



# ***Emissions Inventories: An Overview***

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Office of Air, Air Quality Division

Presented to the Texas Commission on Environmental  
Quality (TCEQ) Environmental Trade Fair and Conference  
May 14, 2019

# Overview

- What is an emissions inventory (EI)?
- EI role in air quality
- Types of emissions inventories
  - Point
  - Area
  - On-road
  - Non-road
  - Biogenic
- Anthropogenic emissions trends



# What is an EI?

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- Accounts for the amount of air pollutants released into the atmosphere
- Includes the following data:
  - Who: Sources creating air pollution
  - What: Chemical or physical identity of the pollutants
  - Where: Geographic area covered
  - When: Time period emissions are released
  - Why: Types of activities that cause emissions
  - How: Specific release information
    - Location
    - Height
    - Velocity
    - Temperature

# How Does the TCEQ Use Its EI?

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Emission inventories are developed for a variety of purposes, including:

- State Implementation Plan development
- Photochemical modeling
- Developing strategies and policies
  - Analyze ozone precursor emissions in ozone nonattainment areas to assess control strategy implementation
  - Model predicted emissions reductions
- Evaluating the environmental costs and benefits of different policies
  - Use EI data to obtain a cost per ton of pollutant reduced



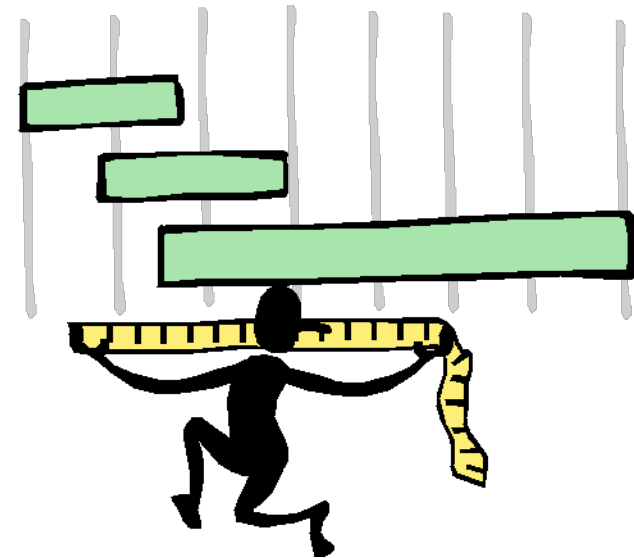


# How Does the TCEQ Use Its EI? (cont.)

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Emission inventories are developed for a variety of purposes.

- Tracking progress of air quality standards
  - Compare emissions trends to ambient air monitoring data
- Meet required federal reporting
- Fee assessment
- Providing emissions information to public and private entities
- Other air quality planning efforts





# Types of Emissions Inventories

Developed from **industry**-reported emissions

- Point source: large upstream oil and gas, power plants, cement plants

TCEQ-developed emissions inventories

- Area source: dry cleaners, drilling rigs, gas stations, small upstream oil and gas
- On-road mobile: cars and trucks
- Non-road mobile: planes, trains, marine
- Biogenic: vegetation, soil



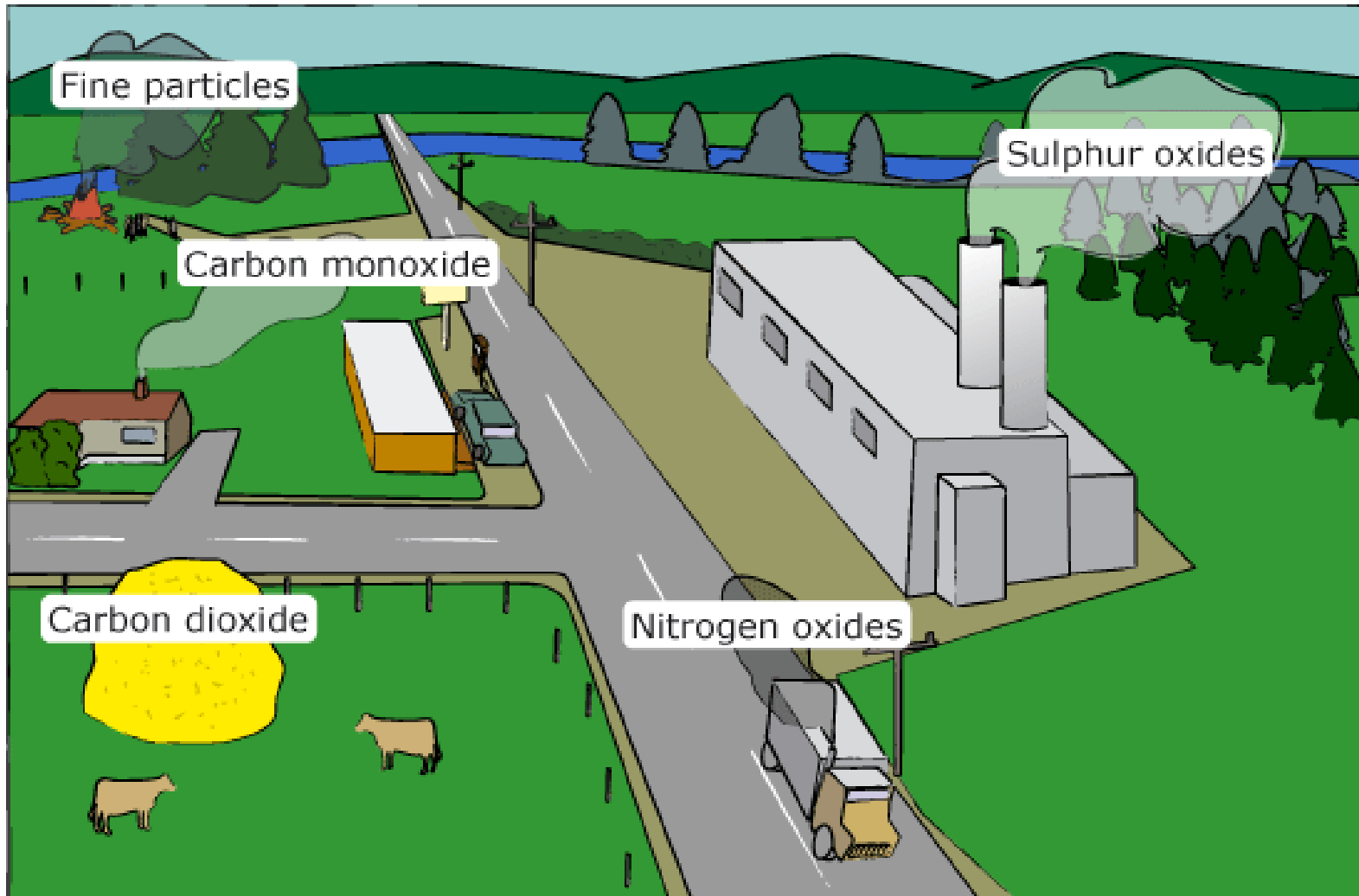
# **30 Texas Administrative Code (TAC) Section 101.10**

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EI rule organization

- (a) Applicability
- (b) Types of inventories
- (c) Calculations
- (d) Certifying statements
- (e) Reporting requirements
- (f) Enforcement

# Which One is the Point Source?







# Applicability Requirements:

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What information is needed to determine if a site meets the reporting requirements of 30 TAC Section 101.10?

- **Potential To Emit (PTE)** and **actual** emissions thresholds for regulated pollutants
- **PTE** and **actual** emissions thresholds for hazardous air pollutants (HAP)
- Site location and attainment status of county



# Statewide Applicability Requirements:

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Major stationary source defined under 30 TAC Section 116.12, Nonattainment and Prevention of Significant Deterioration:

- The rule defines **PTE** thresholds.
- The major source classification changes based on the attainment status of county.



# Statewide

## Applicability Requirements (cont.):

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- Any account that **emits** or has the **PTE** 100 tons per year (tpy) or more of any contaminant (except for greenhouse gases)
- Any account that **emits** or has the **PTE** 10 tons of any single HAP or 25 tons of aggregate HAPs as defined in Federal Clean Air Act, Section 112(a)(1)
- Any account that **emits** or has the **PTE** 0.5 tpy of lead (Pb)



# Special Inventory

## Applicability Requirements:

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- Only regulated entities that receive a written notification from the TCEQ
- Respond to the letter even if the site does not meet reporting thresholds
- Current special EI for ozone precursors  
Account that **emits** least 10 tpy of volatile organic compounds (VOC) or 25 tpy of nitrogen oxides (NO<sub>x</sub>) emissions during normal operation and that are located in one of the specified counties on the next slide



# Special Inventory

## Applicability Requirements (cont.):

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2018 Reporting Year (RY) special EI counties for ozone precursors:

<b>Bastrop</b>	<b>Gregg</b>	<b>Henderson</b>	<b>Orange</b>	<b>Upshur</b>
<b>Bell</b>	<b>Guadalupe</b>	<b>Hood</b>	<b>Rusk</b>	<b>Victoria</b>
<b>Caldwell</b>	<b>Hardin</b>	<b>Jefferson</b>	<b>San Patricio</b>	<b>Williamson</b>
<b>Comal</b>	<b>Harrison</b>	<b>McLennan</b>	<b>Smith</b>	<b>Wilson</b>
<b>El Paso</b>	<b>Hays</b>	<b>Nueces</b>	<b>Travis</b>	



# Ozone Nonattainment Areas Applicability Requirements:

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- Any account located in an **ozone nonattainment** area **emitting**
  - 10 tpy or more of VOC,
  - 25 tpy or more of NO<sub>x</sub>, or
  - 100 tpy or more of any other contaminant subject to the National Ambient Air Quality Standards
- Starting with the 2018 RY, Bexar County is marginal ozone nonattainment under the 2015 Ozone Standard.



# Summary of 2018 Reporting Thresholds

## Summary of Reporting Requirements (tpy) for 30 TAC Section 101.10

Note: For ozone nonattainment areas, the more stringent or severe classification (where applicable) is used to determine reporting requirements for ozone precursor potential emissions.

County	VOC		NO <sub>x</sub>		Other		Individual HAP		Aggregated HAP	
	Actual	Potential	Actual	Potential	Actual	Potential	Actual	Potential	Actual	Potential
Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, Waller <b>MODERATE / OZONE</b>	10	100	25	100	100	100	10	10	25	25
Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant, Wise <b>MODERATE / OZONE</b>	10	100	25	100	100	100	10	10	25	25
<b>Bexar</b> <b>MARGINAL / OZONE</b>	10	100	25	100	100	100	10	10	25	25
<b>SPECIAL INVENTORY REPORTING THRESHOLDS FOR OZONE PRECURSORS</b>	10	100	25	100	100	100	10	10	25	25
All Other Counties	100	100	100	100	100	100	10	10	25	25
<b>Statewide</b>	Lead (Pb) Actual					Lead (Pb) Potential				
REPORTING THRESHOLDS FOR LEAD (All counties)	0.5					10				



# Applicability Requirements (cont.)

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Common scenario: An operational major source voided the site's applicable permits in June 2018.

- The site met 30 TAC Section 101.10 **PTE** reporting thresholds.
- The site must submit a 2018 EI.
- The 2019 EI may not be required if the site does not meet any of the 30 TAC Section 101.10 reporting requirements.





# Point Source EI Types

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- Initial
- Annual update
- Special



# Initial EI

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- Sites that have never submitted an inventory
- Required to be submitted through the State of Texas Environmental Electronic Reporting System (STEERS) Annual Emissions Inventory Reporting Web-based system (AEIR)  
Also referred to "Web-EI"
- Due by March 31<sup>st</sup>



# Annual EI Update

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- Required every year the reporting criteria are met
- Required to be submitted through Web-EI
- Due March 31<sup>st</sup> unless otherwise directed in writing by the TCEQ



# Special EI

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- Only regulated entities that receive a written notification from the TCEQ
- Respond to the letter even if the site does not meet reporting threshold
- Current special EI is for ozone precursors
  - No difference in the type of EI data, same format as the initial and annual EI updates
  - Counties listed on slide 13



# What is Web-EI?

## **STEERS: the Framework**

- Web portal for reporting numerous types of environmental data electronically to the TCEQ
  - Manages items such as:
    - User accounts
    - Security settings
  - Different program areas have specific application or reporting functions within STEERS
- STEERS accounts (ER##### format) are user based.
  - Assigned to individuals
  - Don't confuse with Air Account Numbers or Regulated Entity Reference Numbers



# What is Web-EI? (cont.)

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## AEIR: the Program

- Two-pronged system allows for:
  - Direct entry of EI data (manual/Emissions Inventory Questionnaire entry option)
  - Upload of data in a single text file (file upload option)  
Often referred to as electronic or delta file method
- Document attachment function to submit non-confidential information  
**Confidential** supporting documentation must be sent via the United States Postal Service

Note: Screen shots are from STEERS test environment.  
Live system is at: <https://www3.tceq.texas.gov/steers/>



**This is the STEERS TEST environment. If you want to submit OFFICIAL data to TCEQ, you must go to <https://www3.tceq.texas.gov/steers/>.**

## Welcome to STEERS Internet Version 6.1!

**Notice:** STEERS automatically logs out after 20 minutes of inactivity. Activity is defined by moving from one page to another, not by entering information on a page.

For more information on how to navigate this site, please visit our [Help](#) section.

**Select Reporting Program Area:** [Air Emissions and Maintenance Events \(AEME\)](#)  
[Annual Emissions Inventory Report \(AEIR\)](#)

**OR**

**Select e-Permits Program Area:** [Air New Source Review \(EPR NSR\)](#)

## STEERS News:

There are no current news items.



## Account Summary

**Account:** ER001175      **Account Status:** ACTIVE - unlocked  
**Name:** David Bulloch I      **Created:** 02/14/2014  
**Company:** TCEQ      **Activated:** 02/14/2014  
**Title:** TESTER      **Last Renewed:** 08/14/2017  
**Email:** adam.bullock@tceq.texas.gov  
**Phone:** 512-659-7777  
**Address:** 5504 JOE SAYERS  
ASUTIN, TX 78756

## STEERS Access

Select STEERS Program to Add or Modify: Annual Emissions Inventory Report (AEIR) ▼

Go

<u>Current Program Area</u>	<u>Program</u>	<u># IDs</u>
<a href="#">Air Emissions and Maintenance Events</a>	AEME	3
<a href="#">Air New Source Review</a>	EPR_NSR	N/A
<a href="#">Annual Emissions Inventory Report</a>	AEIR	7





# What is Web-EI? (cont.)

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## Getting AEIR Access

- Read and follow onscreen prompts  
Especially for Access Type and Authorization
- Access Type (Levels of Authority)
  - Read – View data only
  - Edit – Enter and edit data within STEERS
  - Submit – Certify and submit data to the TCEQ
- Authorization
  - Yourself – Self-authorization
  - Another person – Requires this person's verification
- AEIR IDs to Add



To add IDs to the account: select a role, relationship, an authorization and either the IDs to add or an account to copy. Press Add IDs or Copy IDs to continue. Press Cancel when done.

### Program Status

Access Type: 

### Authorization

Select the appropriate relationship and authorization statement below.

#### What is the best description of your employer's relationship to the facility or facilities?

- ☐ The Facility  
☐ Parent Company  
☐ Other

#### Who is authorizing the access?(Select one of the following)

- ☐ I, David Bulloch I, am applying for a read, edit, or preparer role and no specific company authorization is required.

-OR-

- ☐ I, David Bulloch I, am applying for a sign and submit role and have the authority to enter into this Agreement for the Company under the applicable standards referred to in FCAA 182(a)(3)(B).
- ☐ I, David Bulloch I, am applying for a sign and submit role and am authorized by the person below who does have the authority to enter into this Agreement for the Company under the applicable standards referred to in FCAA 182(a)(3)(B).

Authority:  (Name of authorizing authority)Title:  (Title of authorizing authority)Company:  (Authorizing company)Phone:  (999-999-9999)

**AEIR IDs to Add:**

*You may enter each ID or copy IDs from another STEERS account.*

**Enter the air IDs the account needs to access.**

You may enter either an Air Account number (without the hyphen) or a Regulated Entity reference number (RN + 9 digits). If you enter an account number and it is not found, try searching for the site RN number in the [TCEQ Central Registry](#).

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

**Copy IDs from another account.**

The other account holder must be employed by the same company. An account number starts with ER and is followed by 6 numbers.

**Account Number:**



# STEERS Participation Agreement (SPA)

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- The SPA document must be signed by each STEERS user by either:
  - paper signature; or
  - electronic signature using valid Texas driver's license.
- The SPA certifies that you understand and agree to all rules and requirements of STEERS and the programs you will access.
- Must be submitted for:
  - new STEERS accounts; and
  - existing STEERS accounts when updating or adding new access.
- Accounts are on probation until the SPA is submitted.



**Reminder:** This account has probationary program areas and/or program area IDs. These probationary IDs or areas have limited access. To get full access, a signed copy of the STEERS Participation Agreement (SPA) must be received by the TCEQ either by mail or electronically if you have a Texas Drivers License. If you have not sent in the SPA already, please do so.

### Account Summary

<b>Account:</b> ER001175	<b>Account Status:</b> ACTIVE - unlocked
<b>Name:</b> David Bulloch I	<b>Created:</b> 02/14/2014
<b>Company:</b> TCEQ	<b>Activated:</b> 02/14/2014
<b>Title:</b> TESTER	<b>Last Renewed:</b> 08/14/2017
<b>Email:</b> adam.bullock@tceq.texas.gov	
<b>Phone:</b> 512-659-7777	
<b>Address:</b> 5504 JOE SAYERS ASUTIN, TX 78756	

### STEERS Access

Select STEERS Program to Add or Modify:

<u>Current Program Area</u>	<u>Program</u>	<u># IDs</u>	<u># Probationary</u>
<a href="#">Air Emissions and Maintenance Events</a>	AE ME	3	0
<a href="#">Air New Source Review</a>	EPR_NSR	N/A	0
<a href="#">Annual Emissions Inventory Report</a>	AEIR	2	2



# Who's Responsible for Submitting the EI?

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- The owner or operator of the site **at the time the inventory is due** is responsible for submitting the EI.
- The person with Submit Authority in STEERS submits and certifies the EI data or signs inapplicability or insignificant change letter.
  - Title V sites
    - Responsible Official
    - Duly Authorized Representative
  - Non-Title V sites
    - Managers or personnel with authority to represent the company or facility
- **Consultants may not submit the EI for a company.**



# Who's Responsible for Submitting the EI? (cont.)

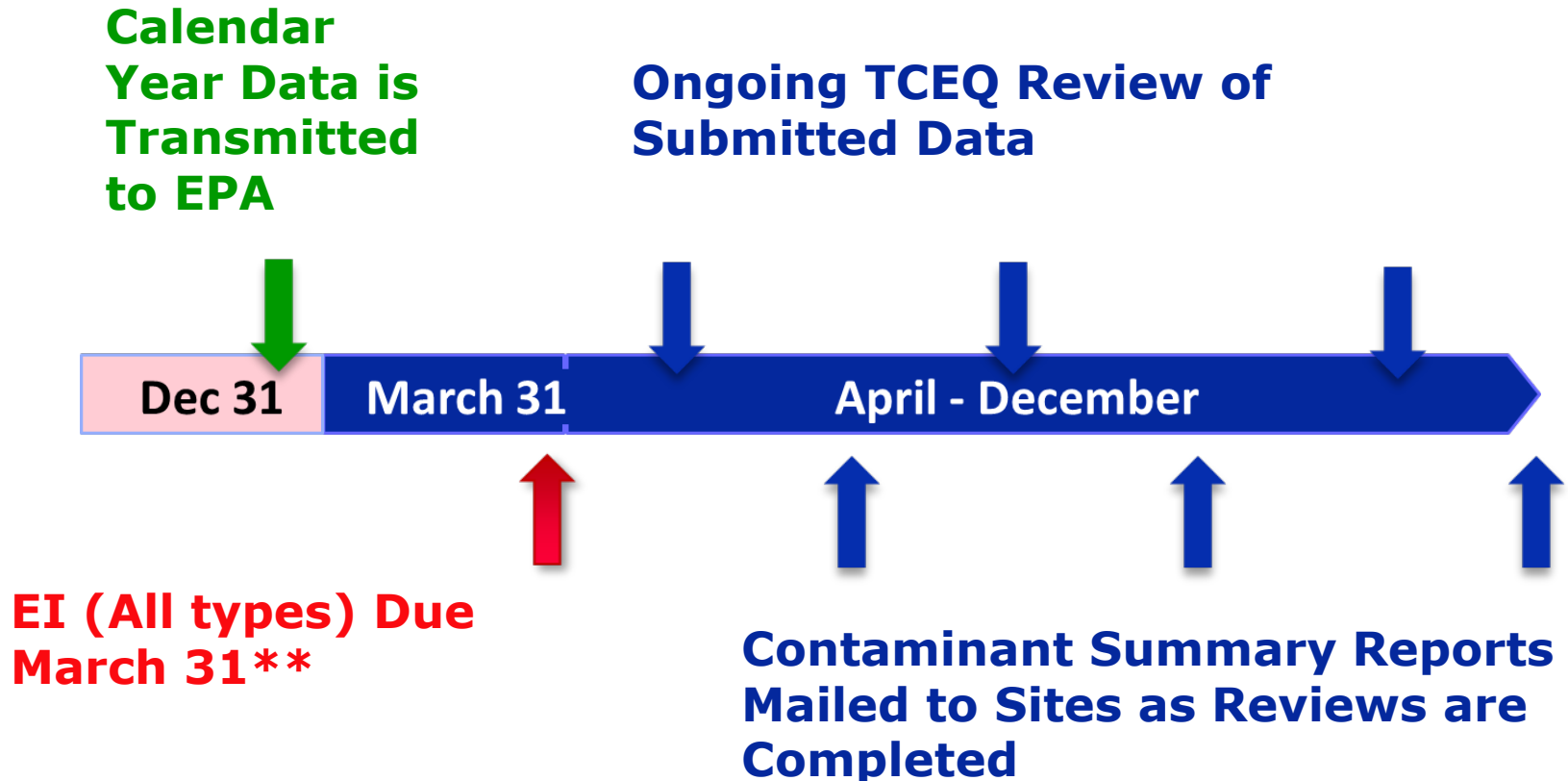
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- Don't forget to update your information with the TCEQ when you buy or sell a site.
  - Complete a CORE data form and send to TCEQ Central Registry  
[https://www.tceq.texas.gov/permitting/central\\_registry/guidance.html](https://www.tceq.texas.gov/permitting/central_registry/guidance.html)
  - (512) 239-5175 or [registry@tceq.texas.gov](mailto:registry@tceq.texas.gov)
- Keep your EI contact information up-to-date
  - Update through STEERS or
  - Contact the Emissions Assessment Section  
(512) 239-1773 or [psinvent@tceq.texas.gov](mailto:psinvent@tceq.texas.gov)



# EI Process/Timeline Overview



**\*\* or as directed in writing by the TCEQ**



# What Sources Need to be Included in the EI?

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Represent sources individually if:

- required to include the source by any TCEQ enforceable document
- emitted 1 tpy or more of any regulated pollutant
- emitted 0.1 tpy or more of toxics or HAPs
- Mercury and Pb  
exception: 2 pounds or more per year





# What Sources Need to be Included in the EI? (cont.)

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- Small emissions sources must be reported in the EI if the sum of the emissions meets or exceeds 5 tpy of regulated pollutants or 1 tpy of aggregate HAPs.
- These sources may be added individually or as a group.



# What Sources Need to be Included in the EI? (cont.)

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**Small emissions sources can be grouped as a collective source if they meet all of the following criteria:**

- Have similar source classification codes;
- Each emitted  $< 1$  tpy of each regulated pollutant;
- Each emitted  $< 0.1$  tpy or more of any toxic chemical or hazardous air pollutant; and
- Each emitted  $< 0.001$  tpy or more of mercury or Pb.

Note: If small sources or small facilities are grouped in the regulated entity's air permits, group these sources as collective FINs in a similar manner when adding them to the EI.



# Basic EI Structure Terms

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- **Structure:** The relationship of emissions sources, emissions points, abatement devices, and related emissions data
- **Facility:** A stationary source capable of generating emissions
  - FIN:** Facility Identification Number – an alphanumeric label for the facility
- **Emissions Point:** The physical location where emissions are released into the atmosphere
  - EPN:** Emissions Point Number – an alphanumeric label for the emissions point



# Basic EI Structure Terms (cont.)

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- **Abatement Device:** A device or activity used to reduce emissions

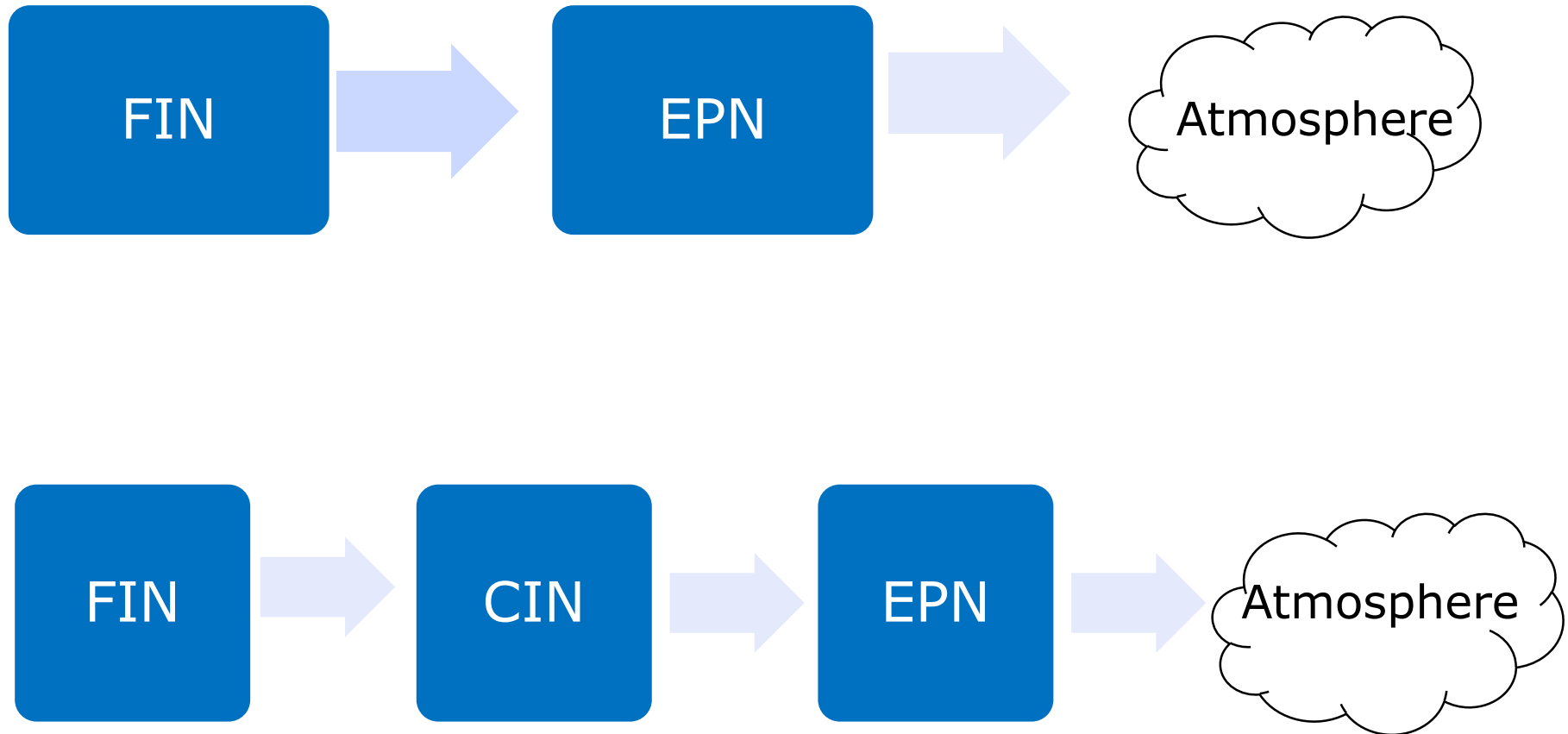
**CIN:** Control Identification Number – an alphanumeric label for the abatement device

- **Emissions Path:** The route a pollutant takes from its origin, through its abatement device (if applicable), to its release into the atmosphere

The association of one FIN, any applicable CIN(s), and one EPN

# Basic Emissions Paths

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# Which Emissions are Reported?

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- Criteria and precursor pollutants: Carbon monoxide, sulfur dioxide, VOC, NO<sub>x</sub>, Pb, PM<sub>10</sub>, and PM<sub>2.5</sub>.
  - PM<sub>10</sub>: particulate matter no larger than 10 microns in diameter
  - PM<sub>2.5</sub>: particulate matter no larger than 2.5 microns in diameter
- HAPs identified in Federal Clean Air Act, Section 112(b)  
Examples include mercury, hydrogen fluoride, and hydrochloric acid.
- Other regulated air contaminants subject to rules, regulations, permits, orders of the commission, or court orders.  
Examples include total suspended particulate and non-HAP acids.



# What Type of Emissions are Reported?

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- Four types of **actual** emissions are collected:
  - Annual (routine) emissions in tpy;
  - ozone season emissions in pounds per day;  
Sites in El Paso and located east of the 100 longitude line
  - scheduled maintenance start-up shutdown in tpy; and
  - emissions events in tpy.
- Emissions data reported in the EI are the **actual** emissions **not** the **potential** emissions or maximum emissions from the permit.





# Using the Best Available Data

## General Ranking for Emissions Determination Methods (in Descending Order):

- D Continuous emissions monitoring systems (CEMS)\*
- H Highly reactive volatile organic compounds monitoring systems
- F Predictive emissions monitoring systems
- M Measured (stack sampling) data
- Q Portable analyzer measurement data
- V Vendor-supplied emissions factors
- A AP-42 and other factors approved by the United States Environmental Protection Agency or TCEQ
- B Material Balance
- S Scientific Calculation
- E Estimation
- O Other

\*Note: if properly operated and calibrated CEMS data is available, it must be used to determine emissions per 30 Texas Administrative Code Section 101.10(c).



# What Supporting Documentation Should be Submitted with the EI?

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- Information about the site and its processes
- Sample calculations required by 30 TAC Section 101.10
  - Site-specific and use current inventory year's data
  - Update sample calculations with each EI submittal
  - Submit for each different process type
  - Process rates, operating hours, emission factors, and their sources



# How is **Confidential** Supporting Documentation Handled?

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- Mail confidential information. Do not email or attach **confidential** information to the Web-EI submission.
- USPS: Emissions Inventory Data, MC 166  
TCEQ  
PO Box 13087  
Austin, TX 78711-3087
- Overnight: Emissions Inventory Data, MC 166  
TCEQ  
12100 Park 35 Circle, Bldg. E., Third Floor  
Austin, Texas 78753
- Note: The data contained in the EI is public.




# Point Source EI Resources

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- Point Source EI webpage has the following and much more! [www.tceq.texas.gov/goto/ieas](http://www.tceq.texas.gov/goto/ieas)
- EI guidelines book (RG-360/18) provides:
  - Step-by-step instructions for completing an EI
  - Yearly updates with current reporting requirements
  - Technical supplements for common emissions sources
- EI Workshop presentations
- How to obtain site specific EI reports:  
<https://www.tceq.texas.gov/assets/public/implementation/air/ie/pseiforms/eiq-print-copy.pdf>

# Point Source Emissions Inventory

## Summary data and other information related to the TCEQ's Point Source Emissions Inventory.

The Point Source Emissions Inventory is an annual survey of chemical plants, refineries, electric utility plants and other industrial sites that meet the reporting criteria in the TCEQ emissions inventory rule ([30 TAC §101.10](#) ).

This Web page provides point source emissions inventory data along with tools and information of use to companies completing their annual Emissions Inventory questionnaires.

## Completing and Submitting a Point Source Emissions Inventory

Many of the documents linked from this page are in Portable Document Format (PDF) or in Excel (xls) format, among others. (Help with [PDF](#).)

 [Web-based EI Reporting Instructions now available on the TCEQ YouTube Channel](#)

- [Cleanups, Remediation](#)
- [Emergency Response](#)
- [Licensing](#)
- [Permits, Registration](#)
- [Preventing Pollution](#)
- [Recycling](#)
- [Reporting](#)
- [Rules](#)



[customer satisfaction survey](#)

- [2018 Emissions Inventory Guidelines](#) (Revised 12/19/18)
  - [Emissions Inventory Checklist \(PDF\)](#)
  - [Contacting the EAS \(PDF\)](#)
- [Emissions Inventory Reporting Requirements Map and Summary Table \(PDF\)](#) (Updated 12/19/2018)
- [Sample 2018 Emissions Inventory Notification Letter and Attachments \(PDF\)](#)
- [2018 Electronic Reporting Extract Files](#) (Updated 12/14/2018)
- [Status of the 2018 Emissions Inventory \(Excel 166k\)](#)
- **UPDATE** [The 2019 Emissions Inventory Workshop will be held on January 24, 2019 in Austin, Texas.](#)

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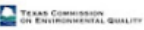
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1. Accessing STEERS - Your Account



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- 6 5. EIQ Entry - FIN/EPN/CIN TCEQNews 7:13
- Web-EI 6. EIQ Entry – Emissions
- 7 6. EIQ Entry - Emissions TCEQNews 6:03
- Web-EI 7. EIQ Entry – Add PATH and General Structure Changes
- 8 7. EIQ Entry - Add PATH and General Structure Changes TCEQNews 7:42
- Web-EI 8. Document Attachment and Submitting the AEIR Data
- 9 8. Document Attachment and Submitting the AEIR Data TCEQNews 6:47



# Point Source EI Resources (cont.)

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- Emissions Assessment Section Help Line:  
(512) 239-1773  
[psinvent@tceq.texas.gov](mailto:psinvent@tceq.texas.gov)
- Jill Dickey-Hull:  
(512) 239-5912  
[jill.dickey@tceq.texas.gov](mailto:jill.dickey@tceq.texas.gov)
- STEERS (non-AEIR items):  
(512) 239-6925  
[steers@tceq.texas.gov](mailto:steers@tceq.texas.gov)



# Area Source and Mobile Source EI

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- The area and mobile source emissions inventories are developed in accordance with the requirements of the Air Emissions Reporting Requirements per 40 Code of Federal Regulations Part 51.
- Emissions estimates for area and mobile sources are developed through the use of United States Environmental Protection Agency (EPA) default emissions estimates, TCEQ-contracted projects, and TCEQ staff projects.



# Area Source EI

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## Area Source (Nonpoint)

- Stationary emissions sources that do not meet the reporting requirements for point sources are classified as area sources.
- Area sources are:
  - Small-scale stationary industrial, commercial, and residential sources that generate emissions.
  - Calculated as county-wide totals rather than as individual sources.
  - Typically calculated by multiplying an established emissions factor (emissions per unit of activity) by activity or activity surrogate.



## Area Source EI (cont.)

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Area source classes include but are not limited to:

- Oil and gas exploration and production
- Consumer and commercial products
- Surface coating
- Dry cleaning
- Commercial and institutional combustion
- Residential combustion
- Graphic arts



## Area Source EI (cont.)

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- Area sources emissions rely on the appropriate activity or activity surrogate data.
  - Population
  - Amount of gasoline sold in an area
  - Employment by industry type
  - Crude oil or natural gas production
- Research continues to improve factors, refine characteristics, and update activity data.



## Area Source EI (Cont.)

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Area source related studies include:

- Industrial, Commercial, and Institutional (ICI) Fuel Use Study (July, 2017)
- Area Source Asphalt Paving Project (June 2017)
- Growth Factors for Area and Point Sources (September 2016)
- Specified Oil and Gas Well Activities Emissions Inventory Update (August 2014)



# Mobile Source EI

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Mobile Sources are non-stationary sources that emit pollutants into the air.

- On-road mobile:  
Automobiles, trucks, motorcycles, and other vehicles traveling on public roadways
- Non-road mobile:  
Aircraft, Locomotives, Drilling Rigs, Commercial Marine Vessels, Agricultural Equipment, Construction Equipment, Lawn and Garden Equipment, and Recreational Equipment

# On-road Mobile Sources

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On-road mobile source emissions are estimated by using the Motor Vehicle Emissions Simulator Model (MOVES).

- EPA-approved model can be used in either inventory mode or emissions rate mode.
- Model input requirements include:
  - Fuel study data (Mobile Source Team)
  - Meteorological data (Weather.gov)
  - Vehicle miles traveled (Travel Demand Model)
  - Link based speed data (Speed Models)
  - Vehicle registration data (Department of Public Safety)
  - HPMS (Highway Performance Monitoring System)
  - Control measures

# Non-road Mobile Sources

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Non-road mobile source emissions are estimated by using the MOVES Non-road Model.

- EPA-approved model is used to estimate emissions for non-road mobile sources (260 equipment types).  
Input requirements include:
  - Fuel study data (Mobile Source Team)
  - Meteorological data (Weather.gov)
- Aviation Environmental Design Tool is used to estimate commercial and military aircraft take off and landing emissions as well as emissions from ground support equipment.



# Non-road Mobile Sources (cont.)

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- Locomotives and Rail Yards:
  - Uses survey work to obtain fuel usage activity data
  - Submitted to the EPA as a county-based inventory
- Commercial Marine Vessels:
  - Uses activity data including vessel characteristics data coupled with Automatic Identification System geographic positioning data to estimate emissions
  - Submitted to the EPA as a link-based inventory





# Non-road Mobile Sources (cont.)

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- Drilling Rigs:
  - Uses oil and gas production data from the Texas Railroad Commission
  - Drilling rig equipment profiles allow for refined estimation of emissions by county.



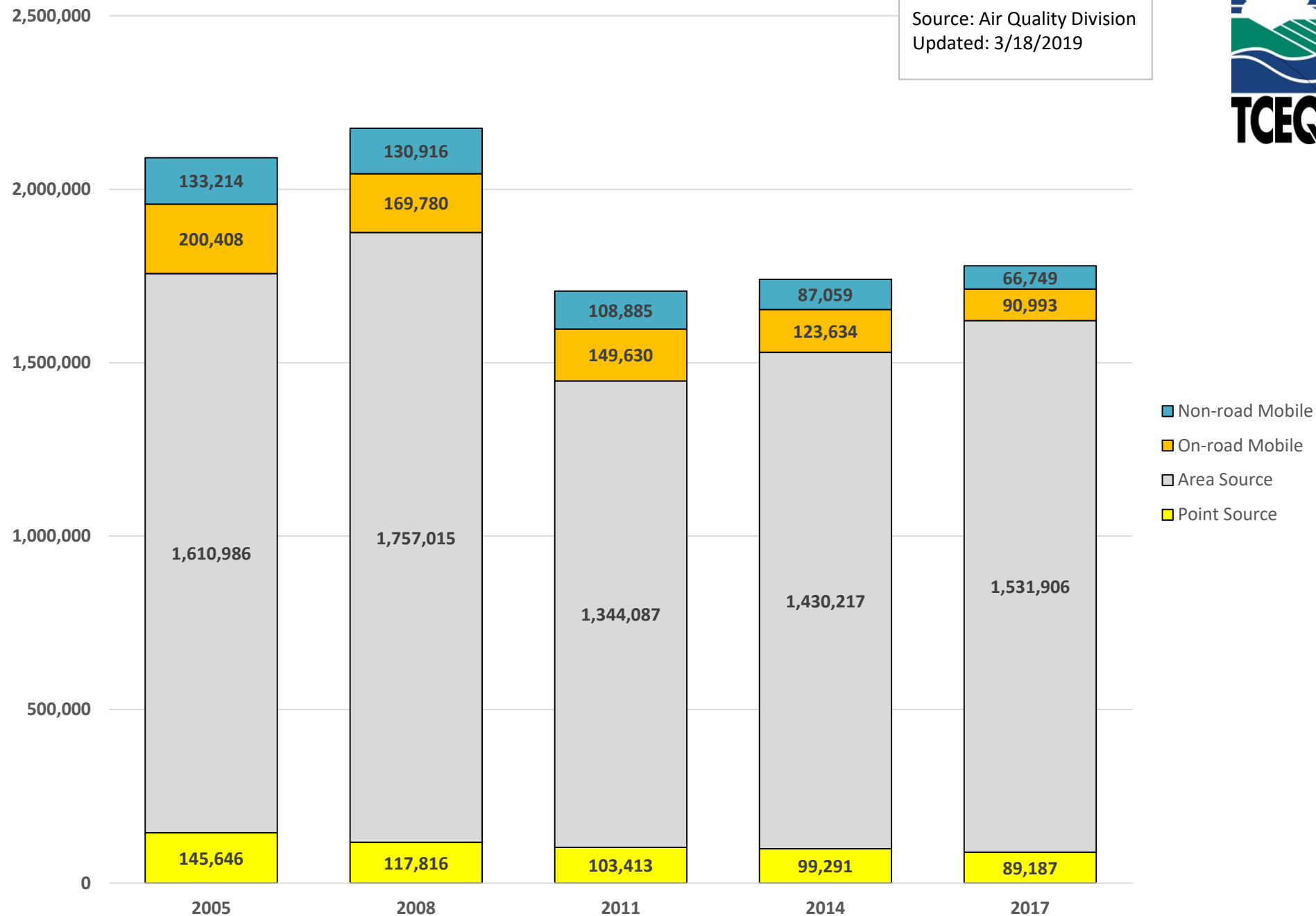
# Project Reports posted on the TCEQ website

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- Air Quality Research and Contract Reports can be found at:  
[http://www.tceq.texas.gov/airquality/airmod/project/pj\\_report\\_ei.html](http://www.tceq.texas.gov/airquality/airmod/project/pj_report_ei.html)
- Reports include:
  - 2010 TCEQ Flare Study
  - Flash emissions from upstream oil and gas tanks
  - Developed drilling rig emissions inventories
  - Oil and gas calculator
  - Rail yard activity study: Development of truck activity and on-road emissions estimates for four Texas intermodal facilities
  - Residential Non-wood Combustion inventory
  - Industrial, Commercial, and Institutional Fuel Use

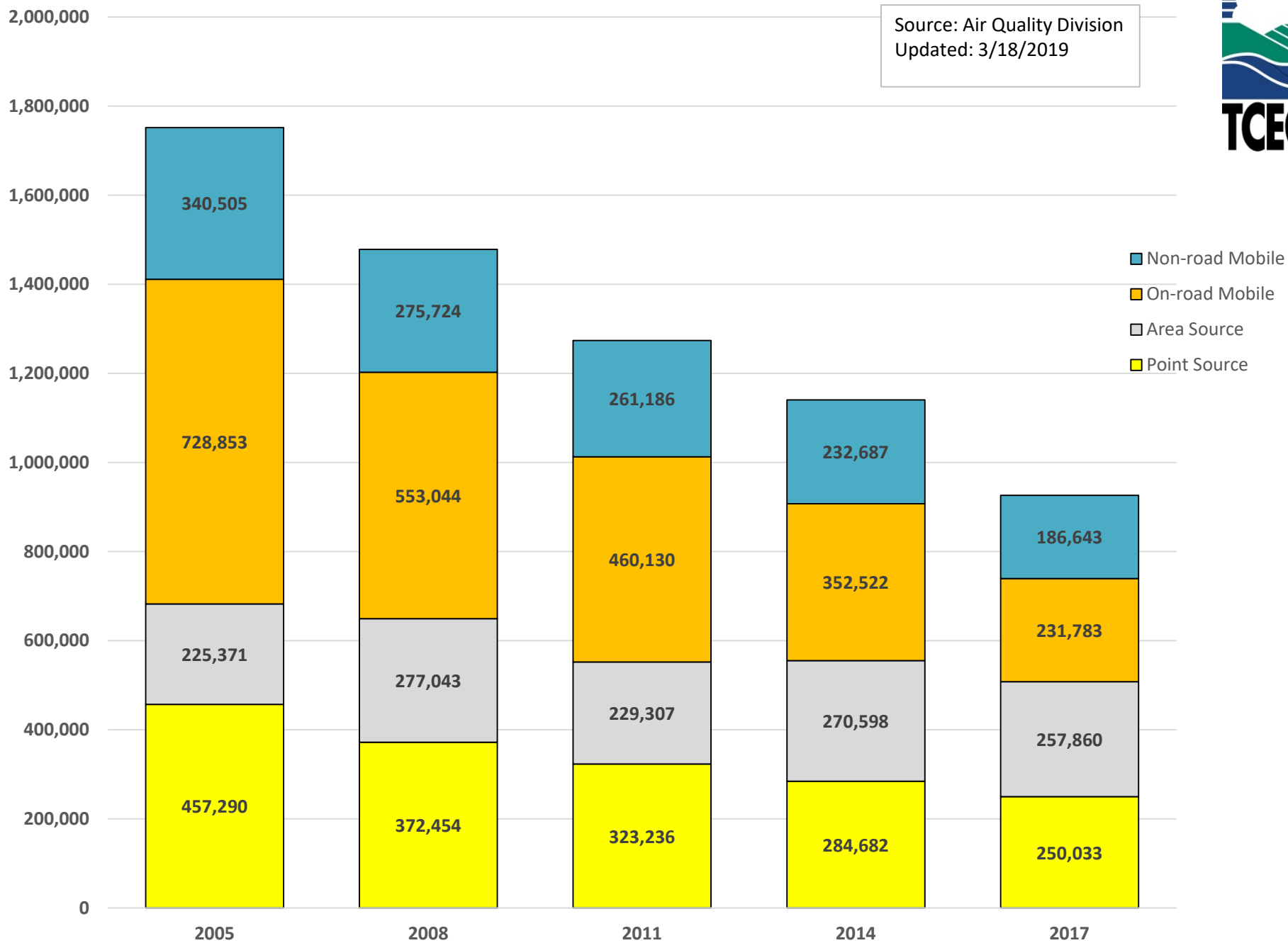
# Texas VOC Emissions Trends

Source: Air Quality Division  
Updated: 3/18/2019



# Texas NO<sub>x</sub> Emissions Trends

Source: Air Quality Division  
Updated: 3/18/2019

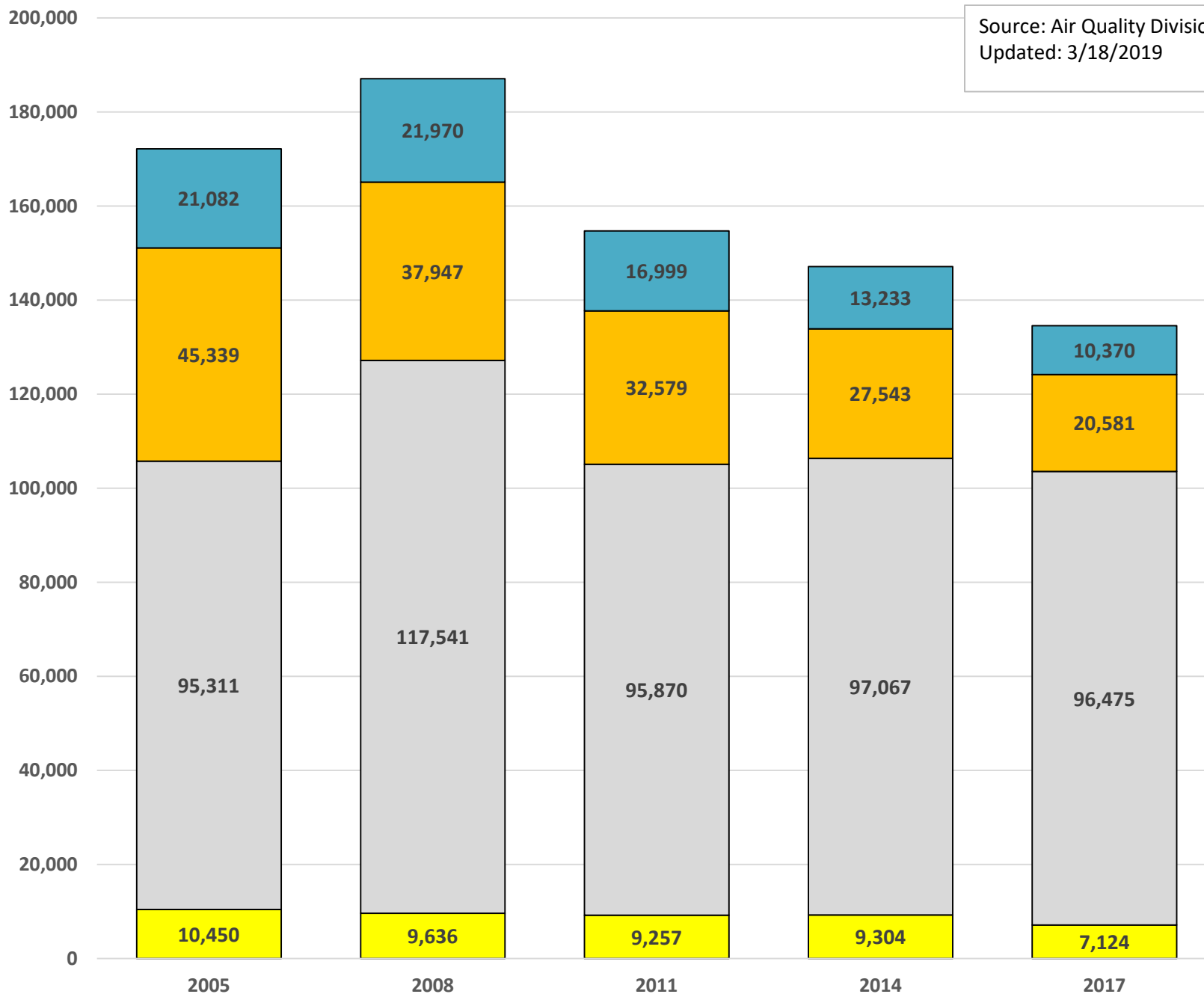


# Dallas-Fort Worth 10-County Nonattainment Area VOC Emissions Trends



Source: Air Quality Division  
Updated: 3/18/2019

- Non-road Mobile
- On-road Mobile
- Area Source
- Point Source



# Dallas-Fort Worth 10-County Nonattainment Area NO<sub>x</sub> Emissions Trends

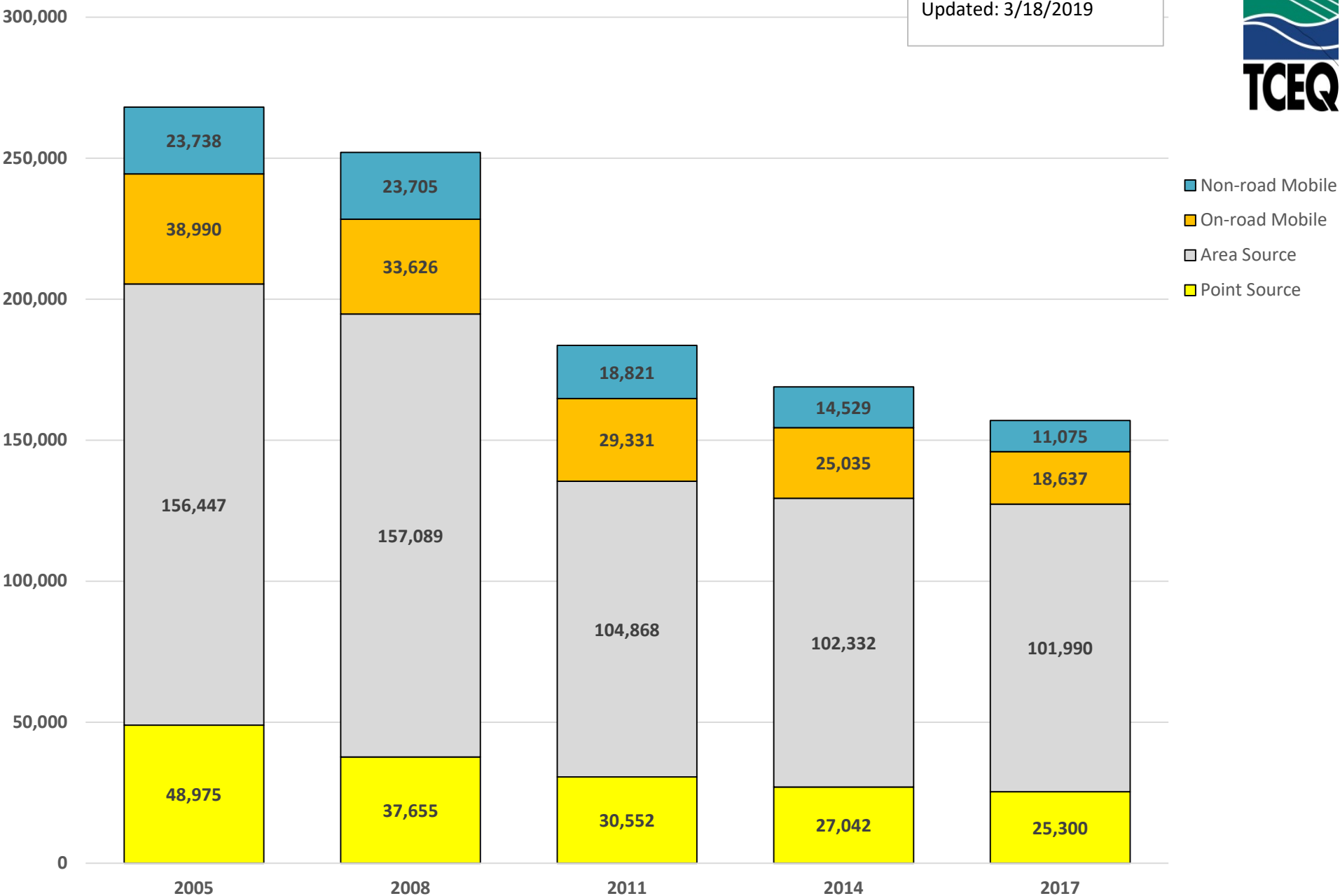


Source: Air Quality  
Division  
Updated: 3/18/2019



# Houston-Galveston-Brazoria 8-County Nonattainment Area VOC Emissions Trends

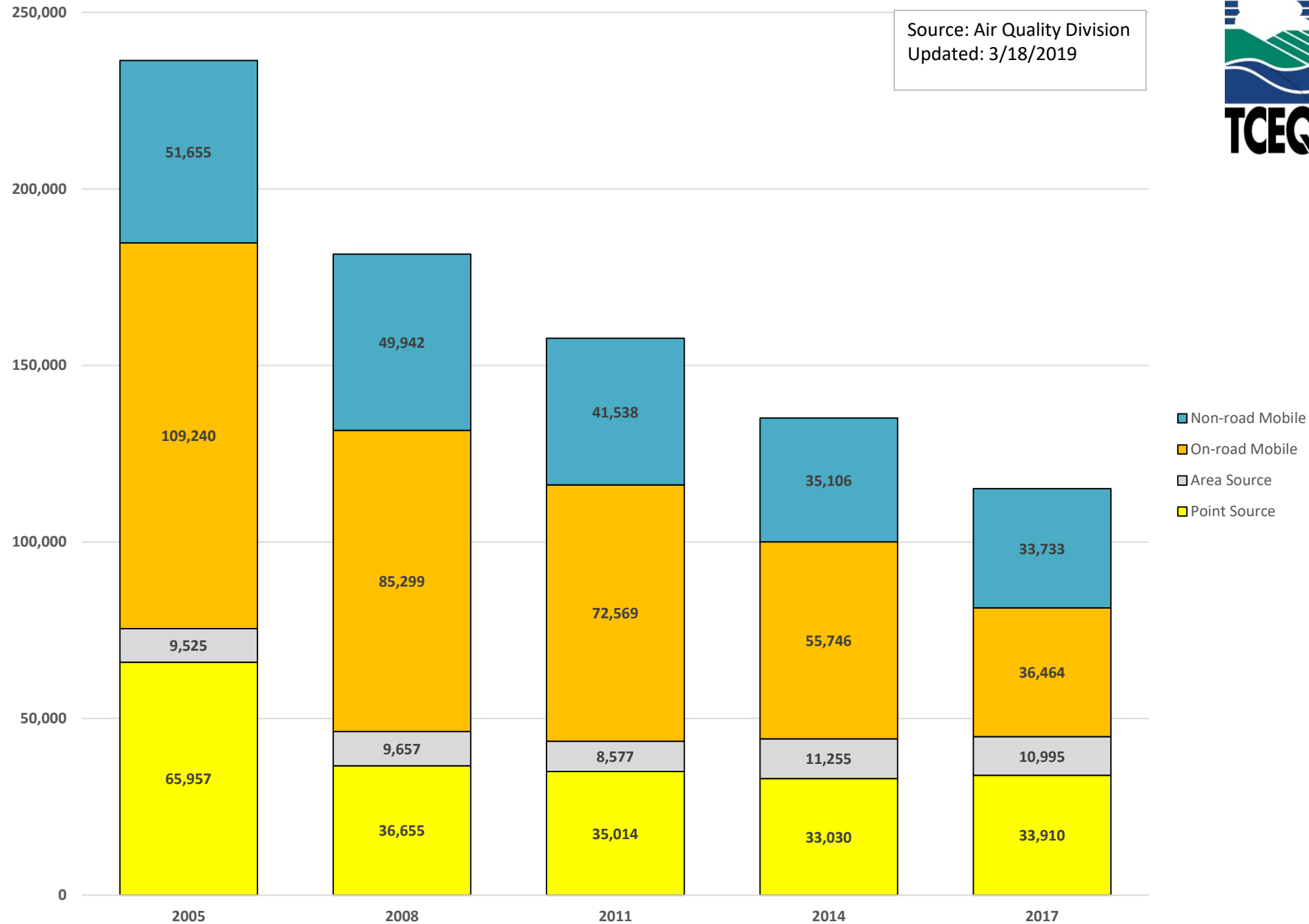
Source: Air Quality Division  
Updated: 3/18/2019



# Houston-Galveston-Brazoria 8-County Nonattainment Area NO<sub>x</sub> Emissions Trends



Source: Air Quality Division  
Updated: 3/18/2019

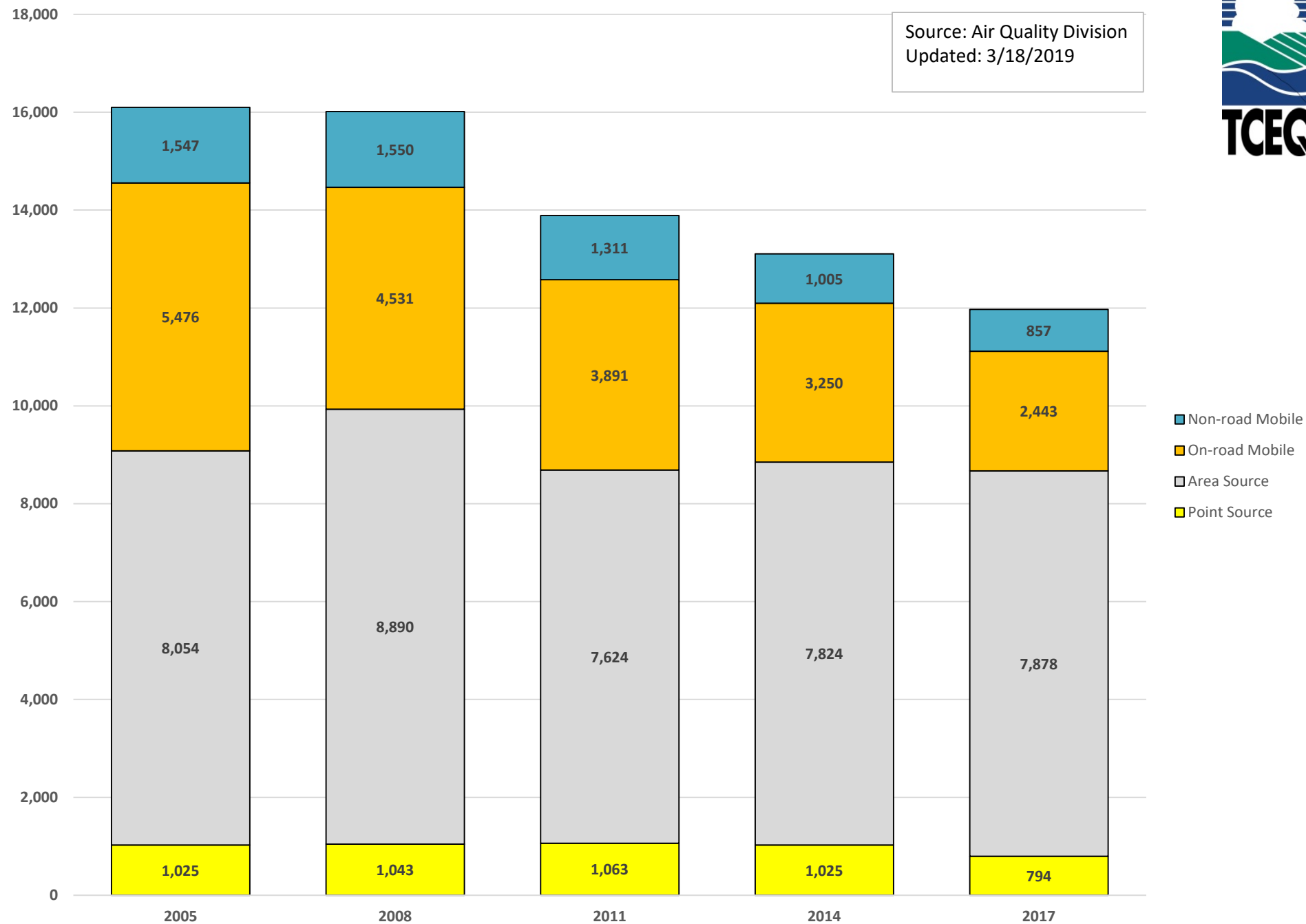




# El Paso County VOC Emissions Trends

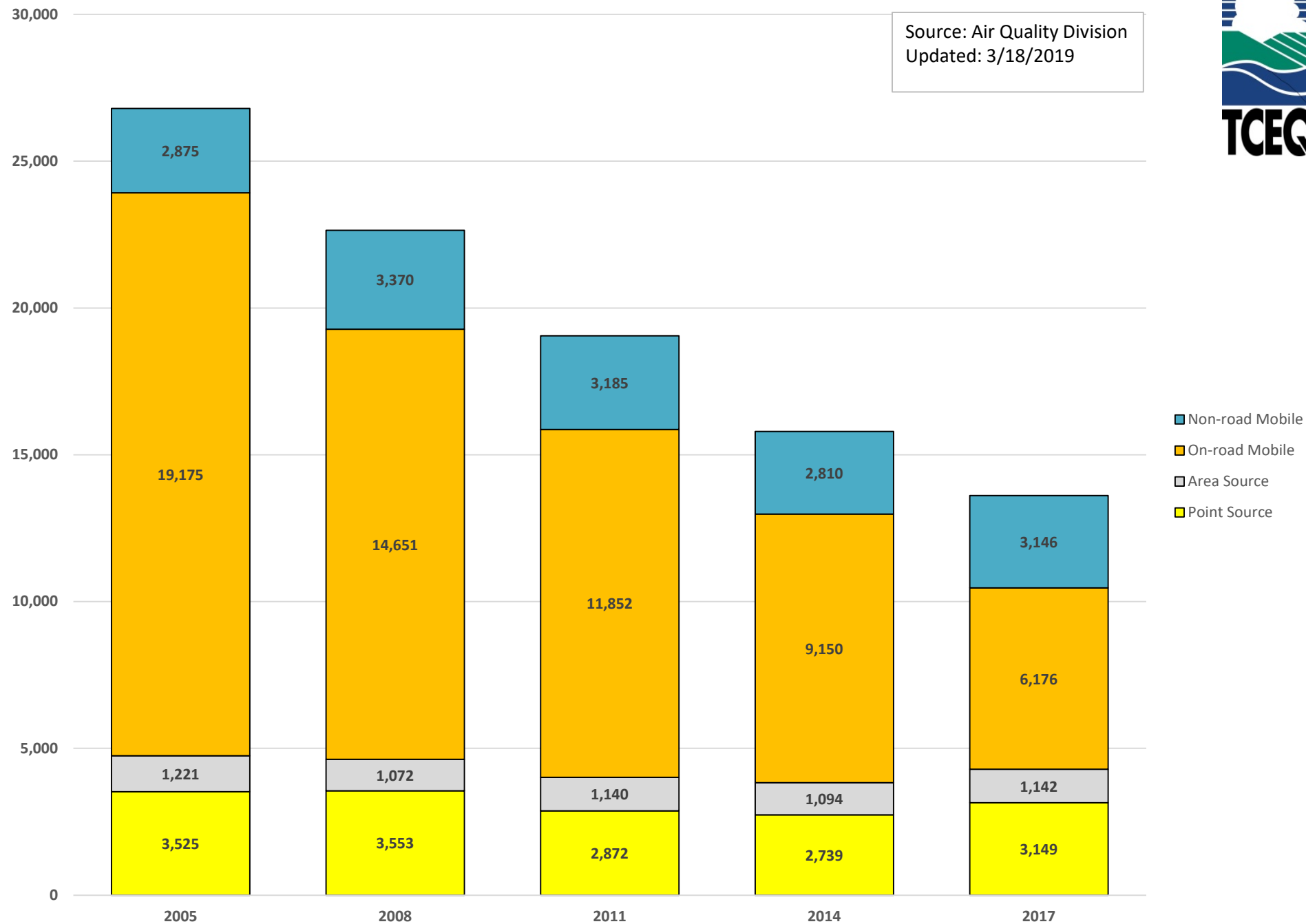


Source: Air Quality Division  
Updated: 3/18/2019



# El Paso County NO<sub>x</sub> Emissions Trends

Source: Air Quality Division  
Updated: 3/18/2019

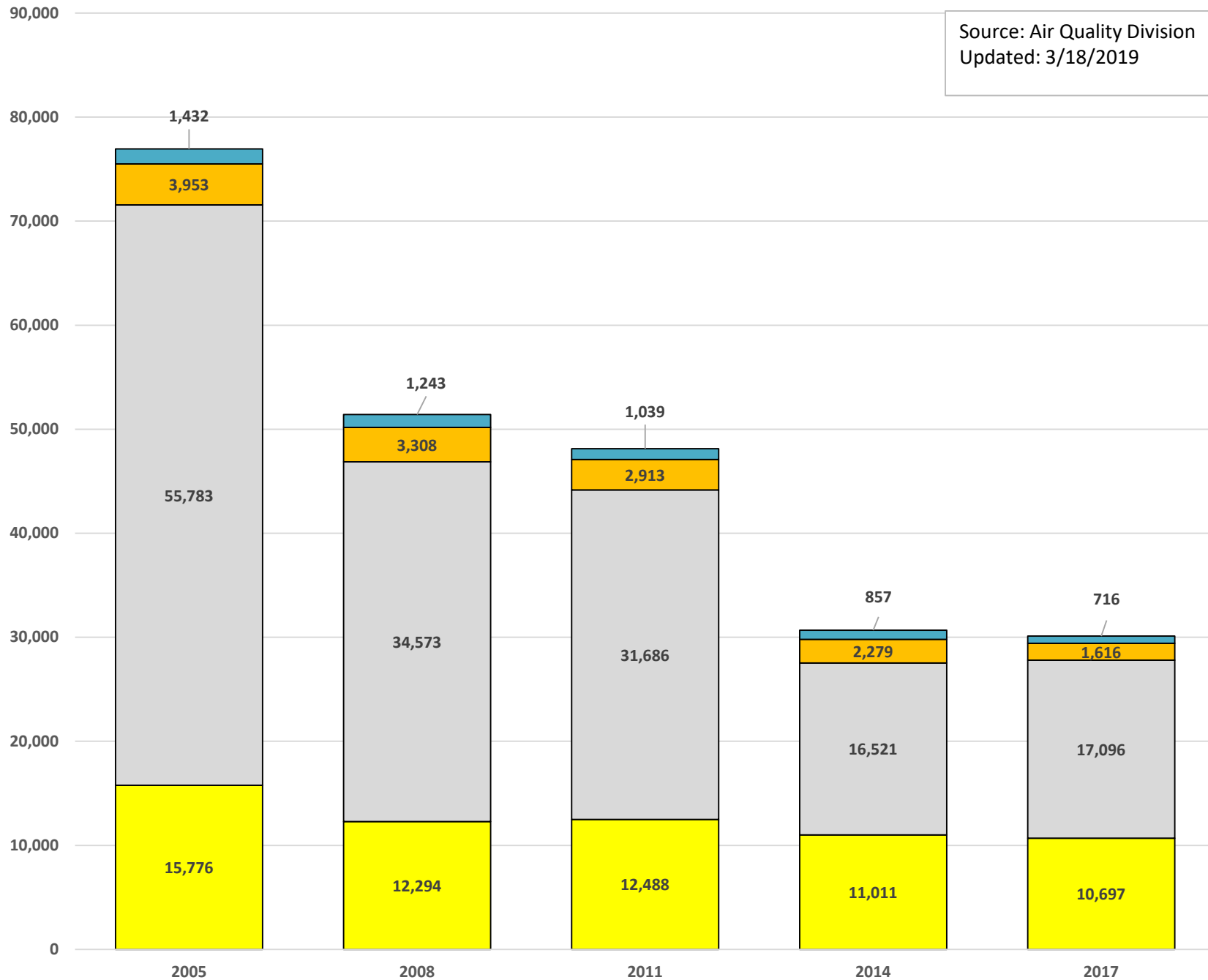


## Beaumont-Port Arthur Area VOC Emissions Trends

Source: Air Quality Division  
Updated: 3/18/2019

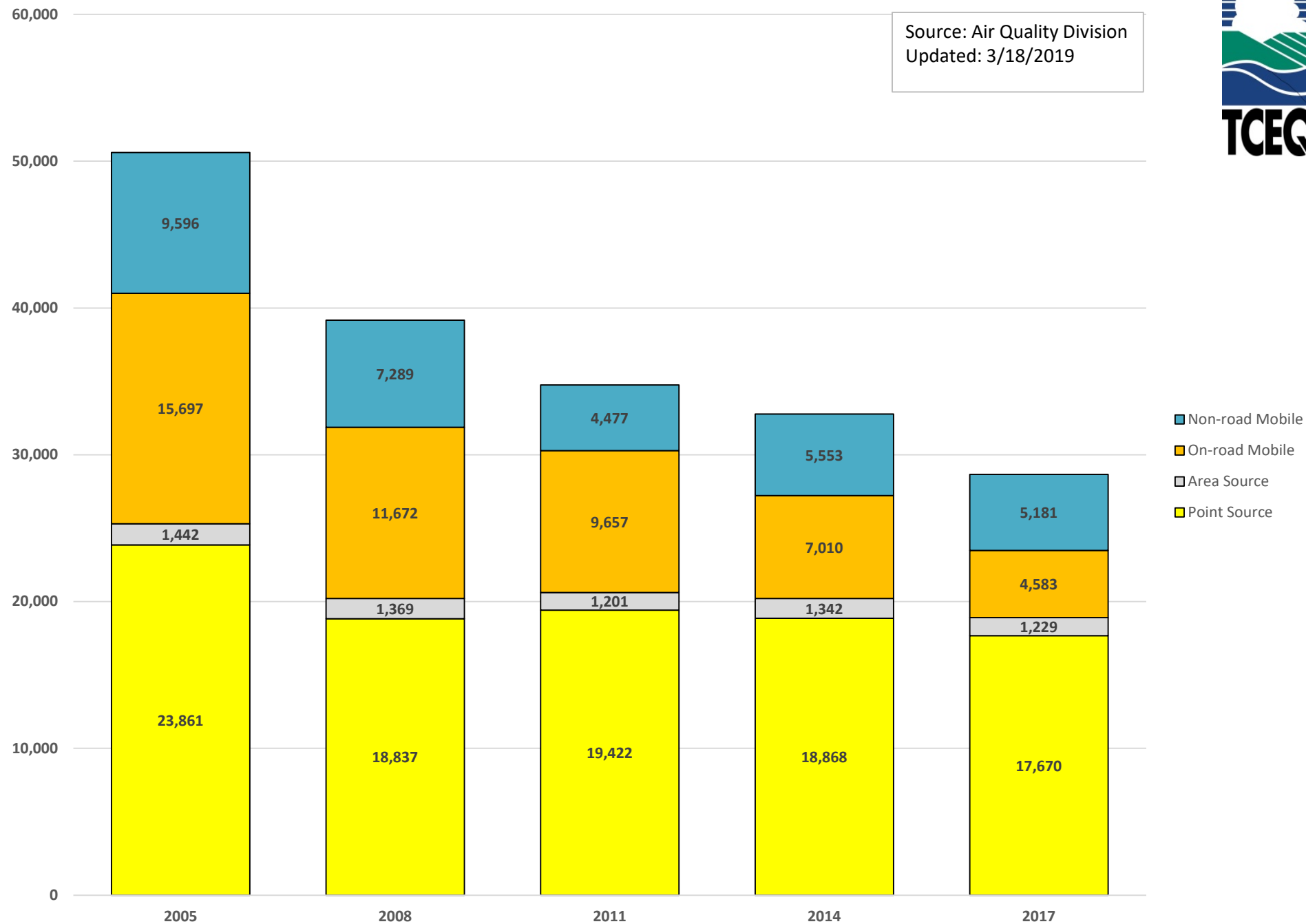


■ Non-road Mobile  
■ On-road Mobile  
■ Area Source  
■ Point Source



## Beaumont-Port Arthur Area NO<sub>x</sub> Emissions Trends

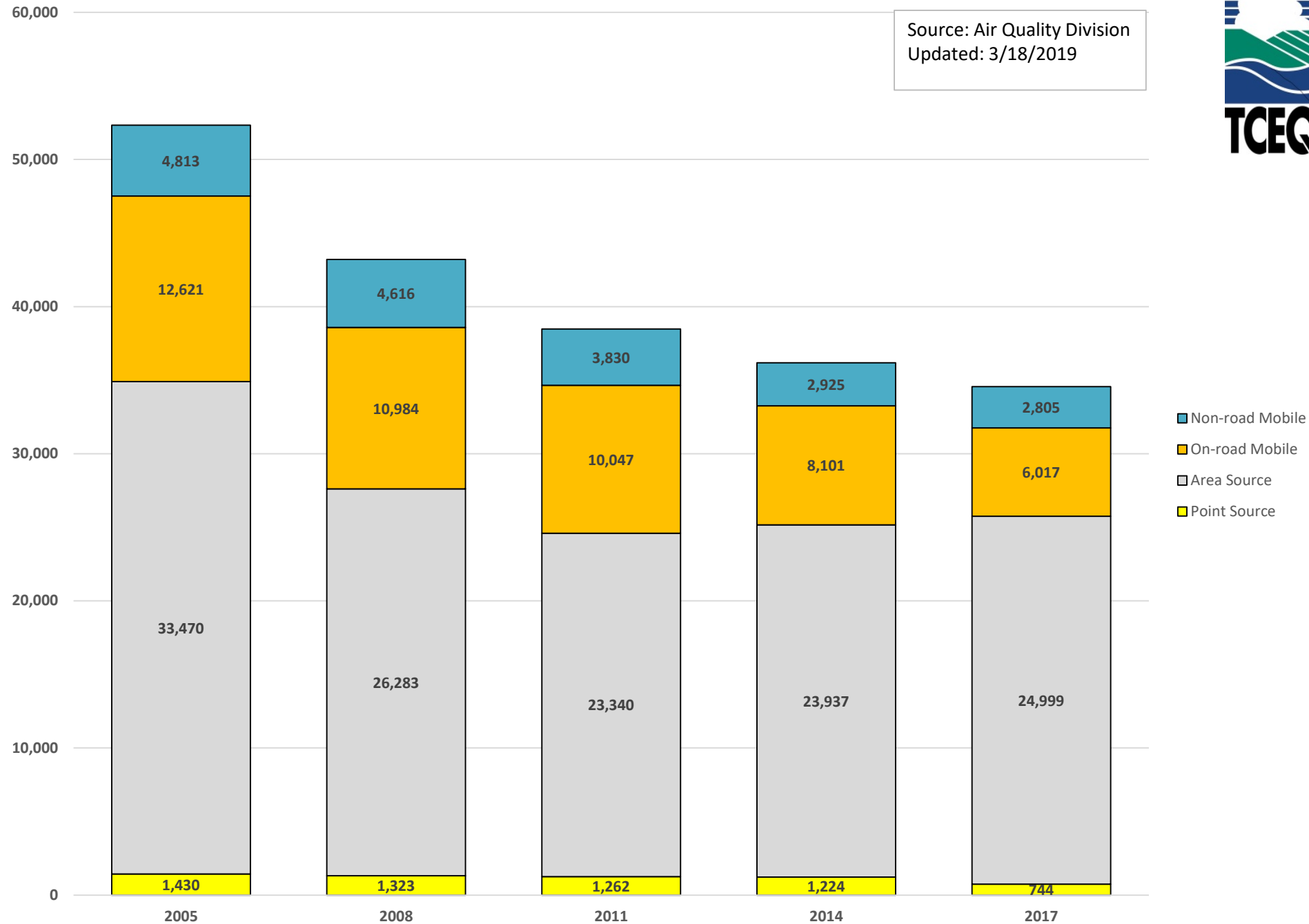
Source: Air Quality Division  
Updated: 3/18/2019



## Bexar County VOC Emissions Trends



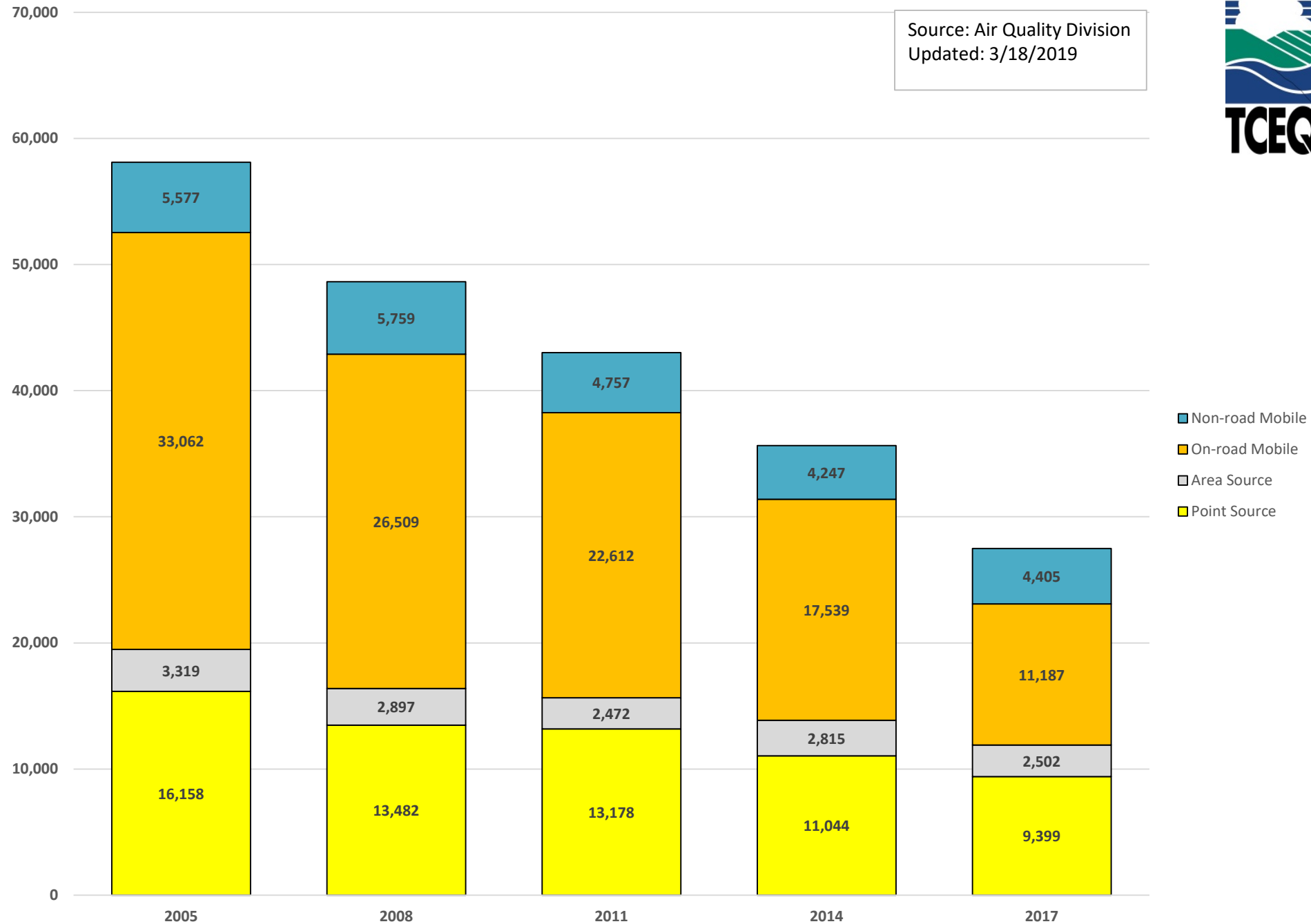
Source: Air Quality Division  
Updated: 3/18/2019



# Bexar County NO<sub>x</sub> Emissions Trends



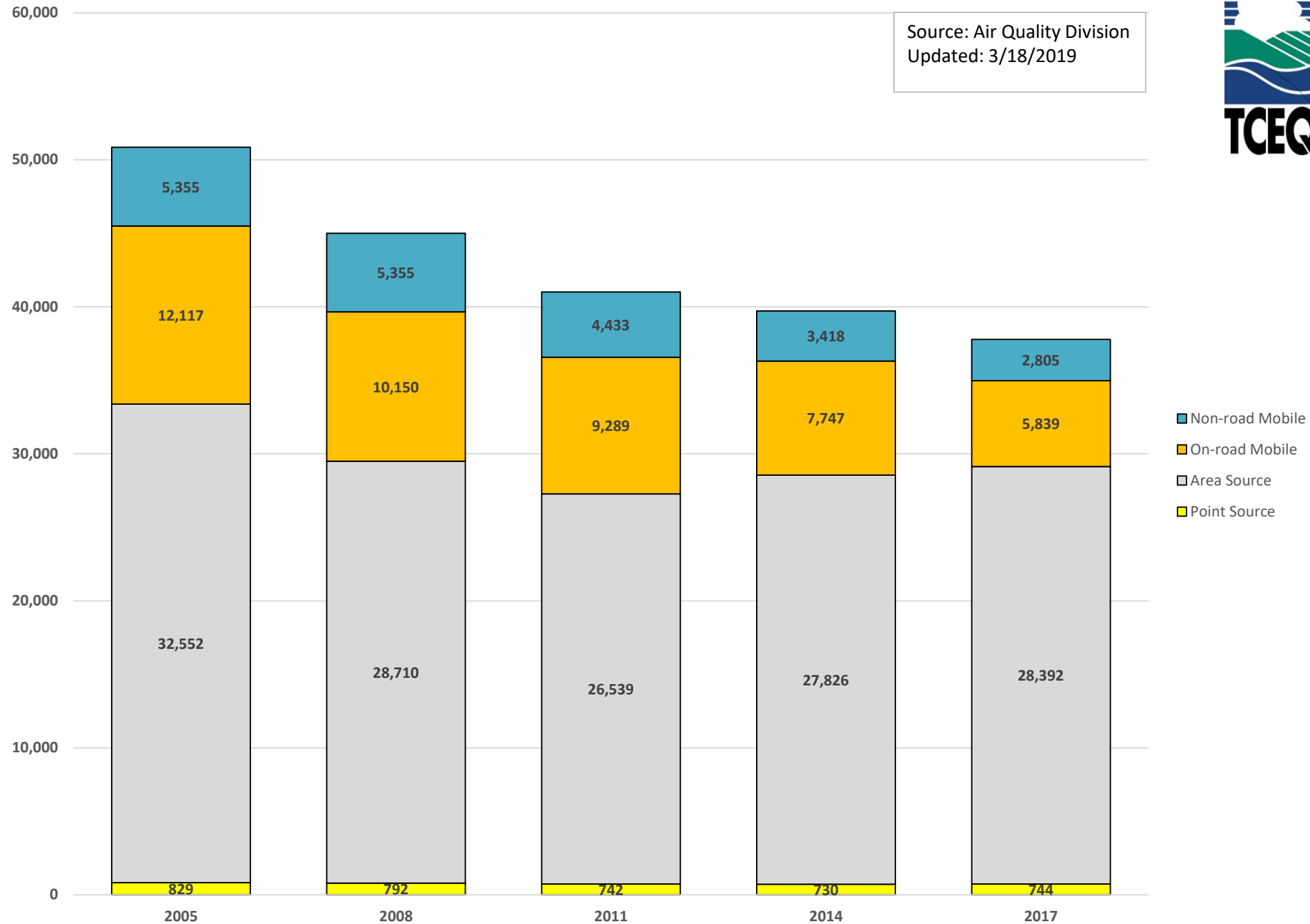
Source: Air Quality Division  
Updated: 3/18/2019



# Austin Area VOC Emissions Trends



Source: Air Quality Division  
Updated: 3/18/2019

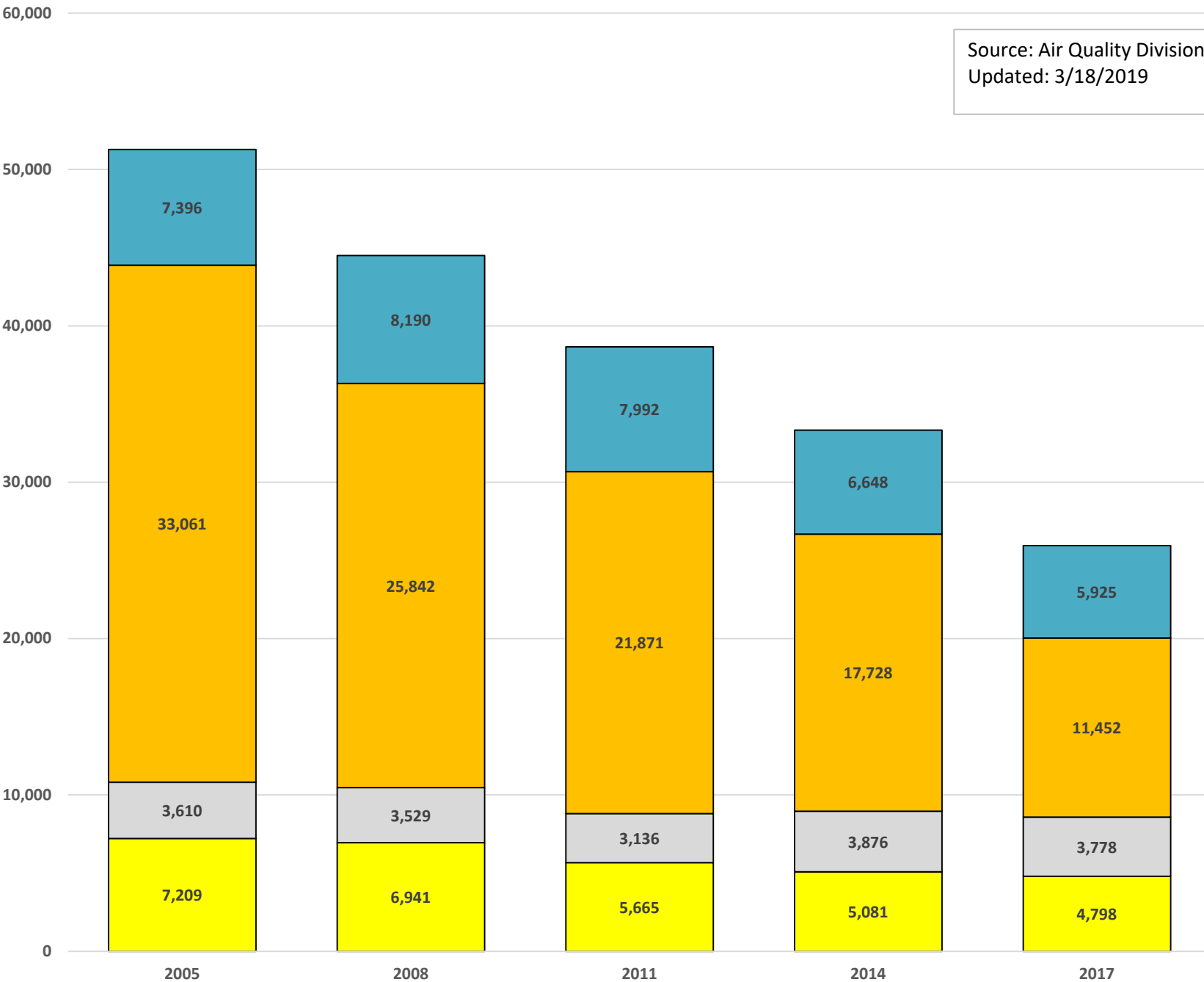


# Austin Area NO<sub>x</sub> Emissions Trends



Source: Air Quality Division  
Updated: 3/18/2019

- Non-road Mobile
- On-road Mobile
- Area Source
- Point Source







# Non-point and Mobile Source Emissions Contact Information

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Air Success Web Page:

<https://www.tceq.texas.gov/airquality/airsuccess>