 16.145 | 16.429 | 16.712 | 16.995 | 17.279 | 17.562 | 17.845 | 18.128 | 18.412 | 18.695 | 18.978 | 19.262 | 19.545 | 19.828 |
| Johnson | 33 | 114.164 | 116.175 | 118.185 | 120.196 | 122.206 | 124.217 | 126.227 | 128.238 | 130.248 | 132.259 | 134.269 | 136.28 | 138.29 | 140.3 | 142.311 |
| Jones | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Karnes | 35 | 5.417 | 5.49 | 5.563 | 5.636 | 5.709 | 5.782 | 5.855 | 5.928 | 6.002 | 6.075 | 6.148 | 6.221 | 6.294 | 6.367 | 6.44 |
| Kaufman | 33 | 114.164 | 116.175 | 118.185 | 120.196 | 122.206 | 124.217 | 126.227 | 128.238 | 130.248 | 132.259 | 134.269 | 136.28 | 138.29 | 140.3 | 142.311 |
| Kendall | 19 | 17.115 | 17.434 | 17.752 | 18.071 | 18.389 | 18.707 | 19.026 | 19.344 | 19.663 | 19.981 | 20.3 | 20.618 | 20.937 | 21.255 | 21.574 |
| Kenedy | 42 | 15.862 | 16.145 | 16.429 | 16.712 | 16.995 | 17.279 | 17.562 | 17.845 | 18.128 | 18.412 | 18.695 | 18.978 | 19.262 | 19.545 | 19.828 |
| Kent | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Kerr | 42 | 15.862 | 16.145 | 16.429 | 16.712 | 16.995 | 17.279 | 17.562 | 17.845 | 18.128 | 18.412 | 18.695 | 18.978 | 19.262 | 19.545 | 19.828 |
| Kimble | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| King | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Kinney | 42 | 15.862 | 16.145 | 16.429 | 16.712 | 16.995 | 17.279 | 17.562 | 17.845 | 18.128 | 18.412 | 18.695 | 18.978 | 19.262 | 19.545 | 19.828 |
| Kleberg | 42 | 15.862 | 16.145 | 16.429 | 16.712 | 16.995 | 17.279 | 17.562 | 17.845 | 18.128 | 18.412 | 18.695 | 18.978 | 19.262 | 19.545 | 19.828 |
| Knox | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| La Salle | 42 | 15.862 | 16.145 | 16.429 | 16.712 | 16.995 | 17.279 | 17.562 | 17.845 | 18.128 | 18.412 | 18.695 | 18.978 | 19.262 | 19.545 | 19.828 |
| Lamar | 29 | 75.155 | 76.031 | 76.906 | 77.782 | 78.658 | 79.534 | 80.409 | 81.285 | 82.161 | 83.036 | 83.912 | 84.788 | 85.664 | 86.539 | 87.415 |
| Lamb | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Lampasas | 43 | 19.318 | 19.683 | 20.048 | 20.413 | 20.778 | 21.142 | 21.507 | 21.872 | 22.237 | 22.602 | 22.967 | 23.331 | 23.696 | 24.061 | 24.426 |
| Lavaca | 28 | 0.939 | 0.954 | 0.969 | 0.984 | 0.999 | 1.015 | 1.03 | 1.045 | 1.06 | 1.075 | 1.09 | 1.105 | 1.121 | 1.136 | 1.151 |
| Lee | 32 | 88.847 | 90.227 | 91.606 | 92.986 | 94.366 | 95.746 | 97.125 | 98.505 | 99.885 | 101.265 | 102.644 | 104.024 | 105.404 | 106.784 | 108.163 |
| Leon | 32 | 88.847 | 90.227 | 91.606 | 92.986 | 94.366 | 95.746 | 97.125 | 98.505 | 99.885 | 101.265 | 102.644 | 104.024 | 105.404 | 106.784 | 108.163 |
| Liberty | 14 | 6.248 | 6.366 | 6.484 | 6.602 | 6.72 | 6.838 | 6.956 | 7.074 | 7.192 | 7.31 | 7.429 | 7.547 | 7.665 | 7.783 | 7.901 |
| Limestone | 32 | 88.847 | 90.227 | 91.606 | 92.986 | 94.366 | 95.746 | 97.125 | 98.505 | 99.885 | 101.265 | 102.644 | 104.024 | 105.404 | 106.784 | 108.163 |
| Lipscomb | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Live Oak | 42 | 15.862 | 16.145 | 16.429 | 16.712 | 16.995 | 17.279 | 17.562 | 17.845 | 18.128 | 18.412 | 18.695 | 18.978 | 19.262 | 19.545 | 19.828 |
| Llano | 43 | 19.318 | 19.683 | 20.048 | 20.413 | 20.778 | 21.142 | 21.507 | 21.872 | 22.237 | 22.602 | 22.967 | 23.331 | 23.696 | 24.061 | 24.426 |
| Loving | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Lubbock | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Lynn | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Madison | 32 | 88.847 | 90.227 | 91.606 | 92.986 | 94.366 | 95.746 | 97.125 | 98.505 | 99.885 | 101.265 | 102.644 | 104.024 | 105.404 | 106.784 | 108.163 |
| Marion | 29 | 75.155 | 76.031 | 76.906 | 77.782 | 78.658 | 79.534 | 80.409 | 81.285 | 82.161 | 83.036 | 83.912 | 84.788 | 85.664 | 86.539 | 87.415 |
| Martin | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Mason | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Matagorda | 31 | 7.054 | 7.121 | 7.187 | 7.253 | 7.32 | 7.386 | 7.452 | 7.519 | 7.585 | 7.651 | 7.718 | 7.784 | 7.85 | 7.917 | 7.983 |
| Maverick | 42 | 15.862 | 16.145 | 16.429 | 16.712 | 16.995 | 17.279 | 17.562 | 17.845 | 18.128 | 18.412 | 18.695 | 18.978 | 19.262 | 19.545 | 19.828 |
| McCulloch | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| McLennan | 32 | 88.847 | 90.227 | 91.606 | 92.986 | 94.366 | 95.746 | 97.125 | 98.505 | 99.885 | 101.265 | 102.644 | 104.024 | 105.404 | 106.784 | 108.163 |
| McMullen | 42 | 15.862 | 16.145 | 16.429 | 16.712 | 16.995 | 17.279 | 17.562 | 17.845 | 18.128 | 18.412 | 18.695 | 18.978 | 19.262 | 19.545 | 19.828 |
| Medina | 19 | 17.115 | 17.434 | 17.752 | 18.071 | 18.389 | 18.707 | 19.026 | 19.344 | 19.663 | 19.981 | 20.3 | 20.618 | 20.937 | 21.255 | 21.574 |
| Menard | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Midland | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |

| County | Region | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Milam | 32 | 88.847 | 90.227 | 91.606 | 92.986 | 94.366 | 95.746 | 97.125 | 98.505 | 99.885 | 101.265 | 102.644 | 104.024 | 105.404 | 106.784 | 108.163 |
| Mills | 43 | 19.318 | 19.683 | 20.048 | 20.413 | 20.778 | 21.142 | 21.507 | 21.872 | 22.237 | 22.602 | 22.967 | 23.331 | 23.696 | 24.061 | 24.426 |
| Mitchell | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Montague | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Montgomery | 15 | 16.5 | 17.046 | 17.592 | 18.137 | 18.683 | 19.229 | 19.775 | 20.32 | 20.866 | 21.412 | 21.958 | 22.504 | 23.049 | 23.595 | 24.141 |
| Moore | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Morris | 29 | 75.155 | 76.031 | 76.906 | 77.782 | 78.658 | 79.534 | 80.409 | 81.285 | 82.161 | 83.036 | 83.912 | 84.788 | 85.664 | 86.539 | 87.415 |
| Motley | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Nacogdoches | 30 | 74.341 | 75.484 | 76.627 | 77.77 | 78.913 | 80.056 | 81.199 | 82.342 | 83.485 | 84.628 | 85.772 | 86.915 | 88.058 | 89.201 | 90.344 |
| Navarro | 33 | 114.164 | 116.175 | 118.185 | 120.196 | 122.206 | 124.217 | 126.227 | 128.238 | 130.248 | 132.259 | 134.269 | 136.28 | 138.29 | 140.3 | 142.311 |
| Newton | 30 | 74.341 | 75.484 | 76.627 | 77.77 | 78.913 | 80.056 | 81.199 | 82.342 | 83.485 | 84.628 | 85.772 | 86.915 | 88.058 | 89.201 | 90.344 |
| Nolan | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Nueces | 24 | 44.946 | 45.817 | 46.689 | 47.56 | 48.432 | 49.303 | 50.175 | 51.046 | 51.918 | 52.789 | 53.661 | 54.532 | 55.404 | 56.275 | 57.147 |
| Ochiltree | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Oldham | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Orange | 7 | 0.483 | 0.49 | 0.497 | 0.505 | 0.512 | 0.519 | 0.526 | 0.534 | 0.541 | 0.548 | 0.555 | 0.563 | 0.57 | 0.577 | 0.584 |
| Palo Pinto | 33 | 114.164 | 116.175 | 118.185 | 120.196 | 122.206 | 124.217 | 126.227 | 128.238 | 130.248 | 132.259 | 134.269 | 136.28 | 138.29 | 140.3 | 142.311 |
| Panola | 30 | 74.341 | 75.484 | 76.627 | 77.77 | 78.913 | 80.056 | 81.199 | 82.342 | 83.485 | 84.628 | 85.772 | 86.915 | 88.058 | 89.201 | 90.344 |
| Parker | 33 | 114.164 | 116.175 | 118.185 | 120.196 | 122.206 | 124.217 | 126.227 | 128.238 | 130.248 | 132.259 | 134.269 | 136.28 | 138.29 | 140.3 | 142.311 |
| Parmer | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Pecos | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Polk | 30 | 74.341 | 75.484 | 76.627 | 77.77 | 78.913 | 80.056 | 81.199 | 82.342 | 83.485 | 84.628 | 85.772 | 86.915 | 88.058 | 89.201 | 90.344 |
| Potter | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Presidio | 37 | 19.673 | 20.081 | 20.489 | 20.897 | 21.305 | 21.713 | 22.121 | 22.529 | 22.937 | 23.345 | 23.753 | 24.161 | 24.569 | 24.977 | 25.385 |
| Rains | 29 | 75.155 | 76.031 | 76.906 | 77.782 | 78.658 | 79.534 | 80.409 | 81.285 | 82.161 | 83.036 | 83.912 | 84.788 | 85.664 | 86.539 | 87.415 |
| Randall | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Reagan | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Real | 42 | 15.862 | 16.145 | 16.429 | 16.712 | 16.995 | 17.279 | 17.562 | 17.845 | 18.128 | 18.412 | 18.695 | 18.978 | 19.262 | 19.545 | 19.828 |
| Red River | 29 | 75.155 | 76.031 | 76.906 | 77.782 | 78.658 | 79.534 | 80.409 | 81.285 | 82.161 | 83.036 | 83.912 | 84.788 | 85.664 | 86.539 | 87.415 |
| Reeves | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Refugio | 28 | 0.939 | 0.954 | 0.969 | 0.984 | 0.999 | 1.015 | 1.03 | 1.045 | 1.06 | 1.075 | 1.09 | 1.105 | 1.121 | 1.136 | 1.151 |
| Roberts | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Robertson | 32 | 88.847 | 90.227 | 91.606 | 92.986 | 94.366 | 95.746 | 97.125 | 98.505 | 99.885 | 101.265 | 102.644 | 104.024 | 105.404 | 106.784 | 108.163 |
| Rockwall | 33 | 114.164 | 116.175 | 118.185 | 120.196 | 122.206 | 124.217 | 126.227 | 128.238 | 130.248 | 132.259 | 134.269 | 136.28 | 138.29 | 140.3 | 142.311 |
| Runnels | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Rusk | 27 | 22.141 | 22.338 | 22.535 | 22.733 | 22.93 | 23.127 | 23.324 | 23.522 | 23.719 | 23.916 | 24.114 | 24.311 | 24.508 | 24.705 | 24.903 |
| Sabine | 30 | 74.341 | 75.484 | 76.627 | 77.77 | 78.913 | 80.056 | 81.199 | 82.342 | 83.485 | 84.628 | 85.772 | 86.915 | 88.058 | 89.201 | 90.344 |
| San Augustine | 30 | 74.341 | 75.484 | 76.627 | 77.77 | 78.913 | 80.056 | 81.199 | 82.342 | 83.485 | 84.628 | 85.772 | 86.915 | 88.058 | 89.201 | 90.344 |
| San Jacinto | 30 | 74.341 | 75.484 | 76.627 | 77.77 | 78.913 | 80.056 | 81.199 | 82.342 | 83.485 | 84.628 | 85.772 | 86.915 | 88.058 | 89.201 | 90.344 |
| San Patricio | 24 | 44.946 | 45.817 | 46.689 | 47.56 | 48.432 | 49.303 | 50.175 | 51.046 | 51.918 | 52.789 | 53.661 | 54.532 | 55.404 | 56.275 | 57.147 |
| San Saba | 43 | 19.318 | 19.683 | 20.048 | 20.413 | 20.778 | 21.142 | 21.507 | 21.872 | 22.237 | 22.602 | 22.967 | 23.331 | 23.696 | 24.061 | 24.426 |
| Schleicher | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |

| County | Region | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scurry | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Shackelford | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Shelby | 30 | 74.341 | 75.484 | 76.627 | 77.77 | 78.913 | 80.056 | 81.199 | 82.342 | 83.485 | 84.628 | 85.772 | 86.915 | 88.058 | 89.201 | 90.344 |
| Sherman | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Smith | 25 | 35.335 | 36.219 | 37.104 | 37.988 | 38.873 | 39.757 | 40.642 | 41.526 | 42.411 | 43.295 | 44.18 | 45.064 | 45.949 | 46.833 | 47.718 |
| Somervell | 33 | 114.164 | 116.175 | 118.185 | 120.196 | 122.206 | 124.217 | 126.227 | 128.238 | 130.248 | 132.259 | 134.269 | 136.28 | 138.29 | 140.3 | 142.311 |
| Starr | 40 | 56.442 | 59.468 | 62.494 | 65.52 | 68.545 | 71.571 | 74.597 | 77.622 | 80.648 | 83.674 | 86.699 | 89.725 | 92.751 | 95.776 | 98.802 |
| Stephens | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Sterling | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Stonewall | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Sutton | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Swisher | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Tarrant | 4 | 64.357 | 65.279 | 66.201 | 67.123 | 68.045 | 68.967 | 69.889 | 70.812 | 71.734 | 72.656 | 73.578 | 74.5 | 75.422 | 76.344 | 77.266 |
| Taylor | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Terrell | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Terry | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Throckmorton | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Titus | 29 | 75.155 | 76.031 | 76.906 | 77.782 | 78.658 | 79.534 | 80.409 | 81.285 | 82.161 | 83.036 | 83.912 | 84.788 | 85.664 | 86.539 | 87.415 |
| Tom Green | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Travis | 20 | 76.126 | 78.556 | 80.987 | 83.418 | 85.848 | 88.279 | 90.71 | 93.14 | 95.571 | 98.002 | 100.432 | 102.863 | 105.294 | 107.724 | 110.155 |
| Trinity | 30 | 74.341 | 75.484 | 76.627 | 77.77 | 78.913 | 80.056 | 81.199 | 82.342 | 83.485 | 84.628 | 85.772 | 86.915 | 88.058 | 89.201 | 90.344 |
| Tyler | 30 | 74.341 | 75.484 | 76.627 | 77.77 | 78.913 | 80.056 | 81.199 | 82.342 | 83.485 | 84.628 | 85.772 | 86.915 | 88.058 | 89.201 | 90.344 |
| Upshur | 27 | 22.141 | 22.338 | 22.535 | 22.733 | 22.93 | 23.127 | 23.324 | 23.522 | 23.719 | 23.916 | 24.114 | 24.311 | 24.508 | 24.705 | 24.903 |
| Upton | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Uvalde | 42 | 15.862 | 16.145 | 16.429 | 16.712 | 16.995 | 17.279 | 17.562 | 17.845 | 18.128 | 18.412 | 18.695 | 18.978 | 19.262 | 19.545 | 19.828 |
| Val Verde | 42 | 15.862 | 16.145 | 16.429 | 16.712 | 16.995 | 17.279 | 17.562 | 17.845 | 18.128 | 18.412 | 18.695 | 18.978 | 19.262 | 19.545 | 19.828 |
| Van Zandt | 29 | 75.155 | 76.031 | 76.906 | 77.782 | 78.658 | 79.534 | 80.409 | 81.285 | 82.161 | 83.036 | 83.912 | 84.788 | 85.664 | 86.539 | 87.415 |
| Victoria | 41 | 0.359 | 0.366 | 0.373 | 0.38 | 0.386 | 0.393 | 0.4 | 0.407 | 0.413 | 0.42 | 0.427 | 0.434 | 0.44 | 0.447 | 0.454 |
| Walker | 30 | 74.341 | 75.484 | 76.627 | 77.77 | 78.913 | 80.056 | 81.199 | 82.342 | 83.485 | 84.628 | 85.772 | 86.915 | 88.058 | 89.201 | 90.344 |
| Waller | 16 | 4.37 | 4.467 | 4.564 | 4.661 | 4.757 | 4.854 | 4.951 | 5.048 | 5.145 | 5.241 | 5.338 | 5.435 | 5.532 | 5.629 | 5.725 |
| Ward | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Washington | 32 | 88.847 | 90.227 | 91.606 | 92.986 | 94.366 | 95.746 | 97.125 | 98.505 | 99.885 | 101.265 | 102.644 | 104.024 | 105.404 | 106.784 | 108.163 |
| Webb | 40 | 56.442 | 59.468 | 62.494 | 65.52 | 68.545 | 71.571 | 74.597 | 77.622 | 80.648 | 83.674 | 86.699 | 89.725 | 92.751 | 95.776 | 98.802 |
| Wharton | 31 | 7.054 | 7.121 | 7.187 | 7.253 | 7.32 | 7.386 | 7.452 | 7.519 | 7.585 | 7.651 | 7.718 | 7.784 | 7.85 | 7.917 | 7.983 |
| Wheeler | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Wichita | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Wilbarger | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Willacy | 44 | 54.657 | 56.501 | 58.344 | 60.188 | 62.032 | 63.875 | 65.719 | 67.562 | 69.406 | 71.25 | 73.093 | 74.937 | 76.781 | 78.624 | 80.468 |
| Williamson | 21 | 13.404 | 13.695 | 13.987 | 14.279 | 14.571 | 14.863 | 15.155 | 15.447 | 15.739 | 16.031 | 16.323 | 16.614 | 16.906 | 17.198 | 17.49 |
| Wilson | 19 | 17.115 | 17.434 | 17.752 | 18.071 | 18.389 | 18.707 | 19.026 | 19.344 | 19.663 | 19.981 | 20.3 | 20.618 | 20.937 | 21.255 | 21.574 |
| Winkler | 36 | 42.995 | 43.755 | 44.515 | 45.275 | 46.035 | 46.796 | 47.556 | 48.316 | 49.076 | 49.836 | 50.596 | 51.357 | 52.117 | 52.877 | 53.637 |
| Wise | 33 | 114.164 | 116.175 | 118.185 | 120.196 | 122.206 | 124.217 | 126.227 | 128.238 | 130.248 | 132.259 | 134.269 | 136.28 | 138.29 | 140.3 | 142.311 |

| County | Region | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wood | 29 | 75.155 | 76.031 | 76.906 | 77.782 | 78.658 | 79.534 | 80.409 | 81.285 | 82.161 | 83.036 | 83.912 | 84.788 | 85.664 | 86.539 | 87.415 |
| Yoakum | 39 | 23.517 | 23.763 | 24.008 | 24.254 | 24.499 | 24.745 | 24.991 | 25.236 | 25.482 | 25.727 | 25.973 | 26.218 | 26.464 | 26.71 | 26.955 |
| Young | 38 | 26.546 | 26.841 | 27.137 | 27.432 | 27.727 | 28.023 | 28.318 | 28.613 | 28.909 | 29.204 | 29.499 | 29.795 | 30.09 | 30.385 | 30.68 |
| Zapata | 40 | 56.442 | 59.468 | 62.494 | 65.52 | 68.545 | 71.571 | 74.597 | 77.622 | 80.648 | 83.674 | 86.699 | 89.725 | 92.751 | 95.776 | 98.802 |
| Zavala | 42 | 15.862 | 16.145 | 16.429 | 16.712 | 16.995 | 17.279 | 17.562 | 17.845 | 18.128 | 18.412 | 18.695 | 18.978 | 19.262 | 19.545 | 19.828 |

# Appendix D
# 2008 TexN v.1.3 Statewide Equipment Population by SCC

| SCC | SCC Description | Statewide Population |
|---|---|---|
| 2260001010 | Motorcycles: Off-Road - 2 Stroke | 86,529.39 |
| 2260001020 | Snowmobiles - 2 Stroke | 0 |
| 2260001030 | ATVs - 2 Stroke | 119,269.40 |
| 2260001060 | Specialty Vehicles/Carts - 2 Stroke | 26,326.28 |
| 2260002006 | Tampers/Rammers - 2 Stroke | 13,724.95 |
| 2260002009 | Plate Compactors - 2 Stroke | 1,289.72 |
| 2260002021 | Paving Equipment - 2 Stroke | 1,235.28 |
| 2260002027 | Signal Boards/Light Plants - 2 Stroke | 3.371 |
| 2260002039 | Concrete/Industrial Saws - 2 Stroke | 5,873.66 |
| 2260002054 | Crushing/Proc. Equipment - 2 Stroke | 123.998 |
| 2260003030 | Sweepers/Scrubbers - 2 Stroke | 111.144 |
| 2260003040 | Other General Industrial Eqp - 2 Stroke | 5.23 |
| 2260004015 | Rotary Tillers < 6 HP - 2 Stroke | 38,289.42 |
| 2260004016 | Rotary Tillers < 6 HP - 2 Stroke | 3,702.03 |
| 2260004020 | Chain Saws < 6 HP - 2 Stroke | 413,816.54 |
| 2260004021 | Chain Saws < 6 HP - 2 Stroke | 39,512.72 |
| 2260004025 | Trimmers/Edgers/Brush Cutter - 2 Stroke | 1,092,648.44 |
| 2260004026 | Trimmers/Edgers/Brush Cutter - 2 Stroke | 43,149.37 |
| 2260004030 | Leafblowers/Vacuums - 2 Stroke | 554,358.30 |
| 2260004031 | Leafblowers/Vacuums - 2 Stroke | 32,318.34 |
| 2260004035 | Snowblowers - 2 Stroke | 4,969.20 |
| 2260004036 | Snowblowers - 2 Stroke | 0 |
| 2260004071 | Commercial Turf Equipment - 2 Stroke | 0 |
| 2260005035 | Sprayers - 2 Stroke | 650.951 |
| 2260006005 | Generator Sets - 2 Stroke | 10,399.58 |
| 2260006010 | Pumps - 2 Stroke | 35,546.53 |
| 2260006015 | Air Compressors - 2 Stroke | 5.858 |
| 2260006035 | Hydro Power Units - 2 Stroke | 126.563 |
| 2260007005 | Chain Saws > 6 HP - 2 Stroke | 2,032.96 |
| 2265001010 | Motorcycles: Off-Road - 4 Stroke | 42,618.87 |
| 2265001030 | ATVs - 4 Stroke | 414,681.12 |
| 2265001050 | Golf Carts - 4 Stroke | 9,198.45 |
| 2265001060 | Specialty Vehicles/Carts - 4 Stroke | 9,998.97 |
| 2265002003 | Pavers - 4 Stroke | 770.952 |
| 2265002006 | Tampers/Rammers - 4 Stroke | 30.029 |
| 2265002009 | Plate Compactors - 4 Stroke | 8,915.80 |
| 2265002015 | Rollers - 4 Stroke | 874.114 |
| 2265002021 | Paving Equipment - 4 Stroke | 9,340.50 |
| 2265002024 | Surfacing Equipment - 4 Stroke | 1,715.75 |
| 2265002027 | Signal Boards/Light Plants - 4 Stroke | 123.283 |
| 2265002030 | Trenchers - 4 Stroke | 2,721.11 |
| 2265002033 | Bore/Drill Rigs - 4 Stroke | 9,054.81 |
| 2265002039 | Concrete/Industrial Saws - 4 Stroke | 3,350.80 |
| 2265002042 | Cement & Mortar Mixers - 4 Stroke | 21,491.07 |
| 2265002045 | Cranes - 4 Stroke | 91.722 |
| 2265002054 | Crushing/Proc. Equipment - 4 Stroke | 583.832 |
| 2265002057 | Rough Terrain Forklifts - 4 Stroke | 85.9 |
| 2265002060 | Rubber Tire Loaders - 4 Stroke | 137.072 |

| SCC | SCC Description | Statewide Population |
|---|---|---|
| 2265002066 | Tractors/Loaders/Backhoes - 4 Stroke | 712.427 |
| 2265002072 | Skid Steer Loaders - 4 Stroke | 875.544 |
| 2265002078 | Dumpers/Tenders - 4 Stroke | 2,527.97 |
| 2265002081 | Other Construction Equipment - 4 Stroke | 56.892 |
| 2265003010 | Aerial Lifts - 4 Stroke | 1,221.90 |
| 2265003020 | Forklifts - 4 Stroke | 685.916 |
| 2265003030 | Sweepers/Scrubbers - 4 Stroke | 712.119 |
| 2265003040 | Other General Industrial Eqp - 4 Stroke | 2,996.69 |
| 2265003050 | Other Material Handling Eqp - 4 Stroke | 70.95 |
| 2265003060 | AC\Refrigeration - 4 Stroke | 48.21 |
| 2265003070 | Terminal Tractors - 4 Stroke | 45.708 |
| 2265004010 | Lawn mowers - 4 Stroke | 2,595,040.67 |
| 2265004011 | Lawn mowers - 4 Stroke | 43,555.17 |
| 2265004015 | Rotary Tillers < 6 HP - 4 Stroke | 238,214.27 |
| 2265004016 | Rotary Tillers < 6 HP - 4 Stroke | 1,851.01 |
| 2265004025 | Trimmers/Edgers/Brush Cutter - 4 Stroke | 17,863.49 |
| 2265004026 | Trimmers/Edgers/Brush Cutter - 4 Stroke | 246.877 |
| 2265004030 | Leafblowers/Vacuums - 4 Stroke | 28,817.98 |
| 2265004031 | Leafblowers/Vacuums - 4 Stroke | 1,086.71 |
| 2265004035 | Snowblowers - 4 Stroke | 5,308.46 |
| 2265004036 | Snowblowers - 4 Stroke | 0 |
| 2265004040 | Rear Engine Riding Mowers - 4 Stroke | 144,380.41 |
| 2265004041 | Rear Engine Riding Mowers - 4 Stroke | 15,787.72 |
| 2265004046 | Front Mowers - 4 Stroke | 1,934.43 |
| 2265004051 | Shredders < 6 HP - 4 Stroke | 713.576 |
| 2265004055 | Lawn & Garden Tractors - 4 Stroke | 986,650.57 |
| 2265004056 | Lawn & Garden Tractors - 4 Stroke | 0 |
| 2265004066 | Chippers/Stump Grinders - 4 Stroke | 3,440.49 |
| 2265004071 | Commercial Turf Equipment - 4 Stroke | 650.448 |
| 2265004075 | Other Lawn & Garden Eqp. - 4 Stroke | 48,598.62 |
| 2265004076 | Other Lawn & Garden Eqp. - 4 Stroke | 20,780.51 |
| 2265005010 | 2-Wheel Tractors - 4 Stroke | 812.232 |
| 2265005015 | Agricultural Tractors - 4 Stroke | 5,035.75 |
| 2265005020 | Combines - 4 Stroke | 396.25 |
| 2265005025 | Balers - 4 Stroke | 359.808 |
| 2265005030 | Agricultural Mowers - 4 Stroke | 3,971.76 |
| 2265005035 | Sprayers - 4 Stroke | 2,218.08 |
| 2265005040 | Tillers > 6 HP - 4 Stroke | 737.859 |
| 2265005045 | Swathers - 4 Stroke | 145.272 |
| 2265005055 | Other Agricultural Equipment - 4 Stroke | 1,139.29 |
| 2265005060 | Irrigation Sets - 4 Stroke | 2,432.72 |
| 2265006005 | Generator Sets - 4 Stroke | 330,018.81 |
| 2265006010 | Pumps - 4 Stroke | 58,077.53 |
| 2265006015 | Air Compressors - 4 Stroke | 12,062.73 |
| 2265006025 | Welders - 4 Stroke | 17,300.19 |
| 2265006030 | Pressure Washers - 4 Stroke | 159,335.05 |
| 2265006035 | Hydro Power Units - 4 Stroke | 2,032.50 |
| 2265007010 | Shredders > 6 HP - 4 Stroke | 12,536.62 |

| SCC | SCC Description | Statewide Population |
|---|---|---|
| 2265007015 | Forest Eqp - Feller/Bunch/Skidder - 4 Stroke | 28.67 |
| 2265008005 | Airport Ground Support Equipment - 4 Stroke | 0 |
| 2265010010 | Other Oil Field Equipment - 4 Stroke | 0 |
| 2267001060 | Specialty Vehicle Carts - LPG | 361.736 |
| 2267002003 | Pavers - LPG | 70.566 |
| 2267002015 | Rollers - LPG | 70.444 |
| 2267002021 | Paving Equipment - LPG | 57.236 |
| 2267002024 | Surfacing Equipment - LPG | 16.143 |
| 2267002030 | Trenchers - LPG | 187.484 |
| 2267002033 | Bore/Drill Rigs - LPG | 134.651 |
| 2267002039 | Concrete/Industrial Saws - LPG | 117.162 |
| 2267002045 | Cranes - LPG | 64.207 |
| 2267002054 | Crushing/Proc. Equipment - LPG | 12.108 |
| 2267002057 | Rough Terrain Forklifts - LPG | 99.307 |
| 2267002060 | Rubber Tire Loaders - LPG | 164.125 |
| 2267002066 | Tractors/Loaders/Backhoes - LPG | 18.589 |
| 2267002072 | Skid Steer Loaders - LPG | 384.385 |
| 2267002081 | Other Construction Equipment - LPG | 62.984 |
| 2267003010 | Aerial Lifts - LPG | 1,552.72 |
| 2267003020 | Forklifts - LPG | 55,239.75 |
| 2267003030 | Sweepers/Scrubbers - LPG | 532.495 |
| 2267003040 | Other General Industrial Equipm - LPG | 115.56 |
| 2267003050 | Other Material Handling Equipment - LPG | 64.05 |
| 2267003070 | Terminal Tractors - LPG | 101.941 |
| 2267004066 | Chippers/Stump Grinders - LPG | 0 |
| 2267005055 | Other Agricultural Equipment - LPG | 2,373.71 |
| 2267005060 | Irrigation Sets - LPG | 1,655.40 |
| 2267006005 | Generator Sets - LPG | 13,079.67 |
| 2267006010 | Pumps - LPG | 2,003.40 |
| 2267006015 | Air Compressors - LPG | 955.047 |
| 2267006025 | Welders - LPG | 1,105.64 |
| 2267006030 | Pressure Washers - LPG | 70.464 |
| 2267006035 | Hydro Power Units - LPG | 20.735 |
| 2267008005 | Airport Ground Support Equipment - LPG | 0 |
| 2268002081 | Other Construction Equipment - CNG | 2.935 |
| 2268003020 | Forklifts - CNG | 3,408.22 |
| 2268003030 | Sweepers/Scrubbers - CNG | 1.514 |
| 2268003040 | Other General Industrial Equipment - CNG | 1.767 |
| 2268003060 | AC\Refrigeration - CNG | 15.396 |
| 2268003070 | Terminal Tractors - CNG | 6.057 |
| 2268005055 | Other Agricultural Equipment - CNG | 81.979 |
| 2268005060 | Irrigation Sets - CNG | 3,403.34 |
| 2268006005 | Generator Sets - CNG | 2,591.34 |
| 2268006010 | Pumps - CNG | 49.954 |
| 2268006015 | Air Compressors - CNG | 40.074 |
| 2268006020 | Gas Compressors - CNG | 75.418 |
| 2268006035 | Hydro Power Units - CNG | 0.139 |
| 2268010010 | Other Oil Field Equipment - CNG | 0 |

| SCC | SCC Description | Statewide Population |
|---|---|---|
| 2270001060 | Speciality Vehicle Carts - Diesel | 3,207.83 |
| 2270002003 | Pavers - Diesel | 9,888.64 |
| 2270002006 | Tampers/Rammers - Diesel | 220.997 |
| 2270002009 | Plate Compactors - Diesel | 1,929.64 |
| 2270002015 | Rollers - Diesel | 19,159.61 |
| 2270002018 | Scrapers - Diesel | 607.664 |
| 2270002021 | Paving Equipment - Diesel | 1,219.56 |
| 2270002024 | Surfacing Equipment - Diesel | 2,669.88 |
| 2270002027 | Signal Boards/Light Plants - Diesel | 6,012.90 |
| 2270002030 | Trenchers - Diesel | 15,153.88 |
| 2270002033 | Bore/Drill Rigs - Diesel | 839.245 |
| 2270002036 | Excavators - Diesel | 17,574.68 |
| 2270002039 | Concrete/Industrial Saws - Diesel | 773.122 |
| 2270002042 | Cement & Mortar Mixers - Diesel | 1,309.91 |
| 2270002045 | Cranes - Diesel | 5,524.67 |
| 2270002048 | Graders - Diesel | 11,222.74 |
| 2270002051 | Off-highway Trucks - Diesel | 1,706.07 |
| 2270002054 | Crushing/Proc. Equipment - Diesel | 793.82 |
| 2270002057 | Rough Terrain Forklifts - Diesel | 16,832.71 |
| 2270002060 | Rubber Tire Loaders - Diesel | 8,545.26 |
| 2270002066 | Tractors/Loaders/Backhoes - Diesel | 34,168.45 |
| 2270002069 | Crawler Tractor/Dozers - Diesel | 26,611.71 |
| 2270002072 | Skid Steer Loaders - Diesel | 57,546.60 |
| 2270002075 | Off-Highway Tractors - Diesel | 367.427 |
| 2270002078 | Dumpers/Tenders - Diesel | 350.106 |
| 2270002081 | Other Construction Equipment - Diesel | 2,035.80 |
| 2270003010 | Aerial Lifts - Diesel | 4,673.74 |
| 2270003020 | Forklifts - Diesel | 3,420.60 |
| 2270003030 | Sweepers/Scrubbers - Diesel | 2,885.77 |
| 2270003040 | Other General Industrial Eqp - Diesel | 3,408.56 |
| 2270003050 | Other Material Handling Eqp - Diesel | 442.97 |
| 2270003060 | AC\Refrigeration - Diesel | 35,750.55 |
| 2270003070 | Terminal Tractors - Diesel | 1,383.25 |
| 2270004031 | Leafblowers/Vacuums - Diesel | 307.22 |
| 2270004036 | Snowblowers - Diesel | 0 |
| 2270004046 | Front Mowers - Diesel | 5,829.38 |
| 2270004056 | Lawn & Garden Tractors - Diesel | 0 |
| 2270004066 | Chippers/Stump Grinders - Diesel | 3,465.34 |
| 2270004071 | Commercial Turf Equipment - Diesel | 290.297 |
| 2270004076 | Other Lawn & Garden Eqp. - Diesel | 54.675 |
| 2270005010 | 2-Wheel Tractors - Diesel | 11,007.87 |
| 2270005015 | Agricultural Tractors - Diesel | 137,506.45 |
| 2270005020 | Combines - Diesel | 8,872.01 |
| 2270005025 | Balers - Diesel | 12,879.09 |
| 2270005030 | Agricultural Mowers - Diesel | 17,627.30 |
| 2270005035 | Sprayers - Diesel | 15,209.26 |
| 2270005040 | Tillers > 6 HP - Diesel | 5,228.11 |
| 2270005045 | Swathers - Diesel | 4,272.99 |

| SCC | SCC Description | Statewide Population |
|---|---|---|
| 2270005055 | Other Agricultural Equipment - Diesel | 5,254.99 |
| 2270005060 | Irrigation Sets - Diesel | 11,694.78 |
| 2270006005 | Generator Sets - Diesel | 53,496.41 |
| 2270006010 | Pumps - Diesel | 9,954.76 |
| 2270006015 | Air Compressors - Diesel | 8,601.44 |
| 2270006020 | Gas Compressors - Diesel | 0 |
| 2270006025 | Welders - Diesel | 17,671.86 |
| 2270006030 | Pressure Washers - Diesel | 3,847.74 |
| 2270006035 | Hydro Power Units - Diesel | 512.455 |
| 2270007010 | Shredders > 6 HP - Diesel | 0 |
| 2270007015 | Forest Eqp - Feller/Bunch/Skidder - Diesel | 915.923 |
| 2270008005 | Airport Ground Support Equipment - Diesel | 0 |
| 2270009010 | Other Underground Mining Equipment - Diesel | 0 |
| 2270010010 | Other Oil Field Equipment - Diesel | 0 |
| 2282005010 | Outboard - 2 Stroke | 432,925.19 |
| 2282005015 | Personal Water Craft - 2 Stroke | 95,338.53 |
| 2282010005 | Inboard/Sterndrive - 4 Stroke | 121,089.44 |
| 2282020005 | Inboard/Sterndrive - Diesel | 2,040.25 |
| 2282020010 | Outboards - Diesel | 79.506 |
| 2285002015 | Railway Maintenance - Diesel | 1,128.55 |
| 2285004015 | Railway Maintenance - 4 Stroke | 11.766 |
| 2285006015 | Railway Maintenance - LPG | 13.939 |

# Appendix E
# TexN Ground Cover Adjustment Factors

| County | Ground Cover Adjustment Factor |
|---|---|
| ANDERSON | 1.30407 |
| ANDREWS | 1.22016 |
| ANGELINA | 1.42278 |
| ARANSAS | 1.27216 |
| ARCHER | 1.22761 |
| ARMSTRONG | 1.12307 |
| ATASCOSA | 1.17398 |
| AUSTIN | 1.08159 |
| BAILEY | 1.06159 |
| BANDERA | 1.43689 |
| BASTROP | 1.25765 |
| BAYLOR | 1.20495 |
| BEE | 1.25117 |
| BELL | 1.1325 |
| BEXAR | 1.23293 |
| BLANCO | 1.42148 |
| BORDEN | 1.24561 |
| BOSQUE | 1.1471 |
| BOWIE | 1.2538 |
| BRAZORIA | 1.13177 |
| BRAZOS | 1.23356 |
| BREWSTER | 1.2996 |
| BRISCOE | 1.15934 |
| BROOKS | 1.30372 |
| BROWN | 1.23043 |
| BURLESON | 1.19231 |
| BURNET | 1.3084 |
| CALDWELL | 1.15363 |
| CALHOUN | 1.17324 |
| CALLAHAN | 1.21641 |
| CAMERON | 1.01652 |
| CAMP | 1.2423 |
| CARSON | 1 |
| CASS | 1.39607 |
| CASTRO | 1.00082 |
| CHAMBERS | 1.05476 |
| CHEROKEE | 1.33108 |
| CHILDRESS | 1.14127 |
| CLAY | 1.17117 |
| COCHRAN | 1.10424 |
| COKE | 1.28045 |
| COLEMAN | 1.18834 |
| COLLIN | 1.02308 |
| COLLINGSWORTH | 1.12442 |
| COLORADO | 1.1648 |
| COMAL | 1.41334 |
| COMANCHE | 1.14708 |
| CONCHO | 1.23108 |

| County | Ground Cover Adjustment Factor |
|---|---|
| COOKE | 1.10078 |
| CORYELL | 1.17532 |
| COTTLE | 1.19545 |
| CRANE | 1.29331 |
| CROCKETT | 1.30362 |
| CROSBY | 1.10796 |
| CULBERSON | 1.29659 |
| DALLAM | 1.005 |
| DALLAS | 1.08647 |
| DAWSON | 1.03592 |
| DEAF SMITH | 1.01443 |
| DELTA | 1.04158 |
| DENTON | 1.06878 |
| DE WITT | 1.20141 |
| DICKENS | 1.18751 |
| DIMMIT | 1.23997 |
| DONLEY | 1.08768 |
| DUVAL | 1.25511 |
| EASTLAND | 1.18587 |
| ECTOR | 1.27852 |
| EDWARDS | 1.41366 |
| ELLIS | 1.01533 |
| EL PASO | 1.26198 |
| ERATH | 1.17139 |
| FALLS | 1.04399 |
| FANNIN | 1.05999 |
| FAYETTE | 1.12262 |
| FISHER | 1.13306 |
| FLOYD | 1.03491 |
| FOARD | 1.19764 |
| FORT BEND | 1.06588 |
| FRANKLIN | 1.15529 |
| FREESTONE | 1.22234 |
| FRIO | 1.19344 |
| GAINES | 1.07554 |
| GALVESTON | 1.00702 |
| GARZA | 1.23614 |
| GILLESPIE | 1.39982 |
| GLASSCOCK | 1.20965 |
| GOLIAD | 1.31185 |
| GONZALES | 1.24541 |
| GRAY | 1.03978 |
| GRAYSON | 1.07543 |
| GREGG | 1.36738 |
| GRIMES | 1.23586 |
| GUADALUPE | 1.13653 |
| HALE | 1.00202 |
| HALL | 1.15601 |

| County | Ground Cover Adjustment Factor |
|---|---|
| HAMILTON | 1.14307 |
| HANSFORD | 1.00485 |
| HARDEMAN | 1.12766 |
| HARDIN | 1.47981 |
| HARRIS | 1.15688 |
| HARRISON | 1.38966 |
| HARTLEY | 1.12259 |
| HASKELL | 1.10144 |
| HAYS | 1.35168 |
| HEMPHILL | 1.02798 |
| HENDERSON | 1.19186 |
| HIDALGO | 1.11276 |
| HILL | 1.04119 |
| HOCKLEY | 1.03296 |
| HOOD | 1.13068 |
| HOPKINS | 1.08254 |
| HOUSTON | 1.27491 |
| HOWARD | 1.14352 |
| HUDSPETH | 1.29243 |
| HUNT | 1.05725 |
| HUTCHINSON | 1.11507 |
| IRION | 1.30219 |
| JACK | 1.29799 |
| JACKSON | 1.13115 |
| JASPER | 1.46119 |
| JEFF DAVIS | 1.32825 |
| JEFFERSON | 1.06118 |
| JIM HOGG | 1.27793 |
| JIM WELLS | 1.13573 |
| JOHNSON | 1.0396 |
| JONES | 1.07697 |
| KARNES | 1.1489 |
| KAUFMAN | 1.0422 |
| KENDALL | 1.44373 |
| KENEDY | 1.12926 |
| KENT | 1.24993 |
| KERR | 1.43289 |
| KIMBLE | 1.44323 |
| KING | 1.2662 |
| KINNEY | 1.32565 |
| KLEBERG | 1.06545 |
| KNOX | 1.16211 |
| LAMAR | 1.08153 |
| LAMB | 1.03607 |
| LAMPASAS | 1.24248 |
| LA SALLE | 1.24377 |
| LAVACA | 1.17194 |
| LEE | 1.20317 |

| County | Ground Cover Adjustment Factor |
|---|---|
| LEON | 1.28231 |
| LIBERTY | 1.33307 |
| LIMESTONE | 1.10943 |
| LIPSCOMB | 1.00176 |
| LIVE OAK | 1.18637 |
| LLANO | 1.34778 |
| LOVING | 1.29979 |
| LUBBOCK | 1.00963 |
| LYNN | 1.04309 |
| MCCULLOCH | 1.24034 |
| MCLENNAN | 1.0487 |
| MCMULLEN | 1.26234 |
| MADISON | 1.16508 |
| MARION | 1.44152 |
| MARTIN | 1.10963 |
| MASON | 1.32855 |
| MATAGORDA | 1.08823 |
| MAVERICK | 1.27132 |
| MEDINA | 1.27777 |
| MENARD | 1.40371 |
| MIDLAND | 1.23535 |
| MILAM | 1.1438 |
| MILLS | 1.24973 |
| MITCHELL | 1.17216 |
| MONTAGUE | 1.14877 |
| MONTGOMERY | 1.45617 |
| MOORE | 1.05281 |
| MORRIS | 1.28796 |
| MOTLEY | 1.22905 |
| NACOGDOCHES | 1.37015 |
| NAVARRO | 1.06419 |
| NEWTON | 1.47549 |
| NOLAN | 1.22693 |
| NUECES | 1.02491 |
| OCHILTREE | 1.00104 |
| OLDHAM | 1.21473 |
| ORANGE | 1.3358 |
| PALO PINTO | 1.26885 |
| PANOLA | 1.3404 |
| PARKER | 1.10964 |
| PARMER | 1 |
| PECOS | 1.2896 |
| POLK | 1.46335 |
| POTTER | 1.18009 |
| PRESIDIO | 1.29662 |
| RAINS | 1.12333 |
| RANDALL | 1.0227 |
| REAGAN | 1.27176 |

| County | Ground Cover Adjustment Factor |
|---|---|
| REAL | 1.42934 |
| RED RIVER | 1.1986 |
| REEVES | 1.27266 |
| REFUGIO | 1.25967 |
| ROBERTS | 1.03975 |
| ROBERTSON | 1.17818 |
| ROCKWALL | 1.0026 |
| RUNNELS | 1.12731 |
| RUSK | 1.29749 |
| SABINE | 1.45024 |
| SAN AUGUSTINE | 1.4349 |
| SAN JACINTO | 1.46395 |
| SAN PATRICIO | 1.07336 |
| SAN SABA | 1.29463 |
| SCHLEICHER | 1.35084 |
| SCURRY | 1.15421 |
| SHACKELFORD | 1.26355 |
| SHELBY | 1.36509 |
| SHERMAN | 1.00676 |
| SMITH | 1.28332 |
| SOMERVELL | 1.20151 |
| STARR | 1.22238 |
| STEPHENS | 1.27975 |
| STERLING | 1.28646 |
| STONEWALL | 1.19198 |
| SUTTON | 1.34204 |
| SWISHER | 1.00372 |
| TARRANT | 1.06669 |
| TAYLOR | 1.18705 |
| TERRELL | 1.30041 |
| TERRY | 1.0314 |
| THROCKMORTON | 1.24206 |
| TITUS | 1.19949 |
| TOM GREEN | 1.23829 |
| TRAVIS | 1.26148 |
| TRINITY | 1.41712 |
| TYLER | 1.47942 |
| UPSHUR | 1.31696 |
| UPTON | 1.28574 |
| UVALDE | 1.30767 |
| VAL VERDE | 1.3049 |
| VAN ZANDT | 1.09516 |
| VICTORIA | 1.19954 |
| WALKER | 1.38391 |
| WALLER | 1.12195 |
| WARD | 1.28398 |
| WASHINGTON | 1.09916 |
| WEBB | 1.28573 |

| County | Ground Cover Adjustment Factor |
|---|---|
| WHARTON | 1.05801 |
| WHEELER | 1.07254 |
| WICHITA | 1.13298 |
| WILBARGER | 1.1424 |
| WILLACY | 1.05717 |
| WILLIAMSON | 1.11717 |
| WILSON | 1.12703 |
| WINKLER | 1.27823 |
| WISE | 1.17104 |
| WOOD | 1.2528 |
| YOAKUM | 1.10356 |
| YOUNG | 1.21756 |
| ZAPATA | 1.27938 |
| ZAVALA | 1.24244 |

# Appendix F
# TexN Soil Adjustment Factors

| County | Soil Adjustment Factor |
|---|---|
| ANDERSON | 0.893 |
| ANDREWS | 0.952 |
| ANGELINA | 0.789 |
| ARANSAS | 0.582 |
| ARCHER | 0.771 |
| ARMSTRONG | 0.796 |
| ATASCOSA | 0.891 |
| AUSTIN | 0.844 |
| BAILEY | 0.924 |
| BANDERA | 0.624 |
| BASTROP | 0.886 |
| BAYLOR | 0.788 |
| BEE | 0.875 |
| BELL | 0.737 |
| BEXAR | 0.754 |
| BLANCO | 0.734 |
| BORDEN | 0.811 |
| BOSQUE | 0.754 |
| BOWIE | 0.823 |
| BRAZORIA | 0.764 |
| BRAZOS | 0.832 |
| BREWSTER | 0.681 |
| BRISCOE | 0.728 |
| BROOKS | 0.979 |
| BROWN | 0.772 |
| BURLESON | 0.843 |
| BURNET | 0.72 |
| CALDWELL | 0.838 |
| CALHOUN | 0.491 |
| CALLAHAN | 0.795 |
| CAMERON | 0.728 |
| CAMP | 0.901 |
| CARSON | 0.88 |
| CASS | 0.92 |
| CASTRO | 0.816 |
| CHAMBERS | 0.585 |
| CHEROKEE | 0.861 |
| CHILDRESS | 0.774 |
| CLAY | 0.81 |
| COCHRAN | 0.954 |

| County | Soil Adjustment Factor |
|---|---|
| COKE | 0.768 |
| COLEMAN | 0.742 |
| COLLIN | 0.755 |
| COLLINGSWORTH | 0.791 |
| COLORADO | 0.845 |
| COMAL | 0.706 |
| COMANCHE | 0.816 |
| CONCHO | 0.706 |
| COOKE | 0.8 |
| CORYELL | 0.742 |
| COTTLE | 0.811 |
| CRANE | 0.909 |
| CROCKETT | 0.623 |
| CROSBY | 0.843 |
| CULBERSON | 0.672 |
| DALLAM | 0.838 |
| DALLAS | 0.771 |
| DAWSON | 0.944 |
| DEAF SMITH | 0.808 |
| DELTA | 0.804 |
| DENTON | 0.764 |
| DE WITT | 0.887 |
| DICKENS | 0.805 |
| DIMMIT | 0.841 |
| DONLEY | 0.831 |
| DUVAL | 0.778 |
| EASTLAND | 0.838 |
| ECTOR | 0.821 |
| EDWARDS | 0.58 |
| ELLIS | 0.776 |
| EL PASO | 0.868 |
| ERATH | 0.824 |
| FALLS | 0.817 |
| FANNIN | 0.817 |
| FAYETTE | 0.809 |
| FISHER | 0.783 |
| FLOYD | 0.809 |
| FOARD | 0.777 |
| FORT BEND | 0.807 |
| FRANKLIN | 0.83 |

| County | Soil Adjustment Factor |
|---|---|
| FREESTONE | 0.894 |
| FRIO | 0.87 |
| GAINES | 0.967 |
| GALVESTON | 0.433 |
| GARZA | 0.839 |
| GILLESPIE | 0.716 |
| GLASSCOCK | 0.791 |
| GOLIAD | 0.89 |
| GONZALES | 0.84 |
| GRAY | 0.88 |
| GRAYSON | 0.757 |
| GREGG | 0.923 |
| GRIMES | 0.819 |
| GUADALUPE | 0.834 |
| HALE | 0.809 |
| HALL | 0.782 |
| HAMILTON | 0.762 |
| HANSFORD | 0.796 |
| HARDEMAN | 0.816 |
| HARDIN | 0.883 |
| HARRIS | 0.818 |
| HARRISON | 0.888 |
| HARTLEY | 0.859 |
| HASKELL | 0.798 |
| HAYS | 0.728 |
| HEMPHILL | 0.918 |
| HENDERSON | 0.843 |
| HIDALGO | 0.877 |
| HILL | 0.775 |
| HOCKLEY | 0.935 |
| HOOD | 0.799 |
| HOPKINS | 0.828 |
| HOUSTON | 0.866 |
| HOWARD | 0.852 |
| HUDSPETH | 0.757 |
| HUNT | 0.779 |
| HUTCHINSON | 0.859 |
| IRION | 0.636 |
| JACK | 0.813 |
| JACKSON | 0.808 |

| County | Soil Adjustment Factor |
|---|---|
| JASPER | 0.869 |
| JEFF DAVIS | 0.728 |
| JEFFERSON | 0.78 |
| JIM HOGG | 0.862 |
| JIM WELLS | 0.915 |
| JOHNSON | 0.785 |
| JONES | 0.819 |
| KARNES | 0.853 |
| KAUFMAN | 0.808 |
| KENDALL | 0.683 |
| KENEDY | 0.921 |
| KENT | 0.792 |
| KERR | 0.635 |
| KIMBLE | 0.639 |
| KING | 0.748 |
| KINNEY | 0.708 |
| KLEBERG | 0.804 |
| KNOX | 0.8 |
| LAMAR | 0.824 |
| LAMB | 0.927 |
| LAMPASAS | 0.78 |
| LA SALLE | 0.853 |
| LAVACA | 0.849 |
| LEE | 0.87 |
| LEON | 0.928 |
| LIBERTY | 0.839 |
| LIMESTONE | 0.829 |
| LIPSCOMB | 0.899 |
| LIVE OAK | 0.859 |
| LLANO | 0.776 |
| LOVING | 0.902 |
| LUBBOCK | 0.871 |
| LYNN | 0.902 |
| MCCULLOCH | 0.719 |
| MCLENNAN | 0.766 |
| MCMULLEN | 0.821 |
| MADISON | 0.848 |
| MARION | 0.851 |
| MARTIN | 0.891 |
| MASON | 0.758 |

| County | Soil Adjustment Factor |
|---|---|
| MATAGORDA | 0.672 |
| MAVERICK | 0.788 |
| MEDINA | 0.767 |
| MENARD | 0.61 |
| MIDLAND | 0.881 |
| MILAM | 0.856 |
| MILLS | 0.745 |
| MITCHELL | 0.807 |
| MONTAGUE | 0.855 |
| MONTGOMERY | 0.865 |
| MOORE | 0.828 |
| MORRIS | 0.883 |
| MOTLEY | 0.833 |
| NACOGDOCHES | 0.864 |
| NAVARRO | 0.802 |
| NEWTON | 0.904 |
| NOLAN | 0.709 |
| NUECES | 0.678 |
| OCHILTREE | 0.822 |
| OLDHAM | 0.862 |
| ORANGE | 0.811 |
| PALO PINTO | 0.775 |
| PANOLA | 0.829 |
| PARKER | 0.836 |
| PARMER | 0.836 |
| PECOS | 0.675 |
| POLK | 0.858 |
| POTTER | 0.836 |
| PRESIDIO | 0.741 |
| RAINS | 0.775 |
| RANDALL | 0.804 |
| REAGAN | 0.7 |
| REAL | 0.614 |
| RED RIVER | 0.839 |
| REEVES | 0.782 |
| REFUGIO | 0.797 |
| ROBERTS | 0.884 |
| ROBERTSON | 0.904 |
| ROCKWALL | 0.699 |
| RUNNELS | 0.773 |

| County | Soil Adjustment Factor |
|---|---|
| RUSK | 0.909 |
| SABINE | 0.725 |
| SAN AUGUSTINE | 0.78 |
| SAN JACINTO | 0.818 |
| SAN PATRICIO | 0.814 |
| SAN SABA | 0.735 |
| SCHLEICHER | 0.638 |
| SCURRY | 0.795 |
| SHACKELFORD | 0.754 |
| SHELBY | 0.844 |
| SHERMAN | 0.805 |
| SMITH | 0.919 |
| SOMERVELL | 0.817 |
| STARR | 0.818 |
| STEPHENS | 0.775 |
| STERLING | 0.686 |
| STONEWALL | 0.784 |
| SUTTON | 0.613 |
| SWISHER | 0.805 |
| TARRANT | 0.768 |
| TAYLOR | 0.75 |
| TERRELL | 0.581 |
| TERRY | 0.98 |
| THROCKMORTON | 0.762 |
| TITUS | 0.82 |
| TOM GREEN | 0.715 |
| TRAVIS | 0.732 |
| TRINITY | 0.813 |
| TYLER | 0.892 |
| UPSHUR | 0.931 |
| UPTON | 0.755 |
| UVALDE | 0.715 |
| VAL VERDE | 0.565 |
| VAN ZANDT | 0.839 |
| VICTORIA | 0.824 |
| WALKER | 0.824 |
| WALLER | 0.858 |
| WARD | 0.904 |
| WASHINGTON | 0.793 |
| WEBB | 0.818 |

| County | Soil Adjustment Factor |
|---|---|
| WHARTON | 0.815 |
| WHEELER | 0.953 |
| WICHITA | 0.822 |
| WILBARGER | 0.833 |
| WILLACY | 0.846 |
| WILLIAMSON | 0.742 |
| WILSON | 0.88 |
| WINKLER | 0.963 |
| WISE | 0.835 |
| WOOD | 0.856 |
| YOAKUM | 0.98 |
| YOUNG | 0.798 |
| ZAPATA | 0.791 |
| ZAVALA | 0.835 |

# Appendix G
# TexN Altitude Adjustment Factors

| County | Productivity Adjustment Factor |
|---|---|
| ANDERSON | 0.0047 |
| ANDREWS | 0.03169 |
| ANGELINA | 0.00299 |
| ARANSAS | 4.00E-05 |
| ARCHER | 0.01055 |
| ARMSTRONG | 0.03392 |
| ATASCOSA | 0.00446 |
| AUSTIN | 0.00243 |
| BAILEY | 0.03786 |
| BANDERA | 0.01185 |
| BASTROP | 0.0046 |
| BAYLOR | 0.01289 |
| BEE | 0.00205 |
| BELL | 0.00528 |
| BEXAR | 0.0064 |
| BLANCO | 0.01132 |
| BORDEN | 0.02589 |
| BOSQUE | 0.0083 |
| BOWIE | 0.00366 |
| BRAZORIA | 0.00026 |
| BRAZOS | 0.00361 |
| BREWSTER | 0.04493 |
| BRISCOE | 0.03308 |
| BROOKS | 0.00108 |
| BROWN | 0.01356 |
| BURLESON | 0.00417 |
| BURNET | 0.0147 |
| CALDWELL | 0.00518 |
| CALHOUN | 0.00015 |
| CALLAHAN | 0.01702 |
| CAMERON | 0.00026 |
| CAMP | 0.00373 |
| CARSON | 0.0346 |
| CASS | 0.0036 |
| CASTRO | 0.03858 |
| CHAMBERS | 0.00023 |
| CHEROKEE | 0.00688 |
| CHILDRESS | 0.01897 |
| CLAY | 0.0085 |
| COCHRAN | 0.03777 |
| COKE | 0.01805 |
| COLEMAN | 0.01701 |
| COLLIN | 0.0062 |
| COLLINGSWORTH | 0.02047 |
| COLORADO | 0.00195 |
| COMAL | 0.00623 |
| COMANCHE | 0.01421 |
| CONCHO | 0.0163 |

| County | Productivity Adjustment Factor |
|---|---|
| COOKE | 0.00744 |
| CORYELL | 0.0081 |
| COTTLE | 0.0188 |
| CRANE | 0.02584 |
| CROCKETT | 0.02396 |
| CROSBY | 0.03025 |
| CULBERSON | 0.04063 |
| DALLAM | 0.03986 |
| DALLAS | 0.00443 |
| DAWSON | 0.02981 |
| DEAF SMITH | 0.03845 |
| DELTA | 0.00415 |
| DENTON | 0.00642 |
| DE WITT | 0.00186 |
| DICKENS | 0.02451 |
| DIMMIT | 0.00618 |
| DONLEY | 0.02743 |
| DUVAL | 0.003 |
| EASTLAND | 0.01421 |
| ECTOR | 0.029 |
| EDWARDS | 0.02365 |
| ELLIS | 0.00551 |
| EL PASO | 0.03714 |
| ERATH | 0.01269 |
| FALLS | 0.00386 |
| FANNIN | 0.00618 |
| FAYETTE | 0.00245 |
| FISHER | 0.0199 |
| FLOYD | 0.03174 |
| FOARD | 0.01445 |
| FORT BEND | 0.00015 |
| FRANKLIN | 0.00492 |
| FREESTONE | 0.00428 |
| FRIO | 0.00627 |
| GAINES | 0.03343 |
| GALVESTON | 3.00E-05 |
| GARZA | 0.02638 |
| GILLESPIE | 0.01726 |
| GLASSCOCK | 0.02663 |
| GOLIAD | 0.00166 |
| GONZALES | 0.0029 |
| GRAY | 0.03232 |
| GRAYSON | 0.00726 |
| GREGG | 0.00367 |
| GRIMES | 0.00347 |
| GUADALUPE | 0.00519 |
| HALE | 0.0336 |
| HALL | 0.02007 |

| County | Productivity Adjustment Factor |
|---|---|
| HAMILTON | 0.01252 |
| HANSFORD | 0.031 |
| HARDEMAN | 0.01568 |
| HARDIN | 0.00059 |
| HARRIS | 0.00032 |
| HARRISON | 0.00399 |
| HARTLEY | 0.03902 |
| HASKELL | 0.01587 |
| HAYS | 0.00607 |
| HEMPHILL | 0.02478 |
| HENDERSON | 0.00482 |
| HIDALGO | 0.00095 |
| HILL | 0.00621 |
| HOCKLEY | 0.03514 |
| HOOD | 0.00728 |
| HOPKINS | 0.0049 |
| HOUSTON | 0.00348 |
| HOWARD | 0.02552 |
| HUDSPETH | 0.0445 |
| HUNT | 0.00551 |
| HUTCHINSON | 0.0324 |
| IRION | 0.02204 |
| JACK | 0.01056 |
| JACKSON | 0.00059 |
| JASPER | 0.00197 |
| JEFF DAVIS | 0.05499 |
| JEFFERSON | 0.00016 |
| JIM HOGG | 0.00552 |
| JIM WELLS | 0.00197 |
| JOHNSON | 0.00756 |
| JONES | 0.01715 |
| KARNES | 0.00378 |
| KAUFMAN | 0.00414 |
| KENDALL | 0.01406 |
| KENEDY | 0.00048 |
| KENT | 0.02005 |
| KERR | 0.01634 |
| KIMBLE | 0.01953 |
| KING | 0.01736 |
| KINNEY | 0.01101 |
| KLEBERG | 0.00056 |
| KNOX | 0.01498 |
| LAMAR | 0.006 |
| LAMB | 0.0355 |
| LAMPASAS | 0.01026 |
| LA SALLE | 0.00401 |
| LAVACA | 0.00247 |
| LEE | 0.00467 |

| County | Productivity Adjustment Factor |
|---|---|
| LEON | 0.00301 |
| LIBERTY | 0.00039 |
| LIMESTONE | 0.00438 |
| LIPSCOMB | 0.0244 |
| LIVE OAK | 0.00152 |
| LLANO | 0.01077 |
| LOVING | 0.02812 |
| LUBBOCK | 0.03199 |
| LYNN | 0.03138 |
| MCCULLOCH | 0.01726 |
| MCLENNAN | 0.00464 |
| MCMULLEN | 0.00277 |
| MADISON | 0.00289 |
| MARION | 0.00205 |
| MARTIN | 0.02698 |
| MASON | 0.01528 |
| MATAGORDA | 0.00049 |
| MAVERICK | 0.00728 |
| MEDINA | 0.00896 |
| MENARD | 0.01886 |
| MIDLAND | 0.02772 |
| MILAM | 0.004 |
| MILLS | 0.01554 |
| MITCHELL | 0.02114 |
| MONTAGUE | 0.01025 |
| MONTGOMERY | 0.00208 |
| MOORE | 0.03652 |
| MORRIS | 0.00406 |
| MOTLEY | 0.02385 |
| NACOGDOCHES | 0.00299 |
| NAVARRO | 0.00434 |
| NEWTON | 0.00172 |
| NOLAN | 0.02143 |
| NUECES | 9.00E-05 |
| OCHILTREE | 0.0293 |
| OLDHAM | 0.03652 |
| ORANGE | 1.00E-05 |
| PALO PINTO | 0.0081 |
| PANOLA | 0.00316 |
| PARKER | 0.01041 |
| PARMER | 0.04092 |
| PECOS | 0.02969 |
| POLK | 0.0016 |
| POTTER | 0.03664 |
| PRESIDIO | 0.04705 |
| RAINS | 0.00489 |
| RANDALL | 0.03537 |
| REAGAN | 0.0267 |

| County | Productivity Adjustment Factor |
|---|---|
| REAL | 0.01884 |
| RED RIVER | 0.00421 |
| REEVES | 0.02591 |
| REFUGIO | 0.00045 |
| ROBERTS | 0.02955 |
| ROBERTSON | 0.00443 |
| ROCKWALL | 0.00581 |
| RUNNELS | 0.0167 |
| RUSK | 0.00685 |
| SABINE | 0.00187 |
| SAN AUGUSTINE | 0.00335 |
| SAN JACINTO | 0.00213 |
| SAN PATRICIO | 0.00046 |
| SAN SABA | 0.01344 |
| SCHLEICHER | 0.02411 |
| SCURRY | 0.02316 |
| SHACKELFORD | 0.01557 |
| SHELBY | 0.00352 |
| SHERMAN | 0.03608 |
| SMITH | 0.00526 |
| SOMERVELL | 0.00649 |
| STARR | 0.00162 |
| STEPHENS | 0.01189 |
| STERLING | 0.02389 |
| STONEWALL | 0.0176 |
| SUTTON | 0.02245 |
| SWISHER | 0.03448 |
| TARRANT | 0.00611 |
| TAYLOR | 0.01731 |
| TERRELL | 0.02885 |
| TERRY | 0.03269 |
| THROCKMORTON | 0.01278 |
| TITUS | 0.00392 |
| TOM GREEN | 0.01808 |
| TRAVIS | 0.00536 |
| TRINITY | 0.00237 |
| TYLER | 0.00288 |
| UPSHUR | 0.0034 |
| UPTON | 0.0251 |
| UVALDE | 0.00902 |
| VAL VERDE | 0.00962 |
| VAN ZANDT | 0.00449 |
| VICTORIA | 0.0009 |
| WALKER | 0.00385 |
| WALLER | 0.00182 |
| WARD | 0.02607 |
| WASHINGTON | 0.00307 |
| WEBB | 0.00434 |

| County | Productivity Adjustment Factor |
|---|---|
| WHARTON | 0.00055 |
| WHEELER | 0.02542 |
| WICHITA | 0.00931 |
| WILBARGER | 0.01228 |
| WILLACY | 0.00025 |
| WILLIAMSON | 0.00736 |
| WILSON | 0.00429 |
| WINKLER | 0.02852 |
| WISE | 0.0107 |
| WOOD | 0.00391 |
| YOAKUM | 0.03654 |
| YOUNG | 0.01062 |
| ZAPATA | 0.00345 |
| ZAVALA | 0.00543 |

# Appendix H
# 2008 TexN v.1.3 Statewide Equipment Activity Data

| SCC | SCC Description | DCE SubSector | County Flag | Load Factor | Activity Level (Hrs/Yr) |
|---|---|---|---|---|---|
| 2260001010 | Motorcycles: Off-Road | Non DCE | TX | 1 | 1600 |
| 2260001020 | Snowmobiles | Non DCE | TX | 0.34 | 57 |
| 2260001030 | ATVs | Non DCE | TX | 1 | 1608 |
| 2260001060 | Specialty Vehicles/Carts | Non DCE | TX | 0.58 | 65 |
| 2260002006 | Tampers/Rammers | Non DCE | TX | 0.55 | 160 |
| 2260002009 | Plate Compactors | Non DCE | TX | 0.55 | 166 |
| 2260002021 | Paving Equipment | Non DCE | TX | 0.59 | 175 |
| 2260002027 | Signal Boards/Light Plants | Non DCE | TX | 0.72 | 318 |
| 2260002039 | Concrete/Industrial Saws | Non DCE | TX | 0.78 | 610 |
| 2260002054 | Crushing/Proc. Equipment | Non DCE | TX | 0.85 | 241 |
| 2260003030 | Sweepers/Scrubbers | Non DCE | TX | 0.71 | 516 |
| 2260003040 | Other General Industrial Eqp | Non DCE | TX | 0.54 | 713 |
| 2260004015 | Rotary Tillers < 6 HP | Non DCE | TX | 0.4 | 17 |
| 2260004016 | Rotary Tillers < 6 HP | Non DCE | TX | 0.4 | 472 |
| 2260004020 | Chain Saws < 6 HP | Non DCE | TX | 0.7 | 13 |
| 2260004021 | Chain Saws < 6 HP | Non DCE | TX | 0.7 | 303 |
| 2260004025 | Trimmers/Edgers/Brush Cutter | Non DCE | TX | 0.91 | 9 |
| 2260004026 | Trimmers/Edgers/Brush Cutter | Non DCE | TX | 0.91 | 137 |
| 2260004030 | Leafblowers/Vacuums | Non DCE | TX | 0.94 | 10 |
| 2260004031 | Leafblowers/Vacuums | Non DCE | TX | 0.94 | 282 |
| 2260004035 | Snowblowers | Non DCE | TX | 0.35 | 8 |
| 2260004036 | Snowblowers | Non DCE | TX | 0.35 | 136 |
| 2260004071 | Commercial Turf Equipment | Non DCE | TX | 0.6 | 682 |
| 2260005035 | Sprayers | Non DCE | TX | 0.65 | 80 |
| 2260006005 | Generator Sets | Non DCE | TX | 0.68 | 115 |
| 2260006010 | Pumps | Non DCE | TX | 0.69 | 221 |
| 2260006015 | Air Compressors | Non DCE | TX | 0.56 | 484 |
| 2260006035 | Hydro Power Units | Non DCE | TX | 0.56 | 450 |
| 2260007005 | Chain Saws > 6 HP | Non DCE | TX | 0.7 | 303 |
| 2265001010 | Motorcycles: Off-Road | Non DCE | TX | 1 | 1600 |
| 2265001030 | ATVs | Non DCE | TX | 1 | 1608 |
| 2265001050 | Golf Carts | Non DCE | TX | 0.46 | 1080 |
| 2265001060 | Specialty Vehicles/Carts | Non DCE | TX | 0.58 | 65 |
| 2265002003 | Pavers | Non DCE | TX | 0.66 | 392 |

| SCC | SCC Description | DCE SubSector | County Flag | Load Factor | Activity Level (Hrs/Yr) |
|---|---|---|---|---|---|
| 2265002006 | Tampers/Rammers | Non DCE | TX | 0.55 | 160 |
| 2265002009 | Plate Compactors | Non DCE | TX | 0.55 | 166 |
| 2265002015 | Rollers | Non DCE | TX | 0.62 | 621 |
| 2265002021 | Paving Equipment | Non DCE | TX | 0.59 | 175 |
| 2265002024 | Surfacing Equipment | Non DCE | TX | 0.49 | 488 |
| 2265002027 | Signal Boards/Light Plants | Non DCE | TX | 0.72 | 318 |
| 2265002030 | Trenchers | Non DCE | TX | 0.66 | 402 |
| 2265002033 | Bore/Drill Rigs | Non DCE | TX | 0.79 | 107 |
| 2265002039 | Concrete/Industrial Saws | Non DCE | TX | 0.78 | 610 |
| 2265002042 | Cement & Mortar Mixers | Non DCE | TX | 0.59 | 84 |
| 2265002045 | Cranes | Non DCE | TX | 0.47 | 415 |
| 2265002054 | Crushing/Proc. Equipment | Non DCE | TX | 0.85 | 241 |
| 2265002057 | Rough Terrain Forklifts | Non DCE | TX | 0.63 | 413 |
| 2265002060 | Rubber Tire Loaders | Non DCE | TX | 0.71 | 512 |
| 2265002066 | Tractors/Loaders/Backhoes | Non DCE | TX | 0.48 | 870 |
| 2265002072 | Skid Steer Loaders | Non DCE | TX | 0.58 | 310 |
| 2265002078 | Dumpers/Tenders | Non DCE | TX | 0.41 | 127 |
| 2265002081 | Other Construction Equipment | Non DCE | TX | 0.48 | 371 |
| 2265003010 | Aerial Lifts | Non DCE | TX | 0.46 | 361 |
| 2265003020 | Forklifts | Non DCE | TX | 0.3 | 1800 |
| 2265003030 | Sweepers/Scrubbers | Non DCE | TX | 0.71 | 516 |
| 2265003040 | Other General Industrial Eqp | Non DCE | TX | 0.54 | 713 |
| 2265003050 | Other Material Handling Eqp | Non DCE | TX | 0.53 | 386 |
| 2265003060 | AC\Refrigeration | Non DCE | TX | 0.46 | 605 |
| 2265003070 | Terminal Tractors | Non DCE | TX | 0.78 | 827 |
| 2265004010 | Lawn mowers | Non DCE | TX | 0.33 | 25 |
| 2265004011 | Lawn mowers | Non DCE | TX | 0.33 | 406 |
| 2265004015 | Rotary Tillers < 6 HP | Non DCE | TX | 0.4 | 17 |
| 2265004016 | Rotary Tillers < 6 HP | Non DCE | TX | 0.4 | 472 |
| 2265004025 | Trimmers/Edgers/Brush Cutter | Non DCE | TX | 0.91 | 9 |
| 2265004026 | Trimmers/Edgers/Brush Cutter | Non DCE | TX | 0.91 | 137 |
| 2265004030 | Leafblowers/Vacuums | Non DCE | TX | 0.94 | 10 |
| 2265004031 | Leafblowers/Vacuums | Non DCE | TX | 0.94 | 282 |
| 2265004035 | Snowblowers | Non DCE | TX | 0.35 | 8 |

| SCC | SCC Description | DCE SubSector | County Flag | Load Factor | Activity Level (Hrs/Yr) |
|---|---|---|---|---|---|
| 2265004036 | Snowblowers | Non DCE | TX | 0.35 | 136 |
| 2265004040 | Rear Engine Riding Mowers | Non DCE | TX | 0.38 | 36 |
| 2265004041 | Rear Engine Riding Mowers | Non DCE | TX | 0.38 | 569 |
| 2265004046 | Front Mowers | Non DCE | TX | 0.65 | 86 |
| 2265004051 | Shredders < 6 HP | Non DCE | TX | 0.8 | 50 |
| 2265004055 | Lawn & Garden Tractors | Non DCE | TX | 0.44 | 45 |
| 2265004056 | Lawn & Garden Tractors | Non DCE | TX | 0.44 | 721 |
| 2265004066 | Chippers/Stump Grinders | Non DCE | TX | 0.78 | 488 |
| 2265004071 | Commercial Turf Equipment | Non DCE | TX | 0.6 | 682 |
| 2265004075 | Other Lawn & Garden Eqp. | Non DCE | TX | 0.58 | 61 |
| 2265004076 | Other Lawn & Garden Eqp. | Non DCE | TX | 0.58 | 61 |
| 2265005010 | 2-Wheel Tractors | Non DCE | TX | 0.62 | 286 |
| 2265005015 | Agricultural Tractors | Non DCE | TX | 0.62 | 550 |
| 2265005020 | Combines | Non DCE | TX | 0.74 | 125 |
| 2265005025 | Balers | Non DCE | TX | 0.62 | 68 |
| 2265005030 | Agricultural Mowers | Non DCE | TX | 0.48 | 175 |
| 2265005035 | Sprayers | Non DCE | TX | 0.65 | 80 |
| 2265005040 | Tillers > 6 HP | Non DCE | TX | 0.71 | 43 |
| 2265005045 | Swathers | Non DCE | TX | 0.52 | 95 |
| 2265005055 | Other Agricultural Equipment | Non DCE | TX | 0.55 | 124 |
| 2265005060 | Irrigation Sets | Non DCE | TX | 0.6 | 716 |
| 2265006005 | Generator Sets | Non DCE | TX | 0.68 | 115 |
| 2265006010 | Pumps | Non DCE | TX | 0.69 | 221 |
| 2265006015 | Air Compressors | Non DCE | TX | 0.56 | 484 |
| 2265006025 | Welders | Non DCE | TX | 0.68 | 408 |
| 2265006030 | Pressure Washers | Non DCE | TX | 0.85 | 115 |
| 2265006035 | Hydro Power Units | Non DCE | TX | 0.56 | 450 |
| 2265007010 | Shredders > 6 HP | Non DCE | TX | 0.8 | 50 |
| 2265007015 | Forest Eqp - Feller/Bunch/Skidder | Non DCE | TX | 0.7 | 350 |
| 2265008005 | Airport Ground Support Equipment | Non DCE | TX | 0.56 | 681 |
| 2265010010 | Other Oil Field Equipment | Non DCE | TX | 0.9 | 1104 |
| 2267001060 | Specialty Vehicle Carts | Non DCE | TX | 0.58 | 65 |
| 2267002003 | Pavers | Non DCE | TX | 0.66 | 392 |
| 2267002015 | Rollers | Non DCE | TX | 0.62 | 621 |

| SCC | SCC Description | DCE SubSector | County Flag | Load Factor | Activity Level (Hrs/Yr) |
|---|---|---|---|---|---|
| 2267002021 | Paving Equipment | Non DCE | TX | 0.59 | 175 |
| 2267002024 | Surfacing Equipment | Non DCE | TX | 0.49 | 488 |
| 2267002030 | Trenchers | Non DCE | TX | 0.66 | 402 |
| 2267002033 | Bore/Drill Rigs | Non DCE | TX | 0.79 | 107 |
| 2267002039 | Concrete/Industrial Saws | Non DCE | TX | 0.78 | 610 |
| 2267002045 | Cranes | Non DCE | TX | 0.47 | 415 |
| 2267002054 | Crushing/Proc. Equipment | Non DCE | TX | 0.85 | 241 |
| 2267002057 | Rough Terrain Forklifts | Non DCE | TX | 0.63 | 413 |
| 2267002060 | Rubber Tire Loaders | Non DCE | TX | 0.71 | 512 |
| 2267002066 | Tractors/Loaders/Backhoes | Non DCE | TX | 0.48 | 870 |
| 2267002072 | Skid Steer Loaders | Non DCE | TX | 0.58 | 310 |
| 2267002081 | Other Construction Equipment | Non DCE | TX | 0.48 | 371 |
| 2267003010 | Aerial Lifts | Non DCE | TX | 0.46 | 361 |
| 2267003020 | Forklifts | Non DCE | DFW | 0.3 | 1270 |
| 2267003020 | Forklifts | Non DCE | HGB | 0.3 | 1270 |
| 2267003020 | Forklifts | Non DCE | TX | 0.3 | 1800 |
| 2267003030 | Sweepers/Scrubbers | Non DCE | TX | 0.71 | 516 |
| 2267003040 | Other General Industrial Equipm | Non DCE | TX | 0.54 | 713 |
| 2267003050 | Other Material Handling Equipment | Non DCE | TX | 0.53 | 386 |
| 2267003070 | Terminal Tractors | Non DCE | TX | 0.78 | 827 |
| 2267004066 | Chippers/Stump Grinders | Non DCE | TX | 0.78 | 488 |
| 2267005055 | Other Agricultural Equipment | Non DCE | TX | 0.55 | 124 |
| 2267005060 | Irrigation Sets | Non DCE | TX | 0.6 | 716 |
| 2267006005 | Generator Sets | Non DCE | TX | 0.68 | 115 |
| 2267006010 | Pumps | Non DCE | TX | 0.69 | 221 |
| 2267006015 | Air Compressors | Non DCE | TX | 0.56 | 484 |
| 2267006025 | Welders | Non DCE | TX | 0.68 | 408 |
| 2267006030 | Pressure Washers | Non DCE | TX | 0.85 | 115 |
| 2267006035 | Hydro Power Units | Non DCE | TX | 0.56 | 450 |
| 2267008005 | Airport Ground Support Equipment | Non DCE | TX | 0.56 | 681 |
| 2268002081 | Other Construction Equipment | Non DCE | TX | 0.48 | 371 |
| 2268003020 | Forklifts | Non DCE | TX | 0.3 | 1800 |
| 2268003030 | Sweepers/Scrubbers | Non DCE | TX | 0.71 | 516 |
| 2268003040 | Other General Industrial Equipment | Non DCE | TX | 0.54 | 713 |

| SCC | SCC Description | DCE SubSector | County Flag | Load Factor | Activity Level (Hrs/Yr) |
|---|---|---|---|---|---|
| 2268003060 | AC\Refrigeration | Non DCE | TX | 0.46 | 605 |
| 2268003070 | Terminal Tractors | Non DCE | TX | 0.78 | 827 |
| 2268005055 | Other Agricultural Equipment | Non DCE | TX | 0.55 | 124 |
| 2268005060 | Irrigation Sets | Non DCE | TX | 0.6 | 716 |
| 2268006005 | Generator Sets | Non DCE | TX | 0.68 | 115 |
| 2268006010 | Pumps | Non DCE | TX | 0.69 | 221 |
| 2268006015 | Air Compressors | Non DCE | TX | 0.56 | 484 |
| 2268006020 | Gas Compressors | Non DCE | TX | 0.85 | 6000 |
| 2268006035 | Hydro Power Units | Non DCE | TX | 0.56 | 450 |
| 2268010010 | Other Oil Field Equipment | Non DCE | TX | 0.9 | 1104 |
| 2270001060 | Specialty Vehicle Carts | Non DCE | TX | 0.21 | 435 |
| 2270002003 | Pavers | City and County Road Construction | DFW | 0.59 | 25.42 |
| 2270002003 | Pavers | City and County Road Construction | TX | 0.59 | 47.16 |
| 2270002003 | Pavers | Commercial Construction | TX | 0.59 | 33 |
| 2270002003 | Pavers | Commercial Construction | DFW | 0.59 | 34 |
| 2270002003 | Pavers | County-Owned Construction Equipment | DFW | 0.59 | 1195.4 |
| 2270002003 | Pavers | County-Owned Construction Equipment | TX | 0.59 | 1195.4 |
| 2270002003 | Pavers | Heavy Highway Construction | DFW | 0.59 | 488.45 |
| 2270002003 | Pavers | Heavy Highway Construction | TX | 0.59 | 488.45 |
| 2270002003 | Pavers | Landscaping Activities | DFW | 0.59 | 821 |
| 2270002003 | Pavers | Landscaping Activities | TX | 0.59 | 821 |
| 2270002003 | Pavers | Manufacturing Operations | DFW | 0.59 | 821 |
| 2270002003 | Pavers | Manufacturing Operations | TX | 0.59 | 821 |
| 2270002003 | Pavers | Municipal-Owned Construction Equipment | DFW | 0.59 | 90 |
| 2270002003 | Pavers | Municipal-Owned Construction Equipment | TX | 0.59 | 90 |
| 2270002003 | Pavers | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.59 | 821 |
| 2270002003 | Pavers | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.59 | 821 |
| 2270002003 | Pavers | Residential Construction | DFW | 0.59 | 821 |
| 2270002003 | Pavers | Residential Construction | TX | 0.59 | 821 |
| 2270002003 | Pavers | Special Trades Construction | DFW | 0.59 | 1130.86 |
| 2270002003 | Pavers | Special Trades Construction | TX | 0.59 | 1130.86 |
| 2270002003 | Pavers | Transportation/Sales/Services | DFW | 0.59 | 821 |
| 2270002003 | Pavers | Transportation/Sales/Services | TX | 0.59 | 821 |
| 2270002003 | Pavers | TxDOT Construction Equipment | DFW | 0.59 | 244.46 |

| SCC | SCC Description | DCE SubSector | County Flag | Load Factor | Activity Level (Hrs/Yr) |
|---|---|---|---|---|---|
| 2270002003 | Pavers | TxDOT Construction Equipment | TX | 0.59 | 244.46 |
| 2270002003 | Pavers | Utility Construction | TX | 0.59 | 64.77 |
| 2270002003 | Pavers | Utility Construction | DFW | 0.59 | 128.68 |
| 2270002006 | Tampers/Rammers | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.43 | 460 |
| 2270002006 | Tampers/Rammers | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.43 | 460 |
| 2270002009 | Plate Compactors | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.43 | 484 |
| 2270002009 | Plate Compactors | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.43 | 484 |
| 2270002015 | Rollers | Brick and Stone Operations | DFW | 0.59 | 760 |
| 2270002015 | Rollers | City and County Road Construction | DFW | 0.59 | 34.18 |
| 2270002015 | Rollers | City and County Road Construction | TX | 0.59 | 63.22 |
| 2270002015 | Rollers | Commercial Construction | TX | 0.59 | 42 |
| 2270002015 | Rollers | Commercial Construction | DFW | 0.59 | 43 |
| 2270002015 | Rollers | Concrete Operations | DFW | 0.59 | 760 |
| 2270002015 | Rollers | Concrete Operations | TX | 0.59 | 760 |
| 2270002015 | Rollers | County-Owned Construction Equipment | DFW | 0.59 | 384.69 |
| 2270002015 | Rollers | County-Owned Construction Equipment | TX | 0.59 | 384.69 |
| 2270002015 | Rollers | Heavy Highway Construction | DFW | 0.59 | 387.1 |
| 2270002015 | Rollers | Heavy Highway Construction | TX | 0.59 | 387.1 |
| 2270002015 | Rollers | Landfill Operations | DFW | 0.59 | 2951.2 |
| 2270002015 | Rollers | Landfill Operations | TX | 0.59 | 2951.2 |
| 2270002015 | Rollers | Landscaping Activities | DFW | 0.59 | 760 |
| 2270002015 | Rollers | Landscaping Activities | TX | 0.59 | 760 |
| 2270002015 | Rollers | Municipal-Owned Construction Equipment | DFW | 0.59 | 158.4 |
| 2270002015 | Rollers | Municipal-Owned Construction Equipment | TX | 0.59 | 158.4 |
| 2270002015 | Rollers | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.59 | 760 |
| 2270002015 | Rollers | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.59 | 760 |
| 2270002015 | Rollers | Residential Construction | DFW | 0.59 | 745 |
| 2270002015 | Rollers | Residential Construction | TX | 0.59 | 745 |
| 2270002015 | Rollers | Special Trades Construction | DFW | 0.59 | 1082.15 |
| 2270002015 | Rollers | Special Trades Construction | TX | 0.59 | 1082.15 |
| 2270002015 | Rollers | Transportation/Sales/Services | DFW | 0.59 | 760 |
| 2270002015 | Rollers | Transportation/Sales/Services | TX | 0.59 | 760 |
| 2270002015 | Rollers | TxDOT Construction Equipment | DFW | 0.59 | 151.71 |
| 2270002015 | Rollers | TxDOT Construction Equipment | TX | 0.59 | 151.71 |

| SCC | SCC Description | DCE SubSector | County Flag | Load Factor | Activity Level (Hrs/Yr) |
|---|---|---|---|---|---|
| 2270002015 | Rollers | Utility Construction | DFW | 0.59 | 49.47 |
| 2270002015 | Rollers | Utility Construction | TX | 0.59 | 51.88 |
| 2270002018 | Scrapers | Agricultural Activities | DFW | 0.59 | 1003 |
| 2270002018 | Scrapers | Agricultural Activities | TX | 0.59 | 1003 |
| 2270002018 | Scrapers | Brick and Stone Operations | DFW | 0.59 | 914 |
| 2270002018 | Scrapers | County-Owned Construction Equipment | DFW | 0.59 | 0.2806 |
| 2270002018 | Scrapers | County-Owned Construction Equipment | TX | 0.59 | 0.2806 |
| 2270002018 | Scrapers | Landfill Operations | DFW | 0.59 | 662.7 |
| 2270002018 | Scrapers | Landfill Operations | TX | 0.59 | 662.7 |
| 2270002018 | Scrapers | Landscaping Activities | DFW | 0.59 | 914 |
| 2270002018 | Scrapers | Landscaping Activities | TX | 0.59 | 914 |
| 2270002018 | Scrapers | Mining and Quarry Operations | DFW | 0.59 | 957 |
| 2270002018 | Scrapers | Mining and Quarry Operations | TX | 0.59 | 957 |
| 2270002018 | Scrapers | Municipal-Owned Construction Equipment | DFW | 0.59 | 208 |
| 2270002018 | Scrapers | Municipal-Owned Construction Equipment | TX | 0.59 | 208 |
| 2270002018 | Scrapers | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.59 | 914 |
| 2270002018 | Scrapers | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.59 | 914 |
| 2270002018 | Scrapers | Special Trades Construction | DFW | 0.59 | 1087 |
| 2270002018 | Scrapers | Special Trades Construction | TX | 0.59 | 1087 |
| 2270002018 | Scrapers | Transportation/Sales/Services | DFW | 0.59 | 801 |
| 2270002018 | Scrapers | Transportation/Sales/Services | TX | 0.59 | 801 |
| 2270002018 | Scrapers | TxDOT Construction Equipment | DFW | 0.59 | 303 |
| 2270002018 | Scrapers | TxDOT Construction Equipment | TX | 0.59 | 303 |
| 2270002021 | Paving Equipment | County-Owned Construction Equipment | DFW | 0.59 | 211.85 |
| 2270002021 | Paving Equipment | County-Owned Construction Equipment | TX | 0.59 | 211.85 |
| 2270002021 | Paving Equipment | Heavy Highway Construction | DFW | 0.59 | 517.56 |
| 2270002021 | Paving Equipment | Heavy Highway Construction | TX | 0.59 | 517.56 |
| 2270002021 | Paving Equipment | Municipal-Owned Construction Equipment | DFW | 0.59 | 155.2 |
| 2270002021 | Paving Equipment | Municipal-Owned Construction Equipment | TX | 0.59 | 155.2 |
| 2270002021 | Paving Equipment | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.59 | 622 |
| 2270002021 | Paving Equipment | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.59 | 622 |
| 2270002021 | Paving Equipment | Transportation/Sales/Services | DFW | 0.59 | 622 |
| 2270002021 | Paving Equipment | Transportation/Sales/Services | TX | 0.59 | 622 |
| 2270002021 | Paving Equipment | TxDOT Construction Equipment | DFW | 0.59 | 324.16 |

| SCC | SCC Description | DCE SubSector | County Flag | Load Factor | Activity Level (Hrs/Yr) |
|---|---|---|---|---|---|
| 2270002021 | Paving Equipment | TxDOT Construction Equipment | TX | 0.59 | 324.16 |
| 2270002024 | Surfacing Equipment | Concrete Operations | DFW | 0.59 | 561 |
| 2270002024 | Surfacing Equipment | Concrete Operations | TX | 0.59 | 561 |
| 2270002024 | Surfacing Equipment | County-Owned Construction Equipment | DFW | 0.59 | 239 |
| 2270002024 | Surfacing Equipment | County-Owned Construction Equipment | TX | 0.59 | 239 |
| 2270002024 | Surfacing Equipment | Heavy Highway Construction | DFW | 0.59 | 512.01 |
| 2270002024 | Surfacing Equipment | Heavy Highway Construction | TX | 0.59 | 512.01 |
| 2270002024 | Surfacing Equipment | Landscaping Activities | DFW | 0.59 | 756 |
| 2270002024 | Surfacing Equipment | Landscaping Activities | TX | 0.59 | 756 |
| 2270002024 | Surfacing Equipment | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.59 | 561 |
| 2270002024 | Surfacing Equipment | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.59 | 561 |
| 2270002024 | Surfacing Equipment | Residential Construction | DFW | 0.59 | 561 |
| 2270002024 | Surfacing Equipment | Residential Construction | TX | 0.59 | 561 |
| 2270002024 | Surfacing Equipment | Special Trades Construction | DFW | 0.59 | 907 |
| 2270002024 | Surfacing Equipment | Special Trades Construction | TX | 0.59 | 907 |
| 2270002024 | Surfacing Equipment | Transportation/Sales/Services | DFW | 0.59 | 803 |
| 2270002024 | Surfacing Equipment | Transportation/Sales/Services | TX | 0.59 | 803 |
| 2270002027 | Signal Boards/Light Plants | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.43 | 535 |
| 2270002027 | Signal Boards/Light Plants | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.43 | 535 |
| 2270002030 | Trenchers | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.59 | 593 |
| 2270002030 | Trenchers | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.59 | 593 |
| 2270002030 | Trenchers | Trenchers | DFW | 0.59 | 914 |
| 2270002030 | Trenchers | Trenchers | TX | 0.59 | 914 |
| 2270002030 | Trenchers | TxDOT Construction Equipment | DFW | 0.59 | 59.89 |
| 2270002030 | Trenchers | TxDOT Construction Equipment | TX | 0.59 | 59.89 |
| 2270002033 | Bore/Drill Rigs | Boring and Drilling Equipment | DFW | 0.43 | 466 |
| 2270002033 | Bore/Drill Rigs | Boring and Drilling Equipment | TX | 0.43 | 466 |
| 2270002033 | Bore/Drill Rigs | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.43 | 466 |
| 2270002033 | Bore/Drill Rigs | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.43 | 466 |
| 2270002033 | Bore/Drill Rigs | TxDOT Construction Equipment | DFW | 0.43 | 124.28 |
| 2270002033 | Bore/Drill Rigs | TxDOT Construction Equipment | TX | 0.43 | 124.28 |
| 2270002036 | Excavators | Agricultural Activities | DFW | 0.59 | 1008 |
| 2270002036 | Excavators | Agricultural Activities | TX | 0.59 | 1008 |
| 2270002036 | Excavators | Brick and Stone Operations | DFW | 0.59 | 1092 |

| SCC | SCC Description | DCE SubSector | County Flag | Load Factor | Activity Level (Hrs/Yr) |
|---|---|---|---|---|---|
| 2270002036 | Excavators | Brick and Stone Operations | TX | 0.59 | 1092 |
| 2270002036 | Excavators | Commercial Construction | TX | 0.59 | 12 |
| 2270002036 | Excavators | Commercial Construction | DFW | 0.59 | 14 |
| 2270002036 | Excavators | Concrete Operations | DFW | 0.59 | 1092 |
| 2270002036 | Excavators | Concrete Operations | TX | 0.59 | 1092 |
| 2270002036 | Excavators | County-Owned Construction Equipment | DFW | 0.59 | 709.2 |
| 2270002036 | Excavators | County-Owned Construction Equipment | TX | 0.59 | 709.2 |
| 2270002036 | Excavators | Heavy Highway Construction | DFW | 0.59 | 945.03 |
| 2270002036 | Excavators | Heavy Highway Construction | TX | 0.59 | 945.03 |
| 2270002036 | Excavators | Landfill Operations | DFW | 0.59 | 2248.8 |
| 2270002036 | Excavators | Landfill Operations | TX | 0.59 | 2248.8 |
| 2270002036 | Excavators | Landscaping Activities | DFW | 0.59 | 1000 |
| 2270002036 | Excavators | Landscaping Activities | TX | 0.59 | 1000 |
| 2270002036 | Excavators | Manufacturing Operations | DFW | 0.59 | 1092 |
| 2270002036 | Excavators | Manufacturing Operations | TX | 0.59 | 1092 |
| 2270002036 | Excavators | Mining and Quarry Operations | DFW | 0.59 | 1593 |
| 2270002036 | Excavators | Mining and Quarry Operations | TX | 0.59 | 1593 |
| 2270002036 | Excavators | Municipal-Owned Construction Equipment | DFW | 0.59 | 803.8 |
| 2270002036 | Excavators | Municipal-Owned Construction Equipment | TX | 0.59 | 803.8 |
| 2270002036 | Excavators | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.59 | 1092 |
| 2270002036 | Excavators | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.59 | 1092 |
| 2270002036 | Excavators | Residential Construction | DFW | 0.59 | 859 |
| 2270002036 | Excavators | Residential Construction | TX | 0.59 | 859 |
| 2270002036 | Excavators | Scrap Recycling Operations | DFW | 0.59 | 1586 |
| 2270002036 | Excavators | Scrap Recycling Operations | TX | 0.59 | 1586 |
| 2270002036 | Excavators | Special Trades Construction | DFW | 0.59 | 630.687 |
| 2270002036 | Excavators | Special Trades Construction | TX | 0.59 | 630.687 |
| 2270002036 | Excavators | Transportation/Sales/Services | DFW | 0.59 | 1288 |
| 2270002036 | Excavators | Transportation/Sales/Services | TX | 0.59 | 1288 |
| 2270002036 | Excavators | TxDOT Construction Equipment | DFW | 0.59 | 409.12 |
| 2270002036 | Excavators | TxDOT Construction Equipment | TX | 0.59 | 409.12 |
| 2270002036 | Excavators | Utility Construction | TX | 0.59 | 196.83 |
| 2270002036 | Excavators | Utility Construction | DFW | 0.59 | 321.79 |
| 2270002039 | Concrete/Industrial Saws | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.59 | 580 |

| SCC | SCC Description | DCE SubSector | County Flag | Load Factor | Activity Level (Hrs/Yr) |
|---|---|---|---|---|---|
| 2270002039 | Concrete/Industrial Saws | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.59 | 580 |
| 2270002039 | Concrete/Industrial Saws | TxDOT Construction Equipment | DFW | 0.59 | 48.4 |
| 2270002039 | Concrete/Industrial Saws | TxDOT Construction Equipment | TX | 0.59 | 48.4 |
| 2270002042 | Cement & Mortar Mixers | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.43 | 275 |
| 2270002042 | Cement & Mortar Mixers | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.43 | 275 |
| 2270002042 | Cement & Mortar Mixers | TxDOT Construction Equipment | DFW | 0.43 | 243.56 |
| 2270002042 | Cement & Mortar Mixers | TxDOT Construction Equipment | TX | 0.43 | 243.56 |
| 2270002045 | Cranes | Cranes | DFW | 0.43 | 990 |
| 2270002045 | Cranes | Cranes | TX | 0.43 | 990 |
| 2270002045 | Cranes | Cranes | HGB | 0.43 | 1425.87 |
| 2270002045 | Cranes | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.43 | 990 |
| 2270002045 | Cranes | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.43 | 990 |
| 2270002045 | Cranes | TxDOT Construction Equipment | DFW | 0.43 | 379.01 |
| 2270002045 | Cranes | TxDOT Construction Equipment | TX | 0.43 | 379.01 |
| 2270002048 | Graders | Agricultural Activities | DFW | 0.59 | 1000 |
| 2270002048 | Graders | Agricultural Activities | TX | 0.59 | 1000 |
| 2270002048 | Graders | Brick and Stone Operations | DFW | 0.59 | 962 |
| 2270002048 | Graders | Brick and Stone Operations | TX | 0.59 | 962 |
| 2270002048 | Graders | City and County Road Construction | DFW | 0.59 | 26.99 |
| 2270002048 | Graders | City and County Road Construction | TX | 0.59 | 49.93 |
| 2270002048 | Graders | Commercial Construction | TX | 0.59 | 30 |
| 2270002048 | Graders | Commercial Construction | DFW | 0.59 | 31 |
| 2270002048 | Graders | Concrete Operations | DFW | 0.59 | 962 |
| 2270002048 | Graders | Concrete Operations | TX | 0.59 | 962 |
| 2270002048 | Graders | County-Owned Construction Equipment | DFW | 0.59 | 543.31 |
| 2270002048 | Graders | County-Owned Construction Equipment | TX | 0.59 | 543.31 |
| 2270002048 | Graders | Heavy Highway Construction | DFW | 0.59 | 1156.6 |
| 2270002048 | Graders | Heavy Highway Construction | TX | 0.59 | 1156.6 |
| 2270002048 | Graders | Landfill Operations | DFW | 0.59 | 1344.6 |
| 2270002048 | Graders | Landfill Operations | TX | 0.59 | 1344.6 |
| 2270002048 | Graders | Landscaping Activities | DFW | 0.59 | 962 |
| 2270002048 | Graders | Landscaping Activities | TX | 0.59 | 962 |
| 2270002048 | Graders | Manufacturing Operations | DFW | 0.59 | 962 |
| 2270002048 | Graders | Manufacturing Operations | TX | 0.59 | 962 |

| SCC | SCC Description | DCE SubSector | County Flag | Load Factor | Activity Level (Hrs/Yr) |
|---|---|---|---|---|---|
| 2270002048 | Graders | Mining and Quarry Operations | DFW | 0.59 | 422 |
| 2270002048 | Graders | Mining and Quarry Operations | TX | 0.59 | 422 |
| 2270002048 | Graders | Municipal-Owned Construction Equipment | DFW | 0.59 | 377.2 |
| 2270002048 | Graders | Municipal-Owned Construction Equipment | TX | 0.59 | 377.2 |
| 2270002048 | Graders | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.59 | 962 |
| 2270002048 | Graders | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.59 | 962 |
| 2270002048 | Graders | Residential Construction | DFW | 0.59 | 821 |
| 2270002048 | Graders | Residential Construction | TX | 0.59 | 821 |
| 2270002048 | Graders | Special Trades Construction | DFW | 0.59 | 828.5 |
| 2270002048 | Graders | Special Trades Construction | TX | 0.59 | 828.5 |
| 2270002048 | Graders | Transportation/Sales/Services | DFW | 0.59 | 1000 |
| 2270002048 | Graders | Transportation/Sales/Services | TX | 0.59 | 1000 |
| 2270002048 | Graders | TxDOT Construction Equipment | DFW | 0.59 | 321.16 |
| 2270002048 | Graders | TxDOT Construction Equipment | TX | 0.59 | 321.16 |
| 2270002051 | Off-highway Trucks | Agricultural Activities | DFW | 0.59 | 1616 |
| 2270002051 | Off-highway Trucks | Agricultural Activities | TX | 0.59 | 1616 |
| 2270002051 | Off-highway Trucks | Brick and Stone Operations | DFW | 0.59 | 1641 |
| 2270002051 | Off-highway Trucks | Concrete Operations | DFW | 0.59 | 1641 |
| 2270002051 | Off-highway Trucks | Concrete Operations | TX | 0.59 | 1641 |
| 2270002051 | Off-highway Trucks | Heavy Highway Construction | DFW | 0.59 | 6.5 |
| 2270002051 | Off-highway Trucks | Heavy Highway Construction | TX | 0.59 | 6.5 |
| 2270002051 | Off-highway Trucks | Manufacturing Operations | DFW | 0.59 | 1641 |
| 2270002051 | Off-highway Trucks | Manufacturing Operations | TX | 0.59 | 1641 |
| 2270002051 | Off-highway Trucks | Mining and Quarry Operations | DFW | 0.59 | 1551 |
| 2270002051 | Off-highway Trucks | Mining and Quarry Operations | TX | 0.59 | 1551 |
| 2270002051 | Off-highway Trucks | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.59 | 1641 |
| 2270002051 | Off-highway Trucks | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.59 | 1641 |
| 2270002051 | Off-highway Trucks | Scrap Recycling Operations | DFW | 0.59 | 687 |
| 2270002051 | Off-highway Trucks | Scrap Recycling Operations | TX | 0.59 | 687 |
| 2270002051 | Off-highway Trucks | Special Trades Construction | DFW | 0.59 | 1527 |
| 2270002051 | Off-highway Trucks | Transportation/Sales/Services | DFW | 0.59 | 1194 |
| 2270002051 | Off-highway Trucks | Transportation/Sales/Services | TX | 0.59 | 1194 |
| 2270002054 | Crushing/Proc. Equipment | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.43 | 955 |
| 2270002054 | Crushing/Proc. Equipment | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.43 | 955 |

| SCC | SCC Description | DCE SubSector | County Flag | Load Factor | Activity Level (Hrs/Yr) |
|---|---|---|---|---|---|
| 2270002057 | Rough Terrain Forklifts | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.59 | 662 |
| 2270002057 | Rough Terrain Forklifts | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.59 | 662 |
| 2270002057 | Rough Terrain Forklifts | Rough Terrain Forklifts | DFW | 0.59 | 875 |
| 2270002057 | Rough Terrain Forklifts | Rough Terrain Forklifts | TX | 0.59 | 875 |
| 2270002057 | Rough Terrain Forklifts | TxDOT Construction Equipment | DFW | 0.59 | 267.11 |
| 2270002057 | Rough Terrain Forklifts | TxDOT Construction Equipment | TX | 0.59 | 267.11 |
| 2270002060 | Rubber Tire Loaders | Agricultural Activities | DFW | 0.59 | 1340 |
| 2270002060 | Rubber Tire Loaders | Agricultural Activities | TX | 0.59 | 1340 |
| 2270002060 | Rubber Tire Loaders | Brick and Stone Operations | DFW | 0.59 | 2058 |
| 2270002060 | Rubber Tire Loaders | Brick and Stone Operations | TX | 0.59 | 2058 |
| 2270002060 | Rubber Tire Loaders | City and County Road Construction | DFW | 0.59 | 36.62 |
| 2270002060 | Rubber Tire Loaders | City and County Road Construction | TX | 0.59 | 67.74 |
| 2270002060 | Rubber Tire Loaders | Concrete Operations | DFW | 0.59 | 1546 |
| 2270002060 | Rubber Tire Loaders | Concrete Operations | TX | 0.59 | 1546 |
| 2270002060 | Rubber Tire Loaders | County-Owned Construction Equipment | DFW | 0.59 | 245.65 |
| 2270002060 | Rubber Tire Loaders | County-Owned Construction Equipment | TX | 0.59 | 245.65 |
| 2270002060 | Rubber Tire Loaders | Heavy Highway Construction | DFW | 0.59 | 844.35 |
| 2270002060 | Rubber Tire Loaders | Heavy Highway Construction | TX | 0.59 | 844.35 |
| 2270002060 | Rubber Tire Loaders | Landfill Operations | DFW | 0.59 | 1641 |
| 2270002060 | Rubber Tire Loaders | Landfill Operations | TX | 0.59 | 1641 |
| 2270002060 | Rubber Tire Loaders | Landscaping Activities | DFW | 0.59 | 1166 |
| 2270002060 | Rubber Tire Loaders | Landscaping Activities | TX | 0.59 | 1166 |
| 2270002060 | Rubber Tire Loaders | Manufacturing Operations | DFW | 0.59 | 1630 |
| 2270002060 | Rubber Tire Loaders | Manufacturing Operations | TX | 0.59 | 1630 |
| 2270002060 | Rubber Tire Loaders | Mining and Quarry Operations | DFW | 0.59 | 1974 |
| 2270002060 | Rubber Tire Loaders | Mining and Quarry Operations | TX | 0.59 | 1974 |
| 2270002060 | Rubber Tire Loaders | Municipal-Owned Construction Equipment | DFW | 0.59 | 506.1 |
| 2270002060 | Rubber Tire Loaders | Municipal-Owned Construction Equipment | TX | 0.59 | 506.1 |
| 2270002060 | Rubber Tire Loaders | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.59 | 761 |
| 2270002060 | Rubber Tire Loaders | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.59 | 761 |
| 2270002060 | Rubber Tire Loaders | Residential Construction | DFW | 0.59 | 761 |
| 2270002060 | Rubber Tire Loaders | Residential Construction | TX | 0.59 | 761 |
| 2270002060 | Rubber Tire Loaders | Scrap Recycling Operations | DFW | 0.59 | 1291 |
| 2270002060 | Rubber Tire Loaders | Scrap Recycling Operations | TX | 0.59 | 1291 |

| SCC | SCC Description | DCE SubSector | County Flag | Load Factor | Activity Level (Hrs/Yr) |
|---|---|---|---|---|---|
| 2270002060 | Rubber Tire Loaders | Special Trades Construction | DFW | 0.59 | 1897.7 |
| 2270002060 | Rubber Tire Loaders | Special Trades Construction | TX | 0.59 | 1897.7 |
| 2270002060 | Rubber Tire Loaders | Transportation/Sales/Services | DFW | 0.59 | 1268 |
| 2270002060 | Rubber Tire Loaders | Transportation/Sales/Services | TX | 0.59 | 1268 |
| 2270002066 | Tractors/Loaders/Backhoes | Agricultural Activities | DFW | 0.21 | 1200 |
| 2270002066 | Tractors/Loaders/Backhoes | Agricultural Activities | TX | 0.21 | 1200 |
| 2270002066 | Tractors/Loaders/Backhoes | Brick and Stone Operations | DFW | 0.21 | 1000 |
| 2270002066 | Tractors/Loaders/Backhoes | Brick and Stone Operations | TX | 0.21 | 1000 |
| 2270002066 | Tractors/Loaders/Backhoes | Commercial Construction | TX | 0.21 | 128 |
| 2270002066 | Tractors/Loaders/Backhoes | Commercial Construction | DFW | 0.21 | 133 |
| 2270002066 | Tractors/Loaders/Backhoes | Concrete Operations | DFW | 0.21 | 1000 |
| 2270002066 | Tractors/Loaders/Backhoes | Concrete Operations | TX | 0.21 | 1000 |
| 2270002066 | Tractors/Loaders/Backhoes | County-Owned Construction Equipment | DFW | 0.21 | 384.98 |
| 2270002066 | Tractors/Loaders/Backhoes | County-Owned Construction Equipment | TX | 0.21 | 384.98 |
| 2270002066 | Tractors/Loaders/Backhoes | Heavy Highway Construction | DFW | 0.21 | 467.16 |
| 2270002066 | Tractors/Loaders/Backhoes | Heavy Highway Construction | TX | 0.21 | 467.16 |
| 2270002066 | Tractors/Loaders/Backhoes | Landscaping Activities | DFW | 0.21 | 1000 |
| 2270002066 | Tractors/Loaders/Backhoes | Landscaping Activities | TX | 0.21 | 1000 |
| 2270002066 | Tractors/Loaders/Backhoes | Manufacturing Operations | DFW | 0.21 | 1000 |
| 2270002066 | Tractors/Loaders/Backhoes | Manufacturing Operations | TX | 0.21 | 1000 |
| 2270002066 | Tractors/Loaders/Backhoes | Mining and Quarry Operations | DFW | 0.21 | 1566 |
| 2270002066 | Tractors/Loaders/Backhoes | Mining and Quarry Operations | TX | 0.21 | 1566 |
| 2270002066 | Tractors/Loaders/Backhoes | Municipal-Owned Construction Equipment | DFW | 0.21 | 1747 |
| 2270002066 | Tractors/Loaders/Backhoes | Municipal-Owned Construction Equipment | TX | 0.21 | 1747 |
| 2270002066 | Tractors/Loaders/Backhoes | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.21 | 1135 |
| 2270002066 | Tractors/Loaders/Backhoes | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.21 | 1135 |
| 2270002066 | Tractors/Loaders/Backhoes | Scrap Recycling Operations | DFW | 0.21 | 50 |
| 2270002066 | Tractors/Loaders/Backhoes | Scrap Recycling Operations | TX | 0.21 | 50 |
| 2270002066 | Tractors/Loaders/Backhoes | Special Trades Construction | DFW | 0.21 | 581.72 |
| 2270002066 | Tractors/Loaders/Backhoes | Special Trades Construction | TX | 0.21 | 581.72 |
| 2270002066 | Tractors/Loaders/Backhoes | Transportation/Sales/Services | DFW | 0.21 | 1500 |
| 2270002066 | Tractors/Loaders/Backhoes | Transportation/Sales/Services | TX | 0.21 | 1500 |
| 2270002066 | Tractors/Loaders/Backhoes | TxDOT Construction Equipment | DFW | 0.21 | 202.92 |
| 2270002066 | Tractors/Loaders/Backhoes | TxDOT Construction Equipment | TX | 0.21 | 202.92 |

| SCC | SCC Description | DCE SubSector | County Flag | Load Factor | Activity Level (Hrs/Yr) |
|---|---|---|---|---|---|
| 2270002066 | Tractors/Loaders/Backhoes | Utility Construction | TX | 0.21 | 42 |
| 2270002069 | Crawler Tractor/Dozers | Agricultural Activities | DFW | 0.59 | 1152 |
| 2270002069 | Crawler Tractor/Dozers | Agricultural Activities | TX | 0.59 | 1152 |
| 2270002069 | Crawler Tractor/Dozers | Brick and Stone Operations | DFW | 0.59 | 936 |
| 2270002069 | Crawler Tractor/Dozers | Brick and Stone Operations | TX | 0.59 | 936 |
| 2270002069 | Crawler Tractor/Dozers | City and County Road Construction | DFW | 0.59 | 237.28 |
| 2270002069 | Crawler Tractor/Dozers | City and County Road Construction | TX | 0.59 | 438.92 |
| 2270002069 | Crawler Tractor/Dozers | Commercial Construction | TX | 0.59 | 132 |
| 2270002069 | Crawler Tractor/Dozers | Commercial Construction | DFW | 0.59 | 142.81 |
| 2270002069 | Crawler Tractor/Dozers | Concrete Operations | DFW | 0.59 | 936 |
| 2270002069 | Crawler Tractor/Dozers | Concrete Operations | TX | 0.59 | 936 |
| 2270002069 | Crawler Tractor/Dozers | County-Owned Construction Equipment | DFW | 0.59 | 250.22 |
| 2270002069 | Crawler Tractor/Dozers | County-Owned Construction Equipment | TX | 0.59 | 250.22 |
| 2270002069 | Crawler Tractor/Dozers | Heavy Highway Construction | DFW | 0.59 | 858.2 |
| 2270002069 | Crawler Tractor/Dozers | Heavy Highway Construction | TX | 0.59 | 858.2 |
| 2270002069 | Crawler Tractor/Dozers | Landfill Operations | DFW | 0.59 | 2588.1 |
| 2270002069 | Crawler Tractor/Dozers | Landfill Operations | TX | 0.59 | 2588.1 |
| 2270002069 | Crawler Tractor/Dozers | Landscaping Activities | DFW | 0.59 | 1000 |
| 2270002069 | Crawler Tractor/Dozers | Landscaping Activities | TX | 0.59 | 1000 |
| 2270002069 | Crawler Tractor/Dozers | Manufacturing Operations | DFW | 0.59 | 936 |
| 2270002069 | Crawler Tractor/Dozers | Manufacturing Operations | TX | 0.59 | 936 |
| 2270002069 | Crawler Tractor/Dozers | Mining and Quarry Operations | DFW | 0.59 | 1897 |
| 2270002069 | Crawler Tractor/Dozers | Mining and Quarry Operations | TX | 0.59 | 1897 |
| 2270002069 | Crawler Tractor/Dozers | Municipal-Owned Construction Equipment | DFW | 0.59 | 384.4 |
| 2270002069 | Crawler Tractor/Dozers | Municipal-Owned Construction Equipment | TX | 0.59 | 384.4 |
| 2270002069 | Crawler Tractor/Dozers | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.59 | 936 |
| 2270002069 | Crawler Tractor/Dozers | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.59 | 936 |
| 2270002069 | Crawler Tractor/Dozers | Residential Construction | DFW | 0.59 | 936 |
| 2270002069 | Crawler Tractor/Dozers | Residential Construction | TX | 0.59 | 936 |
| 2270002069 | Crawler Tractor/Dozers | Scrap Recycling Operations | DFW | 0.59 | 2500 |
| 2270002069 | Crawler Tractor/Dozers | Scrap Recycling Operations | TX | 0.59 | 2500 |
| 2270002069 | Crawler Tractor/Dozers | Special Trades Construction | DFW | 0.59 | 732.887 |
| 2270002069 | Crawler Tractor/Dozers | Special Trades Construction | TX | 0.59 | 732.887 |
| 2270002069 | Crawler Tractor/Dozers | Transportation/Sales/Services | DFW | 0.59 | 1306 |

| SCC | SCC Description | DCE SubSector | County Flag | Load Factor | Activity Level (Hrs/Yr) |
|---|---|---|---|---|---|
| 2270002069 | Crawler Tractor/Dozers | Transportation/Sales/Services | TX | 0.59 | 1306 |
| 2270002069 | Crawler Tractor/Dozers | TxDOT Construction Equipment | DFW | 0.59 | 156.22 |
| 2270002069 | Crawler Tractor/Dozers | TxDOT Construction Equipment | TX | 0.59 | 156.22 |
| 2270002069 | Crawler Tractor/Dozers | Utility Construction | DFW | 0.59 | 98 |
| 2270002069 | Crawler Tractor/Dozers | Utility Construction | TX | 0.59 | 98 |
| 2270002072 | Skid Steer Loaders | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.21 | 818 |
| 2270002072 | Skid Steer Loaders | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.21 | 818 |
| 2270002072 | Skid Steer Loaders | Skid Steer Loaders | DFW | 0.21 | 771 |
| 2270002072 | Skid Steer Loaders | Skid Steer Loaders | TX | 0.21 | 771 |
| 2270002072 | Skid Steer Loaders | TxDOT Construction Equipment | DFW | 0.21 | 102.43 |
| 2270002072 | Skid Steer Loaders | TxDOT Construction Equipment | TX | 0.21 | 102.43 |
| 2270002075 | Off-Highway Tractors | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.59 | 855 |
| 2270002075 | Off-Highway Tractors | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.59 | 855 |
| 2270002075 | Off-Highway Tractors | Utility Construction | DFW | 0.59 | 567.54 |
| 2270002078 | Dumpers/Tenders | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.21 | 566 |
| 2270002078 | Dumpers/Tenders | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.21 | 566 |
| 2270002081 | Other Construction Equipment | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | DFW | 0.59 | 606 |
| 2270002081 | Other Construction Equipment | Off-Road Tractors, Misc. Equipment, and all Equipment < 25 hp | TX | 0.59 | 606 |
| 2270003010 | Aerial Lifts | Non DCE | TX | 0.21 | 384 |
| 2270003020 | Forklifts | Non DCE | TX | 0.59 | 1700 |
| 2270003030 | Sweepers/Scrubbers | Non DCE | TX | 0.43 | 1220 |
| 2270003040 | Other General Industrial Eqp | Non DCE | TX | 0.43 | 878 |
| 2270003050 | Other Material Handling Eqp | Non DCE | TX | 0.21 | 421 |
| 2270003060 | AC\Refrigeration | Non DCE | TX | 0.43 | 1341 |
| 2270003070 | Terminal Tractors | Non DCE | TX | 0.59 | 1257 |
| 2270004031 | Leafblowers/Vacuums | Non DCE | TX | 0.43 | 120 |
| 2270004036 | Snowblowers | Non DCE | TX | 0.43 | 400 |
| 2270004046 | Front Mowers | Non DCE | TX | 0.43 | 480 |
| 2270004056 | Lawn & Garden Tractors | Non DCE | TX | 0.43 | 544 |
| 2270004066 | Chippers/Stump Grinders | Non DCE | TX | 0.43 | 465 |
| 2270004071 | Commercial Turf Equipment | Non DCE | TX | 0.43 | 1068 |
| 2270004076 | Other Lawn & Garden Eqp. | Non DCE | TX | 0.43 | 433 |
| 2270005010 | 2-Wheel Tractors | Non DCE | TX | 0.59 | 544 |
| 2270005015 | Agricultural Tractors | Non DCE | TX | 0.59 | 475 |

| SCC | SCC Description | DCE SubSector | County Flag | Load Factor | Activity Level (Hrs/Yr) |
|---|---|---|---|---|---|
| 2270005020 | Combines | Non DCE | TX | 0.59 | 150 |
| 2270005025 | Balers | Non DCE | TX | 0.59 | 95 |
| 2270005030 | Agricultural Mowers | Non DCE | TX | 0.59 | 363 |
| 2270005035 | Sprayers | Non DCE | TX | 0.59 | 90 |
| 2270005040 | Tillers > 6 HP | Non DCE | TX | 0.59 | 172 |
| 2270005045 | Swathers | Non DCE | TX | 0.59 | 110 |
| 2270005055 | Other Agricultural Equipment | Non DCE | TX | 0.59 | 381 |
| 2270005060 | Irrigation Sets | Non DCE | TX | 0.43 | 749 |
| 2270006005 | Generator Sets | Non DCE | TX | 0.43 | 338 |
| 2270006010 | Pumps | Non DCE | TX | 0.43 | 403 |
| 2270006015 | Air Compressors | Non DCE | TX | 0.43 | 815 |
| 2270006020 | Gas Compressors | Non DCE | TX | 0.43 | 8500 |
| 2270006025 | Welders | Non DCE | TX | 0.21 | 643 |
| 2270006030 | Pressure Washers | Non DCE | TX | 0.43 | 145 |
| 2270006035 | Hydro Power Units | Non DCE | TX | 0.43 | 790 |
| 2270007010 | Shredders > 6 HP | Non DCE | TX | 0.59 | 120 |
| 2270007015 | Forest Eqp - Feller/Bunch/Skidder | Non DCE | TX | 0.59 | 1276 |
| 2270008005 | Airport Ground Support Equipment | Non DCE | TX | 0.59 | 732 |
| 2270009010 | Other Underground Mining Equipment | Non DCE | TX | 0.21 | 1533 |
| 2270010010 | Other Oil Field Equipment | Non DCE | TX | 0.43 | 1231 |
| 2282005010 | Outboard | Non DCE | TX | 0.21 | 34.8 |
| 2282005015 | Personal Water Craft | Non DCE | TX | 0.21 | 77.3 |
| 2282010005 | Inboard/Sterndrive | Non DCE | TX | 0.21 | 47.6 |
| 2282020005 | Inboard/Sterndrive | Non DCE | TX | 0.35 | 200 |
| 2282020010 | Outboards | Non DCE | TX | 0.35 | 150 |
| 2285002015 | Railway Maintenance | Non DCE | TX | 0.21 | 943 |
| 2285004015 | Railway Maintenance | Non DCE | TX | 0.62 | 184 |
| 2285006015 | Railway Maintenance | Non DCE | TX | 0.62 | 184 |

(Only records with activity greater than zero hours/year are displayed for the sake of brevity.)

# Appendix I
# Daily Activity Allocation

| Region | SCC Group | SCC Group Description | Weekday | Weekend Day |
|---|---|---|---|---|
| Statewide | 2260001000 | Recreational Equipment | 0.111111 | 0.222222 |
| Statewide | 2260002000 | Construction | 0.18 | 0.05 |
| Statewide | 2260003000 | Industrial | 0.166667 | 0.083333 |
| Statewide | 2260003060 | AC\Refrigeration | 0.142857 | 0.142857 |
| Statewide | 2260004000 | Lawn & Garden | 0.111111 | 0.222222 |
| Statewide | 2260005000 | Agricultural | 0.154287 | 0.11287 |
| Statewide | 2260006000 | Light Commercial | 0.166667 | 0.083333 |
| Statewide | 2260007000 | Logging | 0.166667 | 0.083333 |
| Statewide | 2260008000 | Airport Service | 0.142857 | 0.142857 |
| Statewide | 2260009000 | Underground Mining | 0.166667 | 0.083333 |
| Statewide | 2265001000 | Recreational Equipment | 0.111111 | 0.222222 |
| Statewide | 2265002000 | Construction | 0.18 | 0.05 |
| Statewide | 2265003000 | Industrial | 0.166667 | 0.083333 |
| Statewide | 2265003060 | AC\Refrigeration | 0.142857 | 0.142857 |
| Statewide | 2265004000 | Lawn & Garden | 0.111111 | 0.222222 |
| Statewide | 2265005000 | Agricultural | 0.154287 | 0.11287 |
| Statewide | 2265006000 | Light Commercial | 0.166667 | 0.083333 |
| Statewide | 2265007000 | Logging | 0.166667 | 0.083333 |
| Statewide | 2265008000 | Airport Service | 0.142857 | 0.142857 |
| Statewide | 2265009000 | Underground Mining | 0.166667 | 0.083333 |
| Statewide | 2267001000 | Recreational Equipment | 0.111111 | 0.222222 |
| Statewide | 2267002000 | Construction | 0.18 | 0.05 |
| Statewide | 2267003000 | Industrial | 0.166667 | 0.083333 |
| Statewide | 2267003060 | AC\Refrigeration | 0.142857 | 0.142857 |
| Statewide | 2267004000 | Lawn & Garden | 0.111111 | 0.222222 |
| Statewide | 2267005000 | Agricultural | 0.154287 | 0.11287 |
| Statewide | 2267006000 | Light Commercial | 0.166667 | 0.083333 |
| Statewide | 2267007000 | Logging | 0.166667 | 0.083333 |
| Statewide | 2267008000 | Airport Service | 0.142857 | 0.142857 |
| Statewide | 2267009000 | Underground Mining | 0.166667 | 0.083333 |
| Statewide | 2268001000 | Recreational Equipment | 0.111111 | 0.222222 |
| Statewide | 2268002000 | Construction | 0.18 | 0.05 |
| Statewide | 2268003000 | Industrial | 0.166667 | 0.083333 |
| Statewide | 2268003060 | AC\Refrigeration | 0.142857 | 0.142857 |
| Statewide | 2268004000 | Lawn & Garden | 0.111111 | 0.222222 |
| Statewide | 2268005000 | Agricultural | 0.154287 | 0.11287 |
| Statewide | 2268006000 | Light Commercial | 0.166667 | 0.083333 |
| Statewide | 2268007000 | Logging | 0.166667 | 0.083333 |
| Statewide | 2268008000 | Airport Service | 0.142857 | 0.142857 |
| Statewide | 2268009000 | Underground Mining | 0.166667 | 0.083333 |
| Statewide | 2270001000 | Recreational Equipment | 0.111111 | 0.222222 |
| Statewide | 2270002000 | Construction | 0.18 | 0.05 |
| Statewide | 2270003000 | Industrial | 0.166667 | 0.083333 |
| Statewide | 2270003060 | AC\Refrigeration | 0.142857 | 0.142857 |
| Statewide | 2270004000 | Lawn & Garden | 0.111111 | 0.222222 |
| Statewide | 2270005000 | Agricultural | 0.154287 | 0.11287 |

| Region | SCC Group | SCC Group Description | Weekday | Weekend Day |
|---|---|---|---|---|
| Statewide | 2270006000 | Light Commercial | 0.166667 | 0.083333 |
| Statewide | 2270007000 | Logging | 0.166667 | 0.083333 |
| Statewide | 2270008000 | Airport Service | 0.142857 | 0.142857 |
| Statewide | 2270009000 | Underground Mining | 0.166667 | 0.083333 |
| Statewide | 2260004011 | 2-Stroke Lawn mowers (Comm.) | 0.16 | 0.1 |
| Statewide | 2260004016 | 2-Stroke Rotary Tillers < 5 HP | 0.16 | 0.1 |
| Statewide | 2260004021 | 2-Stroke Chain Saws < 4 HP (Com | 0.16 | 0.1 |
| Statewide | 2260004026 | 2-Stroke Trimmers/Edgers/Brush | 0.16 | 0.1 |
| Statewide | 2260004031 | 2-Stroke Leafblowers/Vacuums (C | 0.16 | 0.1 |
| Statewide | 2260004036 | 2-Stroke Snowblowers (Comm.) | 0.16 | 0.1 |
| Statewide | 2260004051 | 2-Stroke Shredders < 5 HP (Comm | 0.16 | 0.1 |
| Statewide | 2260004071 | 2-Stroke Commercial Turf Equipm | 0.16 | 0.1 |
| Statewide | 2260004076 | 2-Stroke Other Lawn & Garden Eq | 0.16 | 0.1 |
| Statewide | 2265004011 | 4-Stroke Lawn mowers (Comm.) | 0.16 | 0.1 |
| Statewide | 2265004016 | 4-Stroke Rotary Tillers < 5 HP | 0.16 | 0.1 |
| Statewide | 2265004026 | 4-Stroke Trimmers/Edgers/Brush | 0.16 | 0.1 |
| Statewide | 2265004031 | 4-Stroke Leafblowers/Vacuums (C | 0.16 | 0.1 |
| Statewide | 2265004036 | 4-Stroke Snowblowers (Comm.) | 0.16 | 0.1 |
| Statewide | 2265004041 | 4-Stroke Rear Engine Riding Mow | 0.16 | 0.1 |
| Statewide | 2265004046 | 4-Stroke Front Mowers (Comm.) | 0.16 | 0.1 |
| Statewide | 2265004051 | 4-Stroke Shredders < 5 HP (Comm | 0.16 | 0.1 |
| Statewide | 2265004056 | 4-Stroke Lawn & Garden Tractors | 0.16 | 0.1 |
| Statewide | 2265004066 | 4-Stroke Chippers/Stump Grinder | 0.16 | 0.1 |
| Statewide | 2265004071 | 4-Stroke Commercial Turf Equipm | 0.16 | 0.1 |
| Statewide | 2265004076 | 4-Stroke Other Lawn & Garden Eq | 0.16 | 0.1 |
| Statewide | 2267003020 | LPG Forklifts | 0.19 | 0.025 |
| Statewide | 2267004011 | LPG Lawn mowers (Comm.) | 0.16 | 0.1 |
| Statewide | 2267004016 | LPG Rotary Tillers < 5 HP | 0.16 | 0.1 |
| Statewide | 2267004026 | LPG Trimmers/Edgers/Brush | 0.16 | 0.1 |
| Statewide | 2267004031 | LPG Leafblowers/Vacuums (C | 0.16 | 0.1 |
| Statewide | 2267004036 | LPG Snowblowers (Comm.) | 0.16 | 0.1 |
| Statewide | 2267004041 | LPG Rear Engine Riding Mow | 0.16 | 0.1 |
| Statewide | 2267004046 | LPG Front Mowers (Comm.) | 0.16 | 0.1 |
| Statewide | 2267004051 | LPG Shredders < 5 HP (Comm | 0.16 | 0.1 |
| Statewide | 2267004056 | LPG Lawn & Garden Tractors | 0.16 | 0.1 |
| Statewide | 2267004066 | LPG Chippers/Stump Grinder | 0.16 | 0.1 |
| Statewide | 2267004071 | LPG Commercial Turf Equipm | 0.16 | 0.1 |
| Statewide | 2267004076 | LPG Other Lawn & Garden Eq | 0.16 | 0.1 |
| Statewide | 2268004011 | CNG Lawn mowers (Comm.) | 0.16 | 0.1 |
| Statewide | 2268004016 | CNG Rotary Tillers < 5 HP | 0.16 | 0.1 |
| Statewide | 2268004026 | CNG Trimmers/Edgers/Brush | 0.16 | 0.1 |
| Statewide | 2268004031 | CNG Leafblowers/Vacuums (C | 0.16 | 0.1 |
| Statewide | 2268004036 | CNG Snowblowers (Comm.) | 0.16 | 0.1 |
| Statewide | 2268004041 | CNG Rear Engine Riding Mow | 0.16 | 0.1 |
| Statewide | 2268004046 | CNG Front Mowers (Comm.) | 0.16 | 0.1 |
| Statewide | 2268004051 | CNG Shredders < 5 HP (Comm | 0.16 | 0.1 |

| Region | SCC Group | SCC Group Description | Weekday | Weekend Day |
|---|---|---|---|---|
| Statewide | 2268004056 | CNG Lawn & Garden Tractors | 0.16 | 0.1 |
| Statewide | 2268004066 | CNG Chippers/Stump Grinder | 0.16 | 0.1 |
| Statewide | 2268004071 | CNG Commercial Turf Equipm | 0.16 | 0.1 |
| Statewide | 2268004076 | CNG Other Lawn & Garden Eq | 0.16 | 0.1 |
| Statewide | 2270004031 | Diesel Leafblowers/Vacuums (Com | 0.16 | 0.1 |
| Statewide | 2270004036 | Diesel Snowblowers (Comm.) | 0.16 | 0.1 |
| Statewide | 2270004041 | Diesel Rear Engine Riding Mower | 0.16 | 0.1 |
| Statewide | 2270004046 | Diesel Front Mowers (Comm.) | 0.16 | 0.1 |
| Statewide | 2270004056 | Diesel Lawn & Garden Tractors ( | 0.16 | 0.1 |
| Statewide | 2270004066 | Diesel Chippers/Stump Grinders | 0.16 | 0.1 |
| Statewide | 2270004071 | Diesel Commercial Turf Equipmen | 0.16 | 0.1 |
| Statewide | 2270004076 | Diesel Other Lawn & Garden Equi | 0.16 | 0.1 |
| HGB | 2282000000 | Recreational Marine | 0.05 | 0.37 |
| HGC | 2282000000 | Recreational Marine | 0.03 | 0.42 |
| HGF | 2282000000 | Recreational Marine | 0.04 | 0.41 |
| HGG | 2282000000 | Recreational Marine | 0.02 | 0.44 |
| HGH | 2282000000 | Recreational Marine | 0.06 | 0.36 |
| HGL | 2282000000 | Recreational Marine | 0.04 | 0.41 |
| HGM | 2282000000 | Recreational Marine | 0.03 | 0.43 |
| HGW | 2282000000 | Recreational Marine | 0.04 | 0.41 |
| Statewide | 2282000000 | Recreational Marine | 0.06 | 0.35 |
| Statewide | 2285000000 | Railway Maintenance | 0.18 | 0.05 |

# Appendix J
# Monthly Activity Allocation

| Region | SCC | Equipment Description | Jan | Feb | Mar | April | May | June | July | Aug | Sept | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW | 2260000000 | Average | 0.083 | 0.083 | 0.078 | 0.078 | 0.078 | 0.094 | 0.094 | 0.094 | 0.078 | 0.078 | 0.078 | 0.083 |
| SW | 2260001000 | Recreational Equipment | 0.04 | 0.04 | 0.085 | 0.085 | 0.085 | 0.123 | 0.123 | 0.123 | 0.085 | 0.085 | 0.085 | 0.04 |
| SW | 2260001020 | Snowblowers/Snowmobiles | 0.333 | 0.333 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.333 |
| SW | 2260002000 | Construction | 0.075 | 0.075 | 0.084 | 0.084 | 0.084 | 0.091 | 0.091 | 0.091 | 0.084 | 0.084 | 0.084 | 0.075 |
| SW | 2260003000 | Industrial | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2260004000 | Lawn and Garden excl. chainsaws | 0.02 | 0.02 | 0.1 | 0.1 | 0.1 | 0.113 | 0.113 | 0.113 | 0.1 | 0.1 | 0.1 | 0.02 |
| SW | 2260004020 | Lawn and Garden Chainsaws | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2260004021 | Lawn and Garden Chainsaws | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2260004035 | Snowblowers/Snowmobiles | 0.333 | 0.333 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.333 |
| SW | 2260004036 | Snowblowers/Snowmobiles | 0.333 | 0.333 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.333 |
| SW | 2260005000 | Agricultural | 0.02 | 0.02 | 0.1 | 0.1 | 0.1 | 0.113 | 0.113 | 0.113 | 0.1 | 0.1 | 0.1 | 0.02 |
| SW | 2260005010 | Agricultural 2-wheel tractors | 0.063 | 0.063 | 0.1 | 0.1 | 0.1 | 0.103 | 0.103 | 0.103 | 0.063 | 0.063 | 0.063 | 0.063 |
| SW | 2260005015 | Agricultural Ag tractors | 0.057 | 0.057 | 0.097 | 0.097 | 0.097 | 0.107 | 0.107 | 0.107 | 0.073 | 0.073 | 0.073 | 0.057 |
| SW | 2260005020 | Agricultural Combines | 0.017 | 0.017 | 0.063 | 0.063 | 0.063 | 0.177 | 0.177 | 0.177 | 0.077 | 0.077 | 0.077 | 0.017 |
| SW | 2260005025 | Agricultural Balers | 0.017 | 0.017 | 0.077 | 0.077 | 0.077 | 0.197 | 0.197 | 0.197 | 0.043 | 0.043 | 0.043 | 0.017 |
| SW | 2260005030 | Agricultural Ag mowers | 0.023 | 0.023 | 0.087 | 0.087 | 0.087 | 0.163 | 0.163 | 0.163 | 0.06 | 0.06 | 0.06 | 0.023 |
| SW | 2260005035 | Agricultural Sprayers | 0.013 | 0.013 | 0.15 | 0.15 | 0.15 | 0.13 | 0.13 | 0.13 | 0.04 | 0.04 | 0.04 | 0.013 |
| SW | 2260005040 | Agricultural Tillers >6HP | 0.05 | 0.05 | 0.107 | 0.107 | 0.107 | 0.1 | 0.1 | 0.1 | 0.077 | 0.077 | 0.077 | 0.05 |
| SW | 2260005045 | Agricultural Swathers | 0.003 | 0.003 | 0.117 | 0.117 | 0.117 | 0.16 | 0.16 | 0.16 | 0.057 | 0.057 | 0.057 | 0.003 |
| SW | 2260005055 | Agricultural Other Ag Equipment | 0.05 | 0.05 | 0.087 | 0.087 | 0.087 | 0.087 | 0.087 | 0.087 | 0.11 | 0.11 | 0.11 | 0.05 |
| SW | 2260005060 | Agricultural Irrigation sets | 0.027 | 0.027 | 0.11 | 0.11 | 0.11 | 0.16 | 0.16 | 0.16 | 0.04 | 0.04 | 0.04 | 0.027 |
| SW | 2260006000 | Light Commercial | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2260007000 | Logging | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2260008000 | Airport Service | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2265000000 | Average | 0.083 | 0.083 | 0.078 | 0.078 | 0.078 | 0.094 | 0.094 | 0.094 | 0.078 | 0.078 | 0.078 | 0.083 |
| SW | 2265001000 | Recreational Equipment | 0.04 | 0.04 | 0.085 | 0.085 | 0.085 | 0.123 | 0.123 | 0.123 | 0.085 | 0.085 | 0.085 | 0.04 |
| SW | 2265001020 | Snowblowers/Snowmobiles | 0.333 | 0.333 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.333 |
| SW | 2265002000 | Construction | 0.075 | 0.075 | 0.084 | 0.084 | 0.084 | 0.091 | 0.091 | 0.091 | 0.084 | 0.084 | 0.084 | 0.075 |
| SW | 2265003000 | Industrial | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2265004000 | Lawn and Garden excl. chainsaws | 0.02 | 0.02 | 0.1 | 0.1 | 0.1 | 0.113 | 0.113 | 0.113 | 0.1 | 0.1 | 0.1 | 0.02 |
| SW | 2265004020 | Lawn and Garden Chainsaws | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2265004021 | Lawn and Garden Chainsaws | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2265004035 | Snowblowers/Snowmobiles | 0.333 | 0.333 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.333 |
| SW | 2265004036 | Snowblowers/Snowmobiles | 0.333 | 0.333 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.333 |
| SW | 2265005000 | Agricultural | 0.02 | 0.02 | 0.1 | 0.1 | 0.1 | 0.113 | 0.113 | 0.113 | 0.1 | 0.1 | 0.1 | 0.02 |
| SW | 2265005010 | Agricultural 2-wheel tractors | 0.063 | 0.063 | 0.1 | 0.1 | 0.1 | 0.103 | 0.103 | 0.103 | 0.063 | 0.063 | 0.063 | 0.063 |
| SW | 2265005015 | Agricultural Ag tractors | 0.057 | 0.057 | 0.097 | 0.097 | 0.097 | 0.107 | 0.107 | 0.107 | 0.073 | 0.073 | 0.073 | 0.057 |
| SW | 2265005020 | Agricultural Combines | 0.017 | 0.017 | 0.063 | 0.063 | 0.063 | 0.177 | 0.177 | 0.177 | 0.077 | 0.077 | 0.077 | 0.017 |
| SW | 2265005025 | Agricultural Balers | 0.017 | 0.017 | 0.077 | 0.077 | 0.077 | 0.197 | 0.197 | 0.197 | 0.043 | 0.043 | 0.043 | 0.017 |
| SW | 2265005030 | Agricultural Ag mowers | 0.023 | 0.023 | 0.087 | 0.087 | 0.087 | 0.163 | 0.163 | 0.163 | 0.06 | 0.06 | 0.06 | 0.023 |
| SW | 2265005035 | Agricultural Sprayers | 0.013 | 0.013 | 0.15 | 0.15 | 0.15 | 0.13 | 0.13 | 0.13 | 0.04 | 0.04 | 0.04 | 0.013 |
| SW | 2265005040 | Agricultural Tillers >6HP | 0.05 | 0.05 | 0.107 | 0.107 | 0.107 | 0.1 | 0.1 | 0.1 | 0.077 | 0.077 | 0.077 | 0.05 |

| Region | SCC | Equipment Description | Jan | Feb | Mar | April | May | June | July | Aug | Sept | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW | 2265005045 | Agricultural Swathers | 0.003 | 0.003 | 0.117 | 0.117 | 0.117 | 0.16 | 0.16 | 0.16 | 0.057 | 0.057 | 0.057 | 0.003 |
| SW | 2265005055 | Agricultural Other Ag Equipment | 0.05 | 0.05 | 0.087 | 0.087 | 0.087 | 0.087 | 0.087 | 0.087 | 0.11 | 0.11 | 0.11 | 0.05 |
| SW | 2265005060 | Agricultural Irrigation sets | 0.027 | 0.027 | 0.11 | 0.11 | 0.11 | 0.16 | 0.16 | 0.16 | 0.04 | 0.04 | 0.04 | 0.027 |
| SW | 2265006000 | Light Commercial | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2265007000 | Logging | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2265008000 | Airport Service | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2267000000 | Average | 0.083 | 0.083 | 0.078 | 0.078 | 0.078 | 0.094 | 0.094 | 0.094 | 0.078 | 0.078 | 0.078 | 0.083 |
| SW | 2267001000 | Recreational Equipment | 0.04 | 0.04 | 0.085 | 0.085 | 0.085 | 0.123 | 0.123 | 0.123 | 0.085 | 0.085 | 0.085 | 0.04 |
| SW | 2267001020 | Snowblowers/Snowmobiles | 0.333 | 0.333 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.333 |
| SW | 2267002000 | Construction | 0.075 | 0.075 | 0.084 | 0.084 | 0.084 | 0.091 | 0.091 | 0.091 | 0.084 | 0.084 | 0.084 | 0.075 |
| SW | 2267003000 | Industrial | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2267004000 | Lawn and Garden excl. chainsaws | 0.02 | 0.02 | 0.1 | 0.1 | 0.1 | 0.113 | 0.113 | 0.113 | 0.1 | 0.1 | 0.1 | 0.02 |
| SW | 2267004020 | Lawn and Garden Chainsaws | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2267004021 | Lawn and Garden Chainsaws | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2267004035 | Snowblowers/Snowmobiles | 0.333 | 0.333 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.333 |
| SW | 2267004036 | Snowblowers/Snowmobiles | 0.333 | 0.333 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.333 |
| SW | 2267005000 | Agricultural | 0.02 | 0.02 | 0.1 | 0.1 | 0.1 | 0.113 | 0.113 | 0.113 | 0.1 | 0.1 | 0.1 | 0.02 |
| SW | 2267005055 | Agricultural Other Ag Equipment | 0.05 | 0.05 | 0.087 | 0.087 | 0.087 | 0.087 | 0.087 | 0.087 | 0.11 | 0.11 | 0.11 | 0.05 |
| SW | 2267005060 | Agricultural Irrigation sets | 0.027 | 0.027 | 0.11 | 0.11 | 0.11 | 0.16 | 0.16 | 0.16 | 0.04 | 0.04 | 0.04 | 0.027 |
| SW | 2267006000 | Light Commercial | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2267007000 | Logging | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2267008000 | Airport Service | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2268000000 | Average | 0.083 | 0.083 | 0.078 | 0.078 | 0.078 | 0.094 | 0.094 | 0.094 | 0.078 | 0.078 | 0.078 | 0.083 |
| SW | 2268001000 | Recreational Equipment | 0.04 | 0.04 | 0.085 | 0.085 | 0.085 | 0.123 | 0.123 | 0.123 | 0.085 | 0.085 | 0.085 | 0.04 |
| SW | 2268001020 | Snowblowers/Snowmobiles | 0.333 | 0.333 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.333 |
| SW | 2268002000 | Construction | 0.075 | 0.075 | 0.084 | 0.084 | 0.084 | 0.091 | 0.091 | 0.091 | 0.084 | 0.084 | 0.084 | 0.075 |
| SW | 2268003000 | Industrial | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2268004000 | Lawn and Garden excl. chainsaws | 0.02 | 0.02 | 0.1 | 0.1 | 0.1 | 0.113 | 0.113 | 0.113 | 0.1 | 0.1 | 0.1 | 0.02 |
| SW | 2268004020 | Lawn and Garden Chainsaws | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2268004021 | Lawn and Garden Chainsaws | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2268004035 | Snowblowers/Snowmobiles | 0.333 | 0.333 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.333 |
| SW | 2268004036 | Snowblowers/Snowmobiles | 0.333 | 0.333 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.333 |
| SW | 2268005000 | Agricultural | 0.02 | 0.02 | 0.1 | 0.1 | 0.1 | 0.113 | 0.113 | 0.113 | 0.1 | 0.1 | 0.1 | 0.02 |
| SW | 2268005055 | Agricultural Other Ag Equipment | 0.05 | 0.05 | 0.087 | 0.087 | 0.087 | 0.087 | 0.087 | 0.087 | 0.11 | 0.11 | 0.11 | 0.05 |
| SW | 2268005060 | Agricultural Irrigation sets | 0.027 | 0.027 | 0.11 | 0.11 | 0.11 | 0.16 | 0.16 | 0.16 | 0.04 | 0.04 | 0.04 | 0.027 |
| SW | 2268006000 | Light Commercial | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2268007000 | Logging | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2268008000 | Airport Service | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2270000000 | Average | 0.083 | 0.083 | 0.078 | 0.078 | 0.078 | 0.094 | 0.094 | 0.094 | 0.078 | 0.078 | 0.078 | 0.083 |
| SW | 2270001000 | Recreational Equipment | 0.04 | 0.04 | 0.085 | 0.085 | 0.085 | 0.123 | 0.123 | 0.123 | 0.085 | 0.085 | 0.085 | 0.04 |
| SW | 2270001020 | Snowblowers/Snowmobiles | 0.333 | 0.333 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.333 |
| SW | 2270002000 | Construction | 0.075 | 0.075 | 0.084 | 0.084 | 0.084 | 0.091 | 0.091 | 0.091 | 0.084 | 0.084 | 0.084 | 0.075 |

| Region | SCC | Equipment Description | Jan | Feb | Mar | April | May | June | July | Aug | Sept | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW | 2270003000 | Industrial | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2270004000 | Lawn and Garden excl. chainsaws | 0.02 | 0.02 | 0.1 | 0.1 | 0.1 | 0.113 | 0.113 | 0.113 | 0.1 | 0.1 | 0.1 | 0.02 |
| SW | 2270004020 | Lawn and Garden Chainsaws | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2270004021 | Lawn and Garden Chainsaws | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2270004035 | Snowblowers/Snowmobiles | 0.333 | 0.333 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.333 |
| SW | 2270004036 | Snowblowers/Snowmobiles | 0.333 | 0.333 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.333 |
| SW | 2270005000 | Agricultural | 0.02 | 0.02 | 0.1 | 0.1 | 0.1 | 0.113 | 0.113 | 0.113 | 0.1 | 0.1 | 0.1 | 0.02 |
| SW | 2270005010 | Agricultural 2-wheel tractors | 0.063 | 0.063 | 0.1 | 0.1 | 0.1 | 0.103 | 0.103 | 0.103 | 0.063 | 0.063 | 0.063 | 0.063 |
| SW | 2270005015 | Agricultural Ag tractors | 0.057 | 0.057 | 0.097 | 0.097 | 0.097 | 0.107 | 0.107 | 0.107 | 0.073 | 0.073 | 0.073 | 0.057 |
| SW | 2270005020 | Agricultural Combines | 0.017 | 0.017 | 0.063 | 0.063 | 0.063 | 0.177 | 0.177 | 0.177 | 0.077 | 0.077 | 0.077 | 0.017 |
| SW | 2270005025 | Agricultural Balers | 0.017 | 0.017 | 0.077 | 0.077 | 0.077 | 0.197 | 0.197 | 0.197 | 0.043 | 0.043 | 0.043 | 0.017 |
| SW | 2270005030 | Agricultural Ag mowers | 0.023 | 0.023 | 0.087 | 0.087 | 0.087 | 0.163 | 0.163 | 0.163 | 0.06 | 0.06 | 0.06 | 0.023 |
| SW | 2270005035 | Agricultural Sprayers | 0.013 | 0.013 | 0.15 | 0.15 | 0.15 | 0.13 | 0.13 | 0.13 | 0.04 | 0.04 | 0.04 | 0.013 |
| SW | 2270005040 | Agricultural Tillers >6HP | 0.05 | 0.05 | 0.107 | 0.107 | 0.107 | 0.1 | 0.1 | 0.1 | 0.077 | 0.077 | 0.077 | 0.05 |
| SW | 2270005045 | Agricultural Swathers | 0.003 | 0.003 | 0.117 | 0.117 | 0.117 | 0.16 | 0.16 | 0.16 | 0.057 | 0.057 | 0.057 | 0.003 |
| SW | 2270005055 | Agricultural Other Ag Equipment | 0.05 | 0.05 | 0.087 | 0.087 | 0.087 | 0.087 | 0.087 | 0.087 | 0.11 | 0.11 | 0.11 | 0.05 |
| SW | 2270005060 | Agricultural Irrigation sets | 0.027 | 0.027 | 0.11 | 0.11 | 0.11 | 0.16 | 0.16 | 0.16 | 0.04 | 0.04 | 0.04 | 0.027 |
| SW | 2270006000 | Light Commercial | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2270007000 | Logging | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2270008000 | Airport Service | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2280000000 | Commercial Marine | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |
| SW | 2282000000 | Recreational Marine | 0.023 | 0.023 | 0.075 | 0.075 | 0.075 | 0.16 | 0.16 | 0.16 | 0.075 | 0.075 | 0.075 | 0.023 |
| HGB | 2282000000 | Recreational Marine | 0.029 | 0.014 | 0.047 | 0.101 | 0.133 | 0.165 | 0.201 | 0.115 | 0.101 | 0.058 | 0.014 | 0.022 |
| HGC | 2282000000 | Recreational Marine | 0.029 | 0.014 | 0.047 | 0.101 | 0.133 | 0.165 | 0.201 | 0.115 | 0.101 | 0.058 | 0.014 | 0.022 |
| HGF | 2282000000 | Recreational Marine | 0.029 | 0.014 | 0.047 | 0.101 | 0.133 | 0.165 | 0.201 | 0.115 | 0.101 | 0.058 | 0.014 | 0.022 |
| HGG | 2282000000 | Recreational Marine | 0.029 | 0.014 | 0.047 | 0.101 | 0.133 | 0.165 | 0.201 | 0.115 | 0.101 | 0.058 | 0.014 | 0.022 |
| HGH | 2282000000 | Recreational Marine | 0.029 | 0.014 | 0.047 | 0.101 | 0.133 | 0.165 | 0.201 | 0.115 | 0.101 | 0.058 | 0.014 | 0.022 |
| HGL | 2282000000 | Recreational Marine | 0.029 | 0.014 | 0.047 | 0.101 | 0.133 | 0.165 | 0.201 | 0.115 | 0.101 | 0.058 | 0.014 | 0.022 |
| HGM | 2282000000 | Recreational Marine | 0.029 | 0.014 | 0.047 | 0.101 | 0.133 | 0.165 | 0.201 | 0.115 | 0.101 | 0.058 | 0.014 | 0.022 |
| HGW | 2282000000 | Recreational Marine | 0.029 | 0.014 | 0.047 | 0.101 | 0.133 | 0.165 | 0.201 | 0.115 | 0.101 | 0.058 | 0.014 | 0.022 |
| SW | 2285000000 | Railway Maintenance | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 |