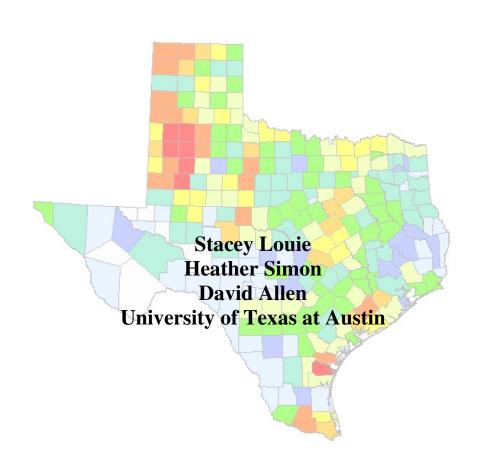
## Texas PM Emissions Atlas Based on values reported in the 2002 NEI



This atlas provides maps showing the spatial distribution of PM emissions in Texas. Emissions data are taken from the EPA's 2002 National Emission Inventory (NEI), which are reported by county. Mass emission rates (tons/yr) and emission fluxes  $(tons/yr/mi^2)$  are shown for PM<sub>2.5</sub> and PM<sub>10</sub>. Separate maps are provided for major emission source categories. The source categories reported account for over 95% of total PM emissions, and are listed below. Maps which show total PM emissions include all emissions, so may not be equal to the total of the separately reported source categories.

## **Source categories**

## **Area Sources:**

Agriculture & forestry – Crops Agriculture & forestry – Livestock

Commercial cooking

Fugitive dust

Open burning (waste disposal & recycling)

Other combustion – Agricultural fires

Other combustion – Other

Other combustion – Slash burning (logging)

Other combustion – Structural fires

Residential fuel combustion

#### Mobile Sources:

Aircraft

Marine vessels

Non-road diesel

Non-road gas

On-road diesel

On-road gas

Railroads

### Point Sources:

Bulk materials storage

Chemical manufacturing

Electric utility fuel combustion – Coal

Electric utility fuel combustion – Non-coal

Industrial fuel combustion

Metals processing – Aluminum

Metals processing – Copper

Metals processing – Ferrous

Metals processing – Lead

Mineral products – Cement manufacturing

Mineral products – Stone quarrying/processing

Petroleum and related industries

Wood, pulp & paper, and publishing industries

#### **Scales**

There are three different scales used to display mass emission rates and three different scales used to display emission fluxes. Total emissions and fugitive dust emissions are very large compared to emissions from any one source category. Therefore, they are shown using a scale with a wide range. There are five source categories for which overall emissions were very small. These categories include copper metal processing, lead metal processing, other combustion-other, other combustion-structural fires, and railroads. These are displayed using a scale with a narrow range (shown in purple).

#### **Point Sources**

Point sources are shown both as county-wide totals and as point sources. The NEI only reported these emissions on a county-wide basis, so it was not possible to display exact emissions from specified locations. However, point source locations for SO<sub>2</sub> emissions were available. Relative PM emission strengths were assumed to be approximately proportional to relative SO<sub>2</sub> emission strength since both of these pollutants are predominately derived from combustion. However, it must be recognized that many factors including fuel type and combustion conditions will affect the emission rates of these pollutants, so this relationship is only approximate. County-wide PM emissions from point source categories were apportioned to specific locations by assuming that the fractions of county-wide PM emissions coming from any particular source were the same as the fraction of county-wide SO<sub>2</sub> emissions coming from that source. The site locations represented account for the most of the point source emissions. There were a large number of point sources in many of the source categories. For example, there were over 1000 sources in the industrial fuel combustion category. Smaller sources in each category are not displayed, but the sources that are displayed account for over 85% of total point source emissions.

#### **Uncertainties**

While all of the emission estimates have some uncertainties, the uncertainties associated with the fugitive dust and stone quarrying categories merit particular notice. Fugitive dust is reported in the NEI as constituting a large portion of total PM Emissions (up to approximately 40%). However, ambient measurements in Houston and other locations have shown that fugitive dust accounts for, at most, a few percent of total PM mass on an annual average basis. Fugitive dust emissions are shown as reported by the NEI, but it should be noted that they may be greatly overestimated. To help account for this, total PM maps are constructed both including and excluding the fugitive dust fraction. The other source category which appears to have been incorrectly reported is stone quarrying (mineral products industry). Most counties reported emissions of exactly 60.68 tpy of PM<sub>2.5</sub> and 303.4 tpy of PM<sub>10</sub>. Since it is unlikely that all counties have stone quarrying operations and that they all emit the same amount of PM, these emission reports are may be erroneous.

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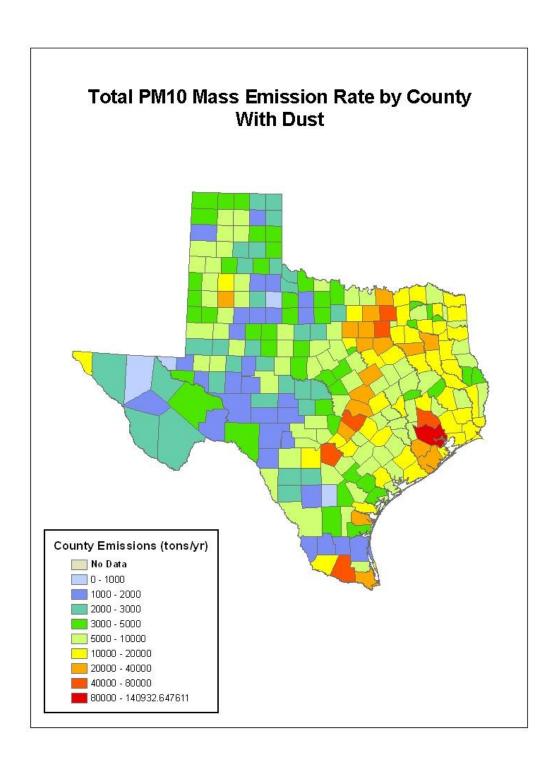
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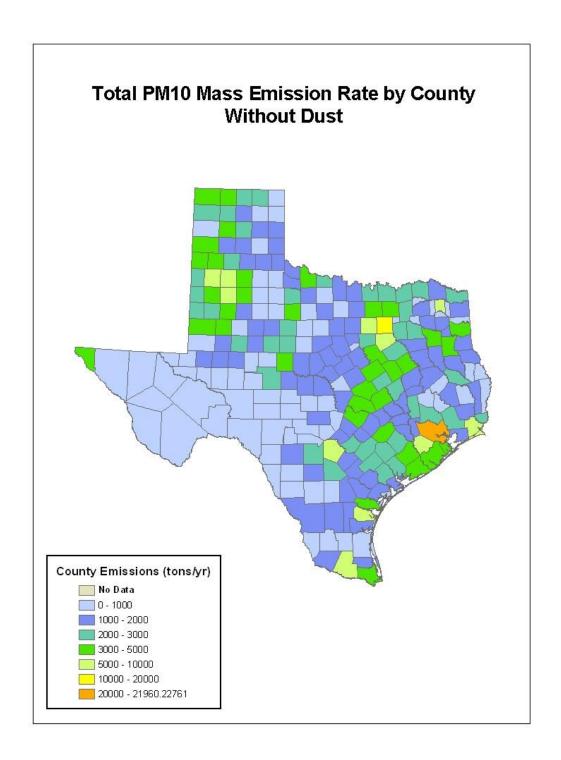
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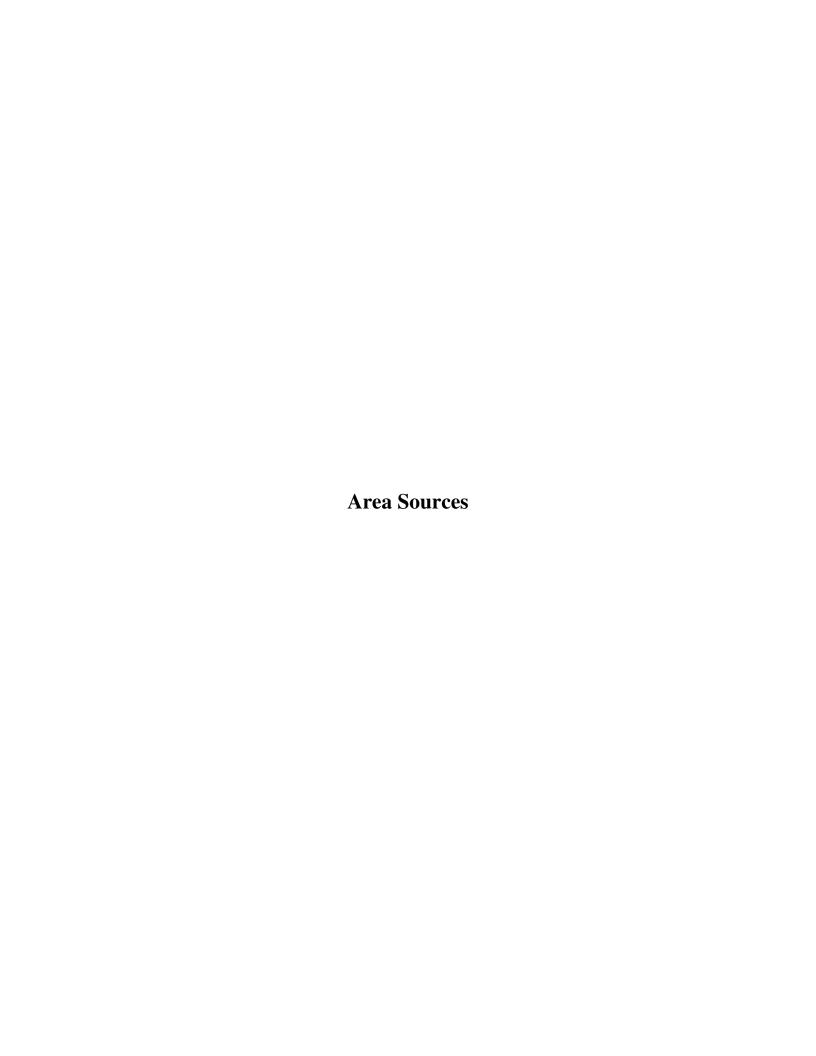
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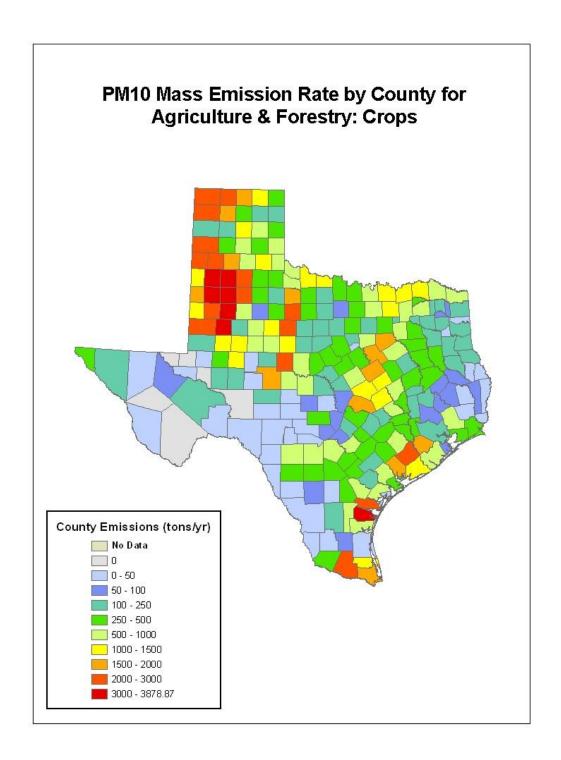
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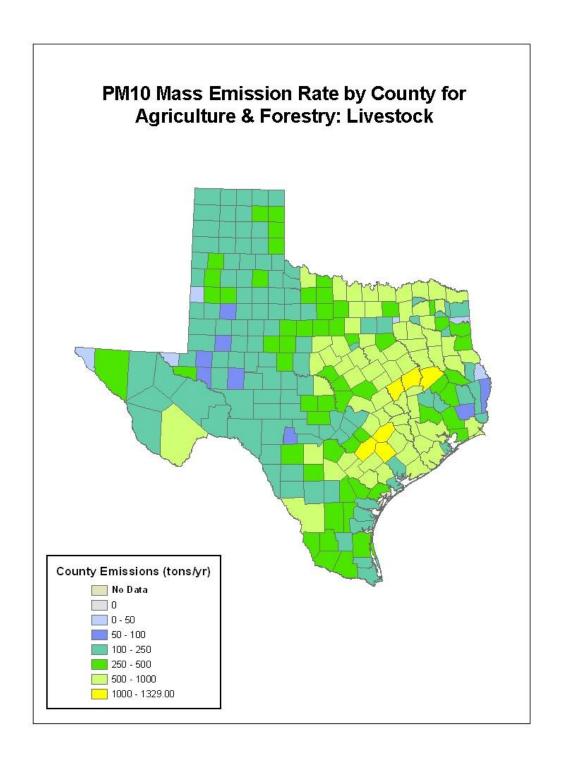


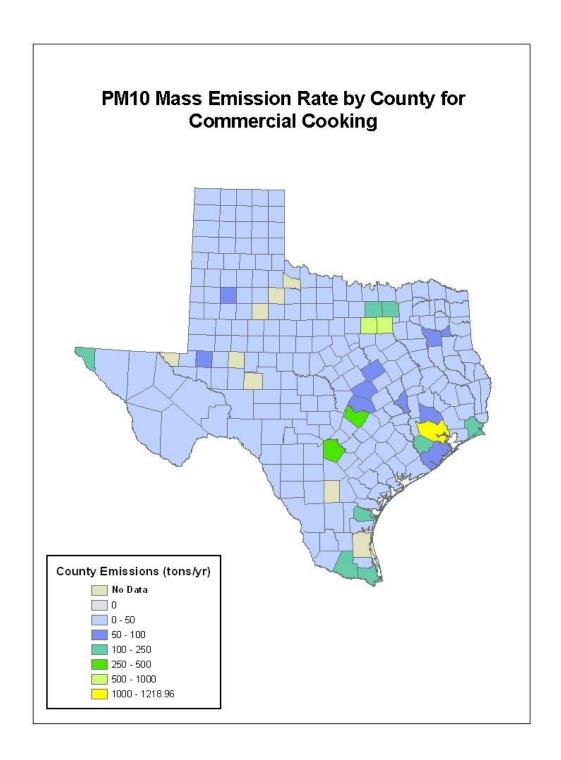


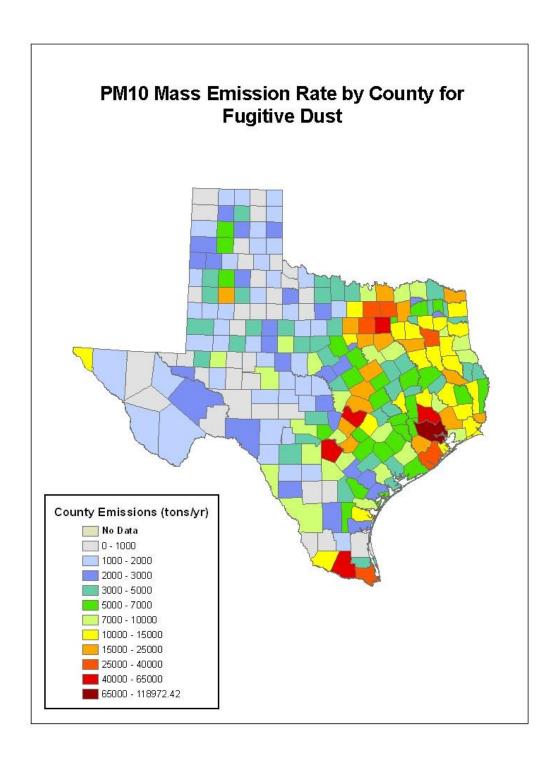


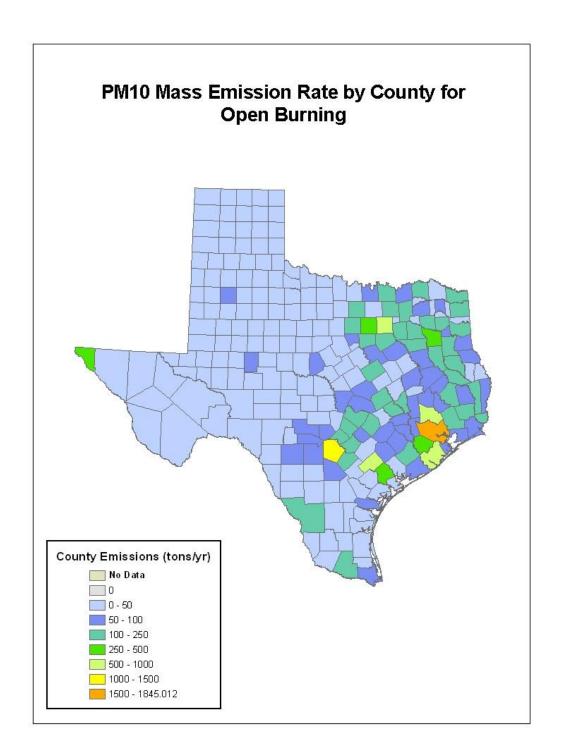


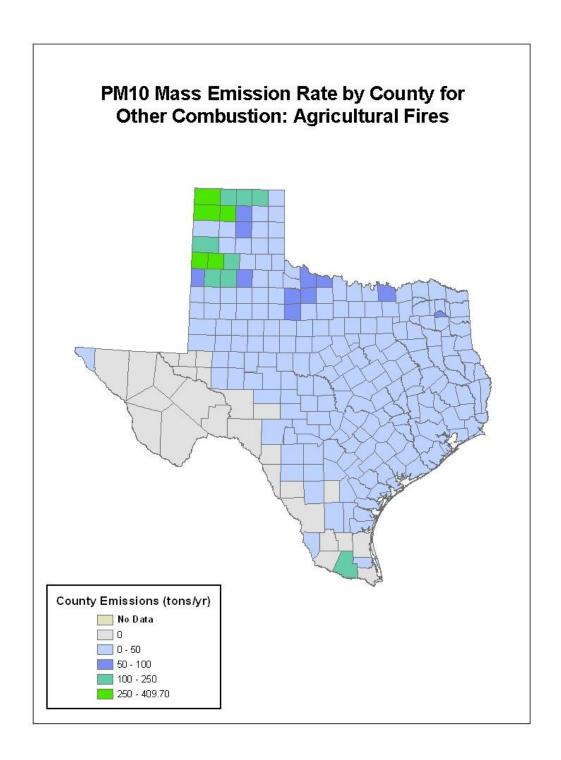


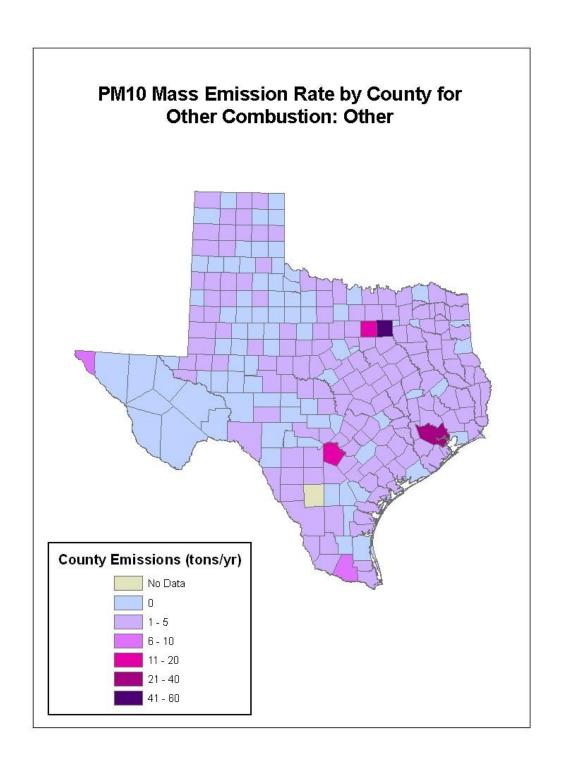


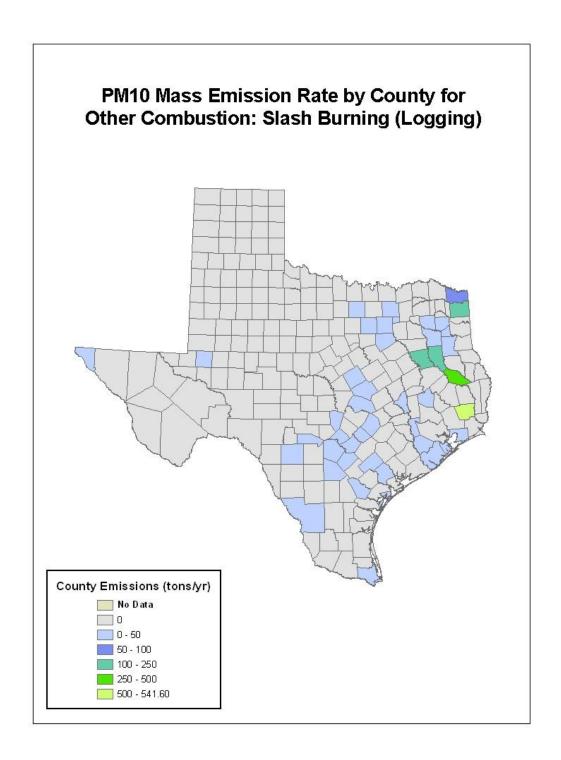


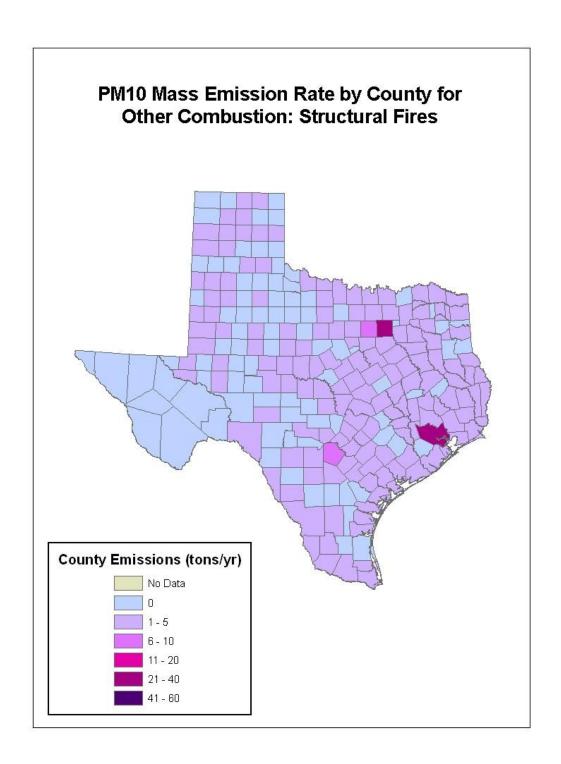


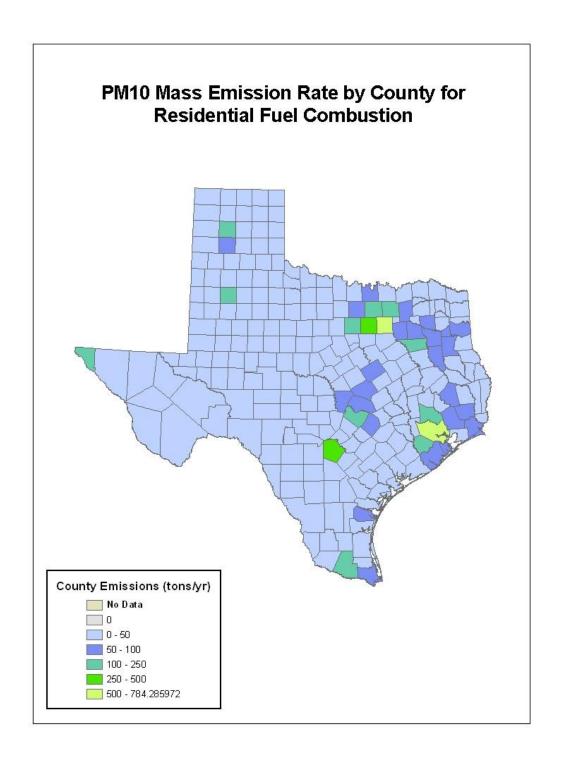


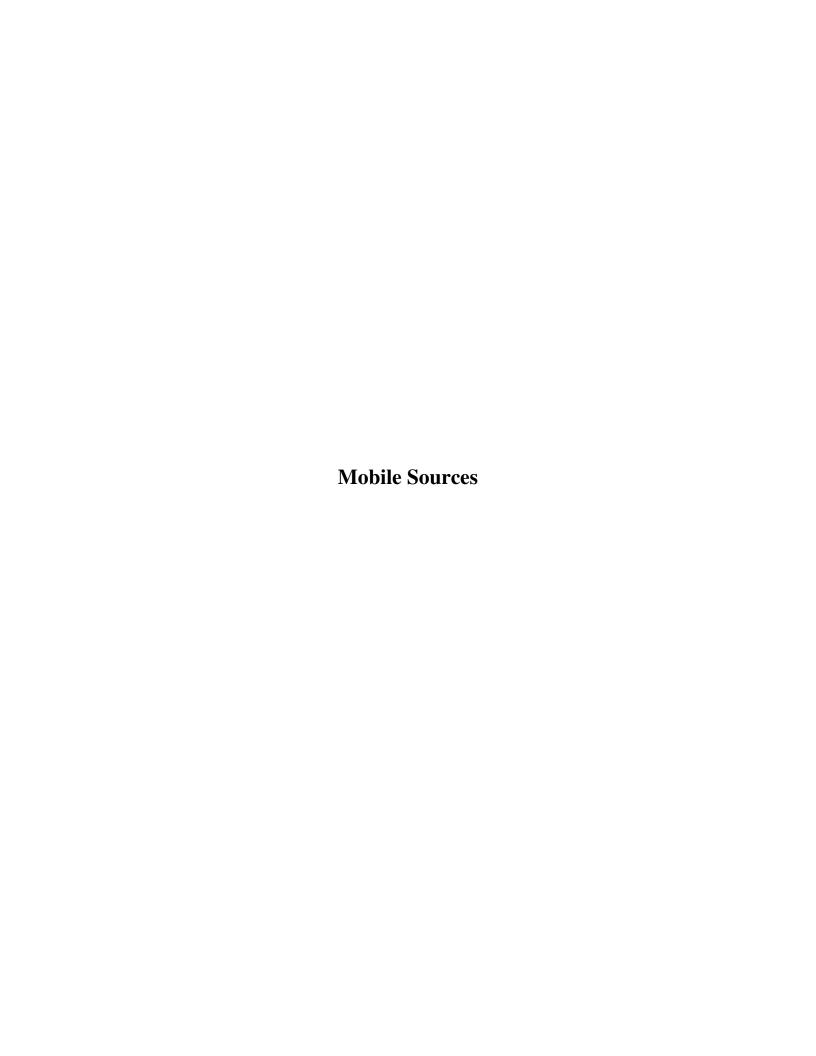


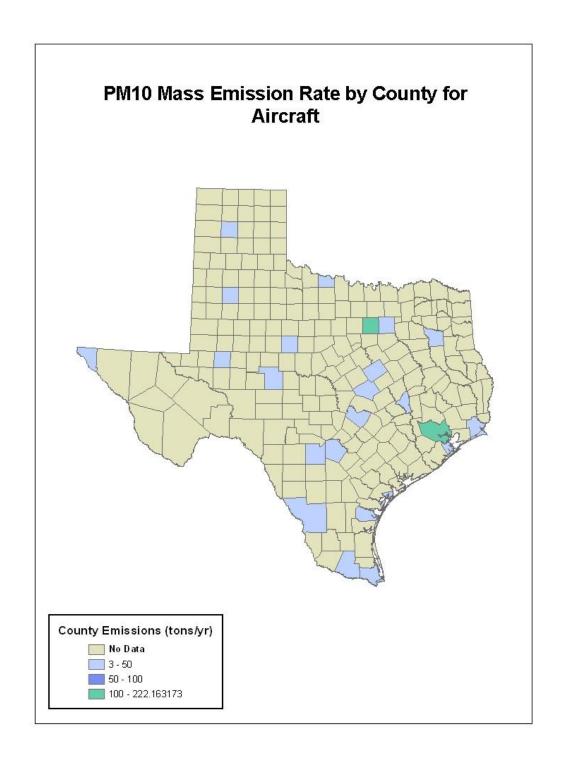


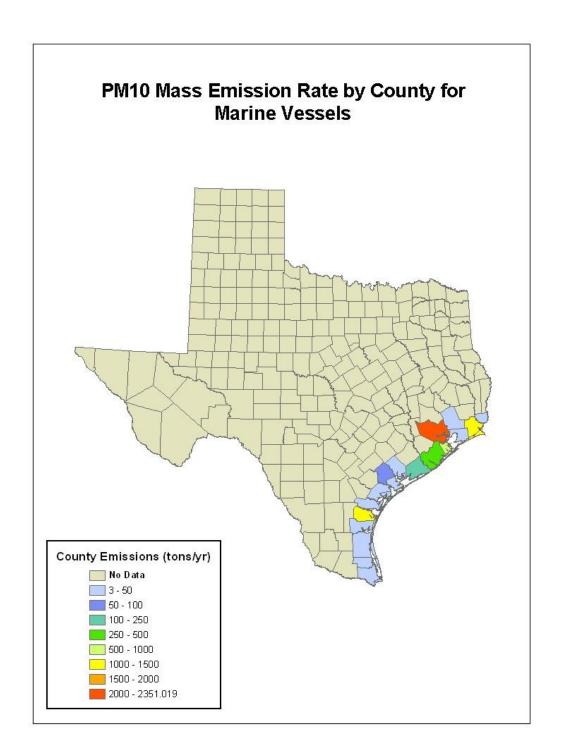


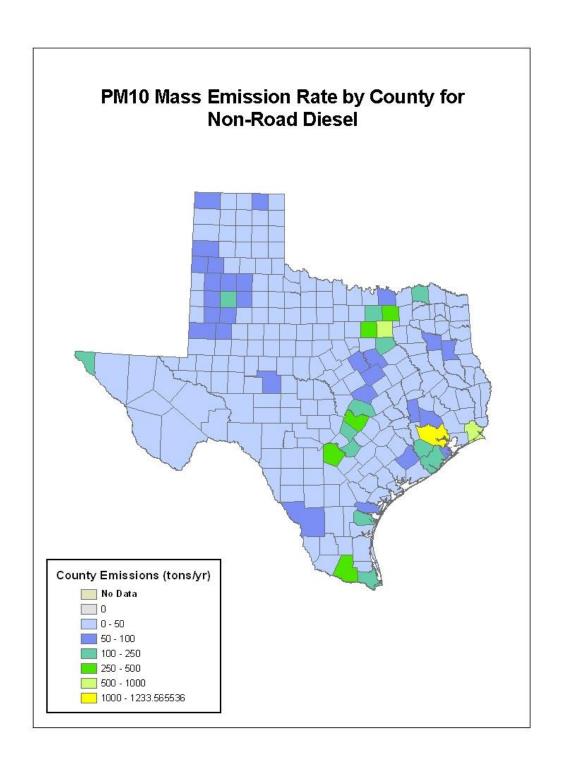


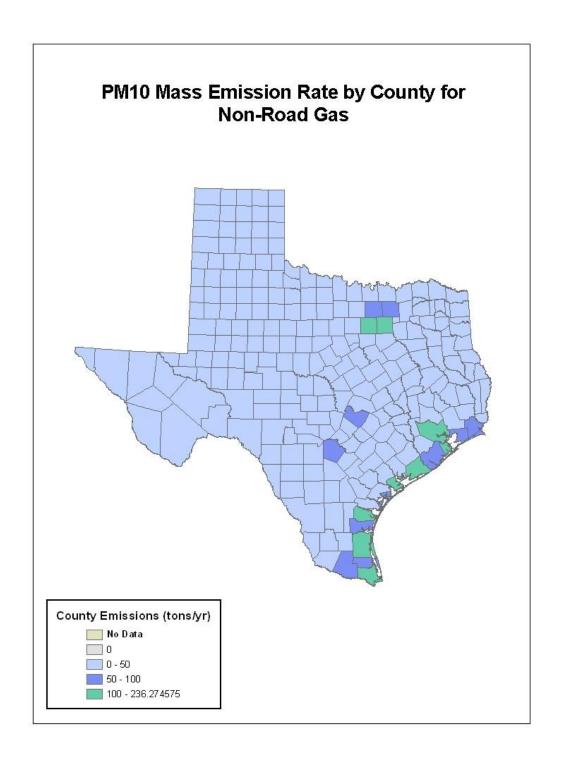


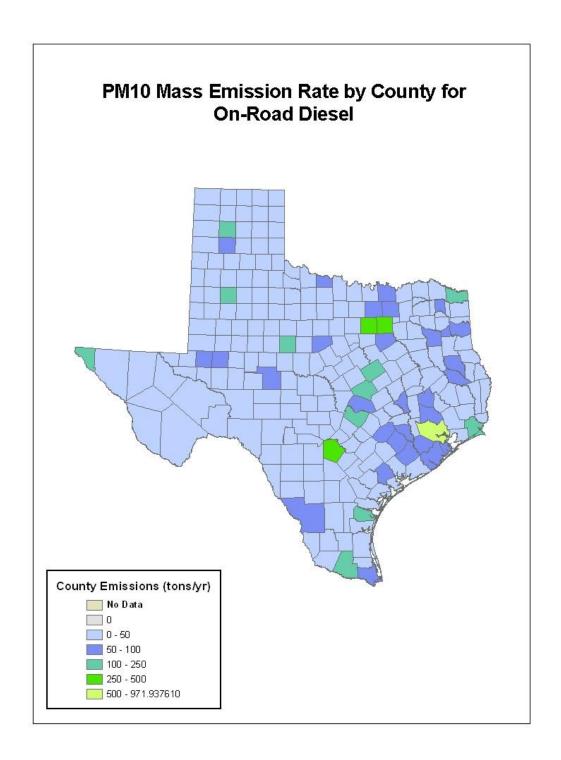


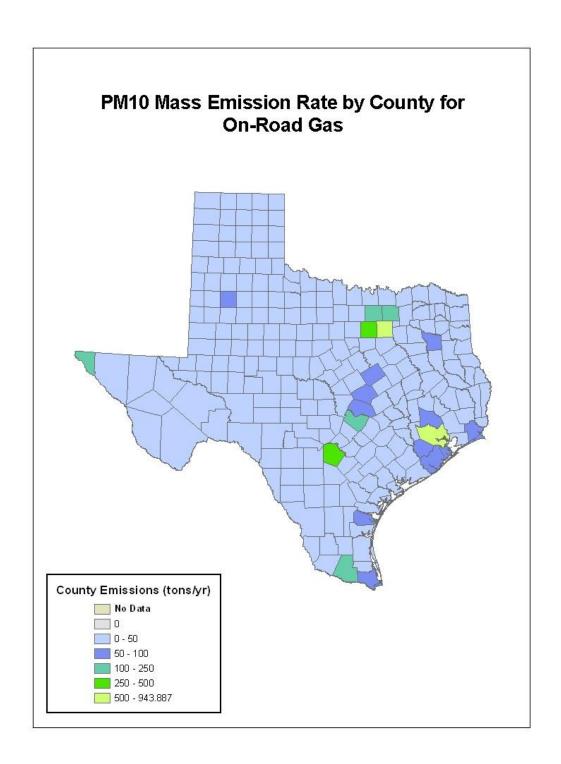


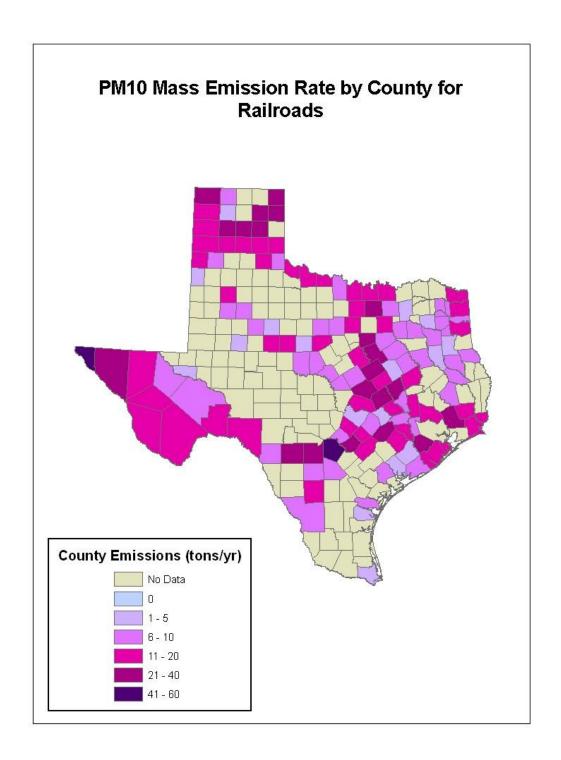




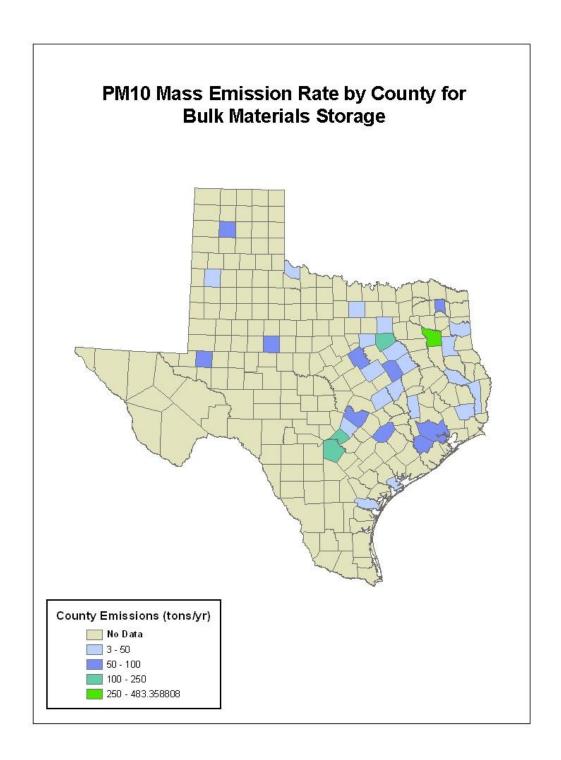


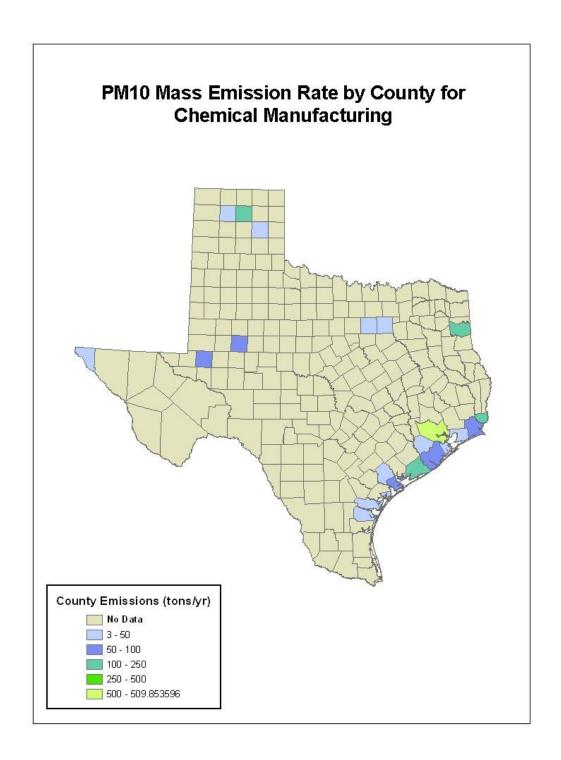


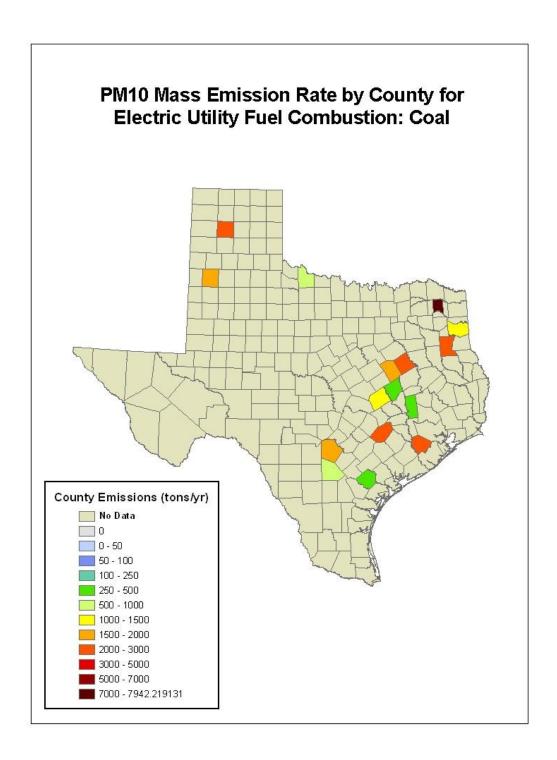


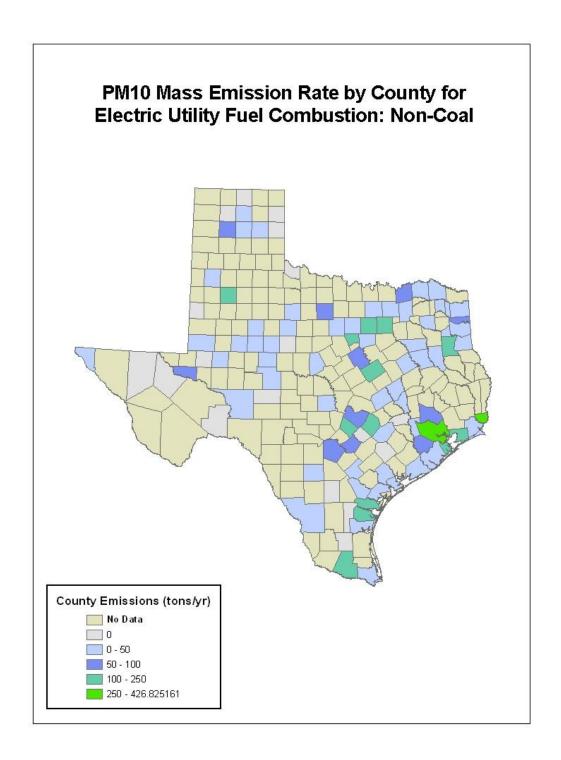


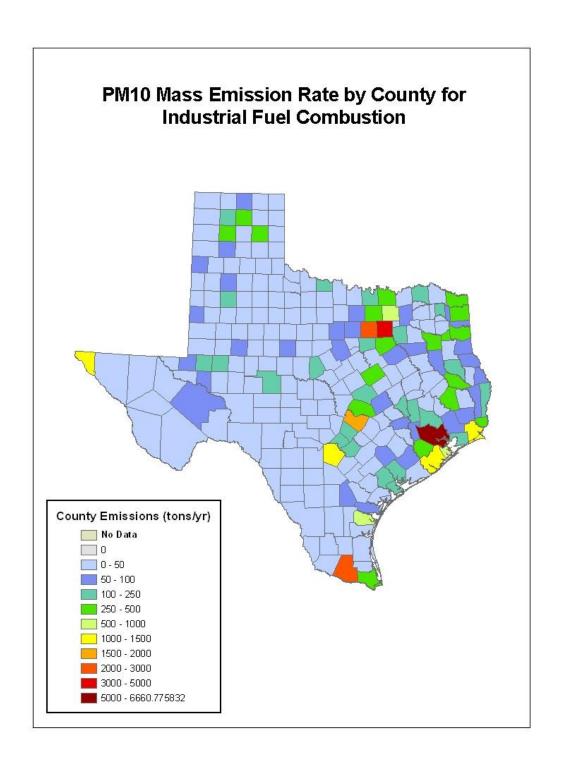


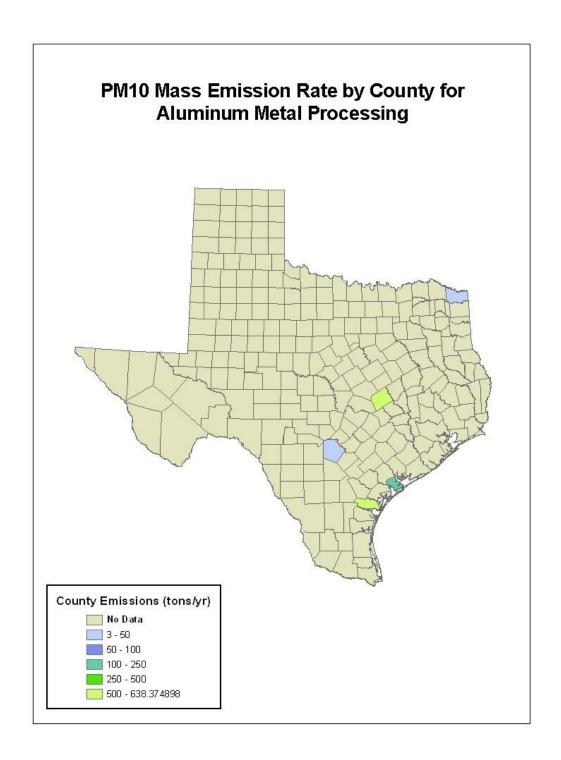


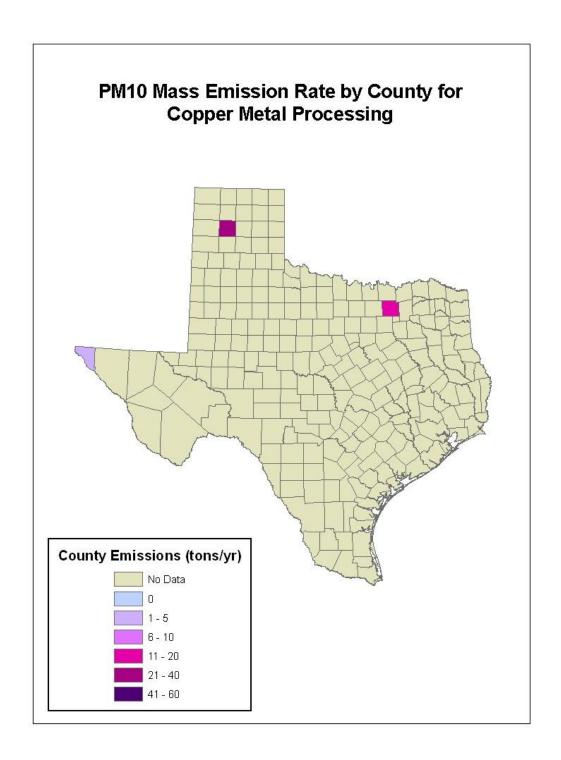


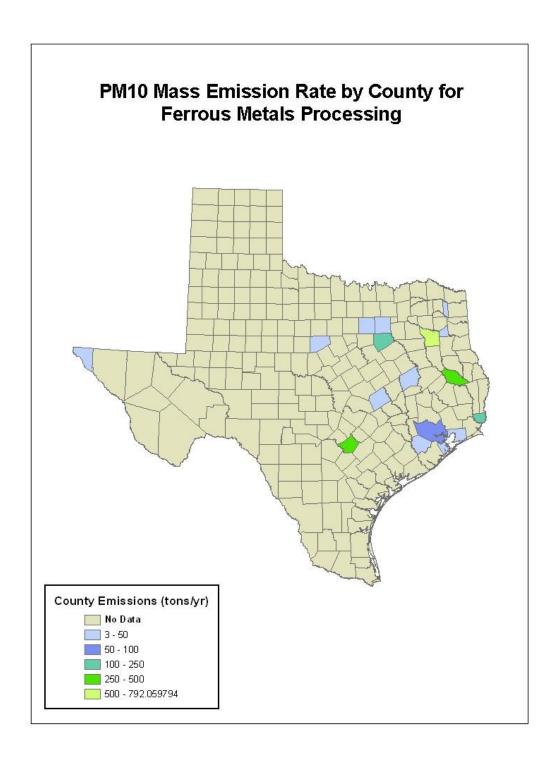


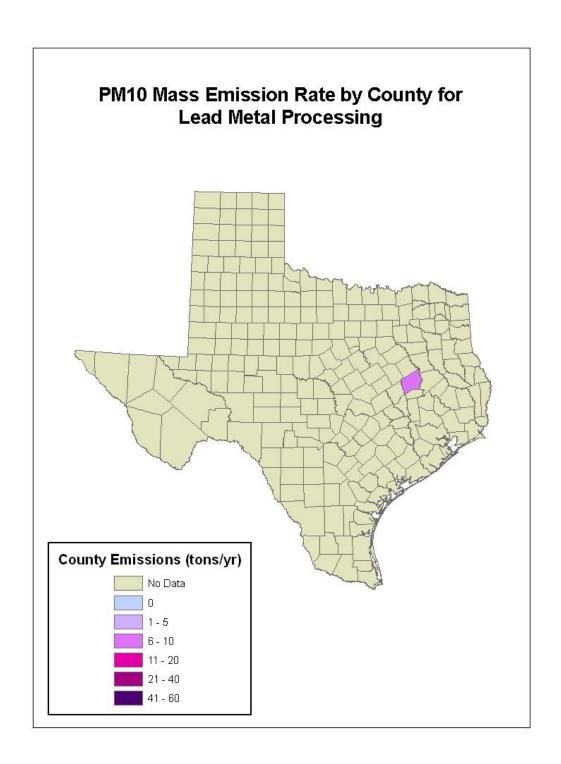


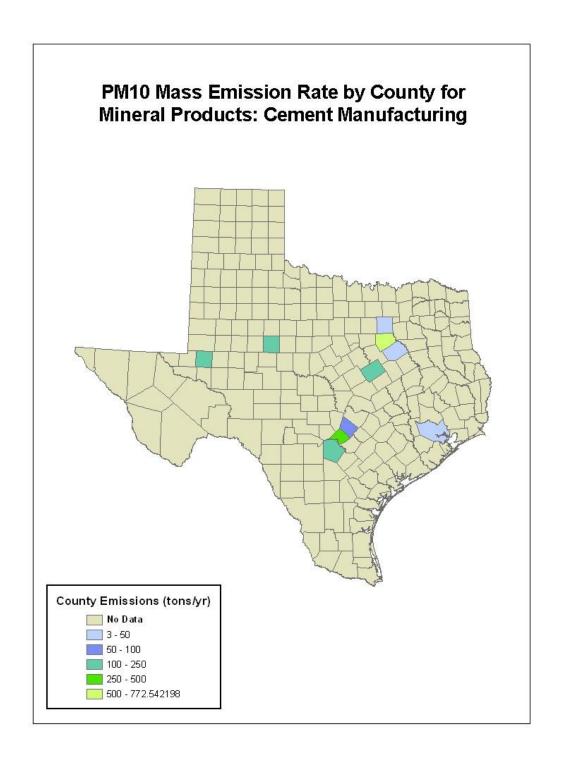


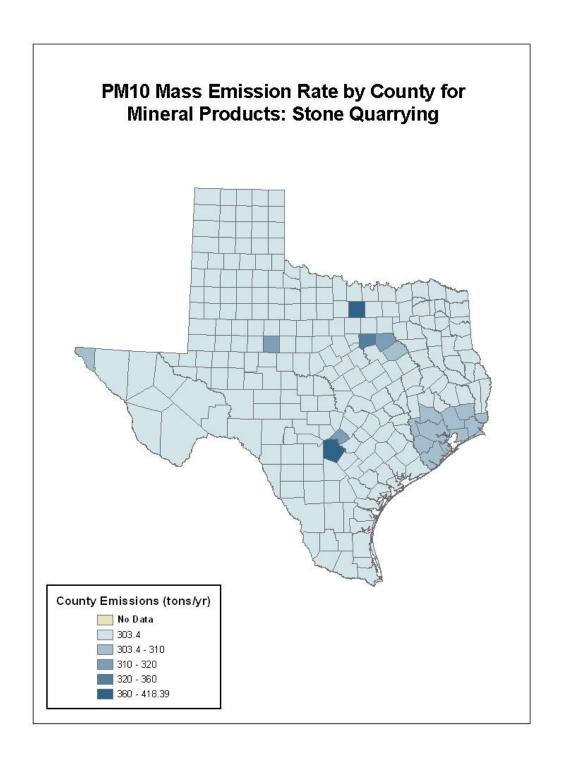


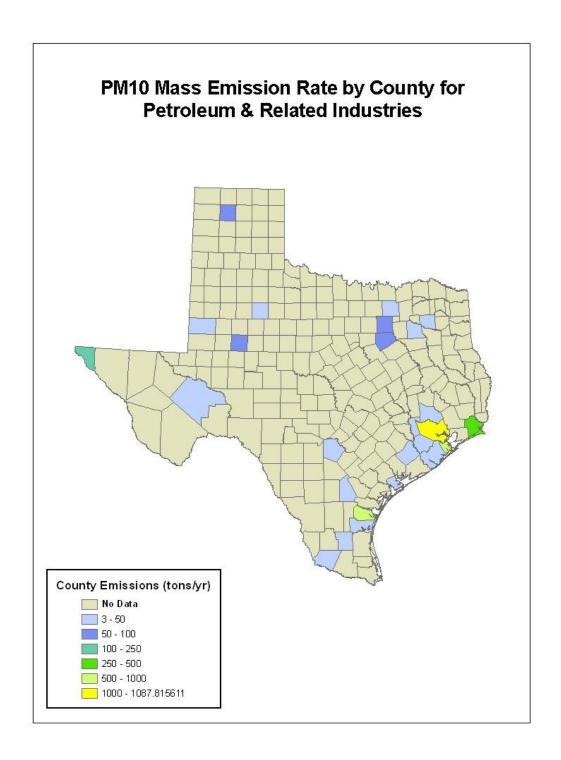


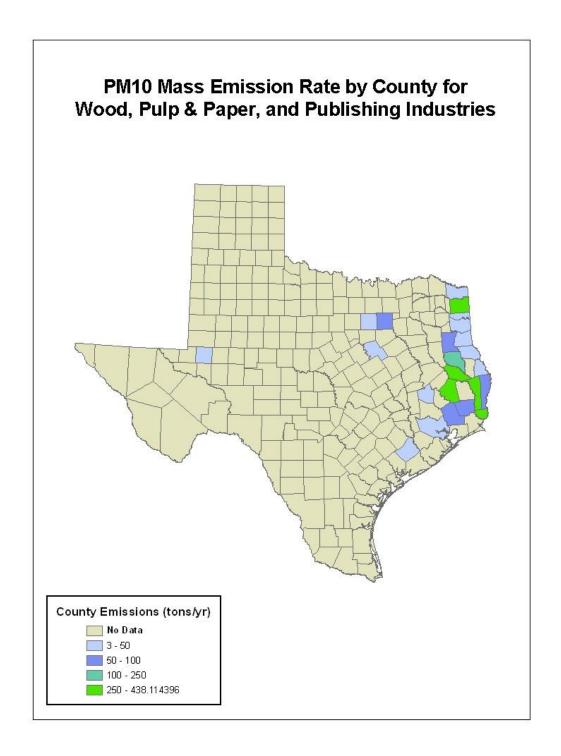






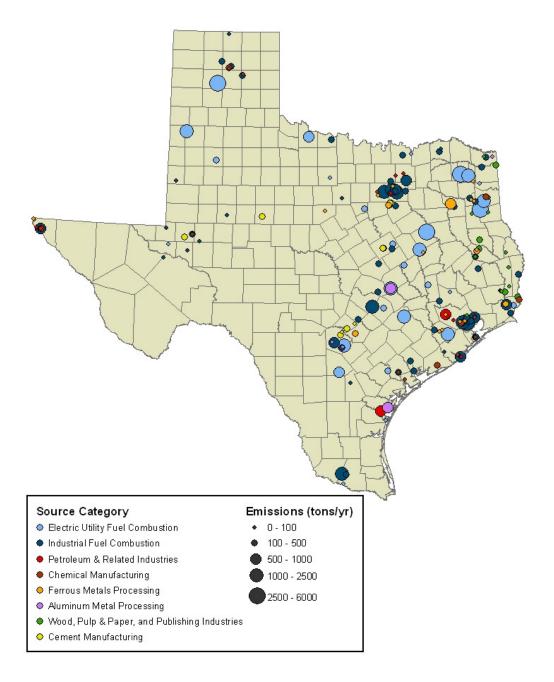




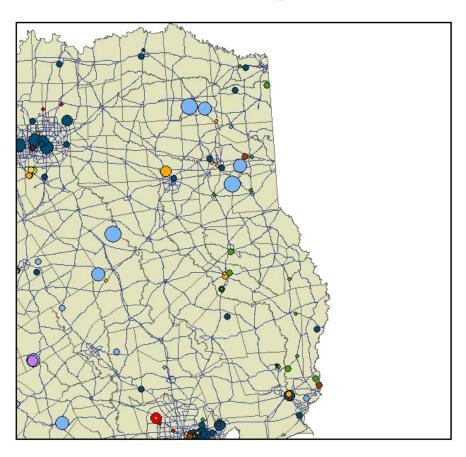




### **PM10 Point Source Emissions**

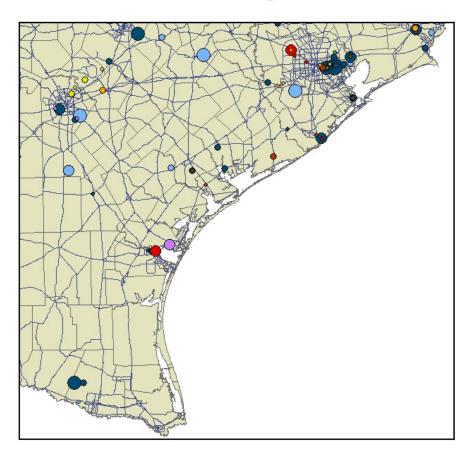


## PM10 Point Source Emissions: East Texas Region



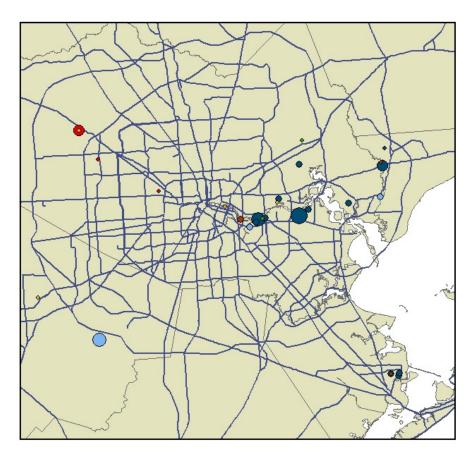
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## PM10 Point Source Emissions: Coastal Region



# Source Category © Electric Utility Fuel Combustion Industrial Fuel Combustion Petroleum & Related Industries Chemical Manufacturing Ferrous Metals Processing Aluminum Metal Processing Wood, Pulp & Paper, and Publishing Industries Cement Manufacturing Emissions (tons/yr) 0 100 - 100 100 - 500 1000 - 2500 2500 - 6000

## PM10 Point Source Emissions: Houston-Galveston Region



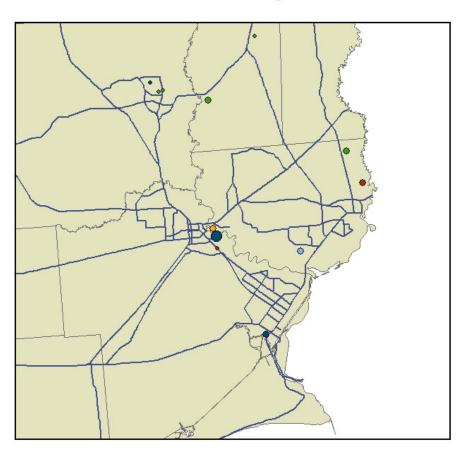
#### Source Category

- Electric Utility Fuel Combustion
- Industrial Fuel Combustion
- Petroleum & Related Industries
- Chemical Manufacturing
- Ferrous Metals Processing
- Aluminum Metal Processing
- Wood, Pulp & Paper, and Publishing Industries
- Cement Manufacturing

#### Emissions (tons/yr)

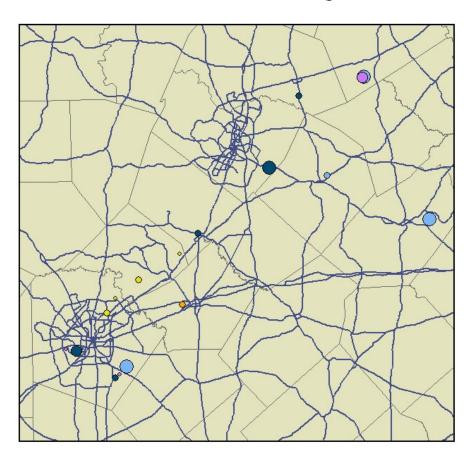
- 0 100
- 100 500
- **500 1000**
- 1000 2500
- 2500 6000

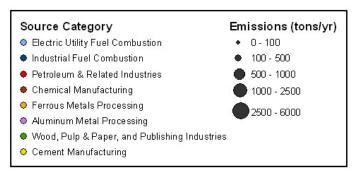
## PM10 Point Source Emissions: Beaumont Region



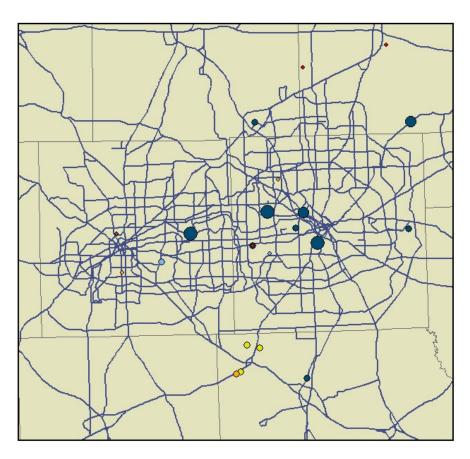
# Source Category © Electric Utility Fuel Combustion Industrial Fuel Combustion Petroleum & Related Industries Chemical Manufacturing Ferrous Metals Processing Aluminum Metal Processing Wood, Pulp & Paper, and Publishing Industries Cement Manufacturing Emissions (tons/yr) 0 100 - 100 100 - 500 1000 - 2500 2500 - 6000

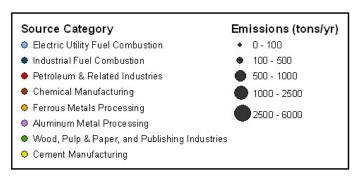
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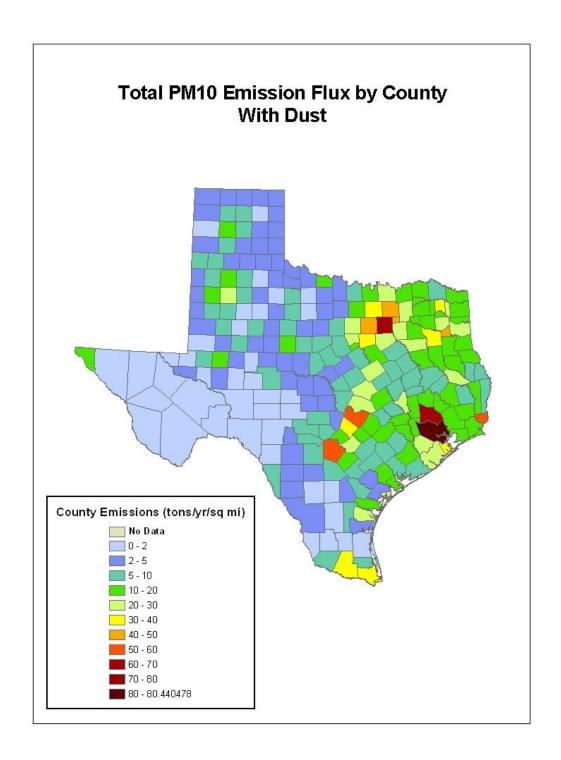


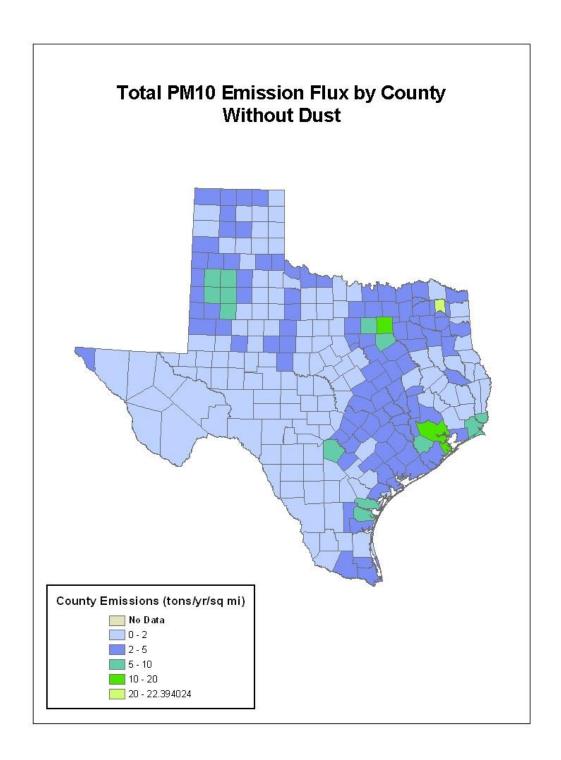
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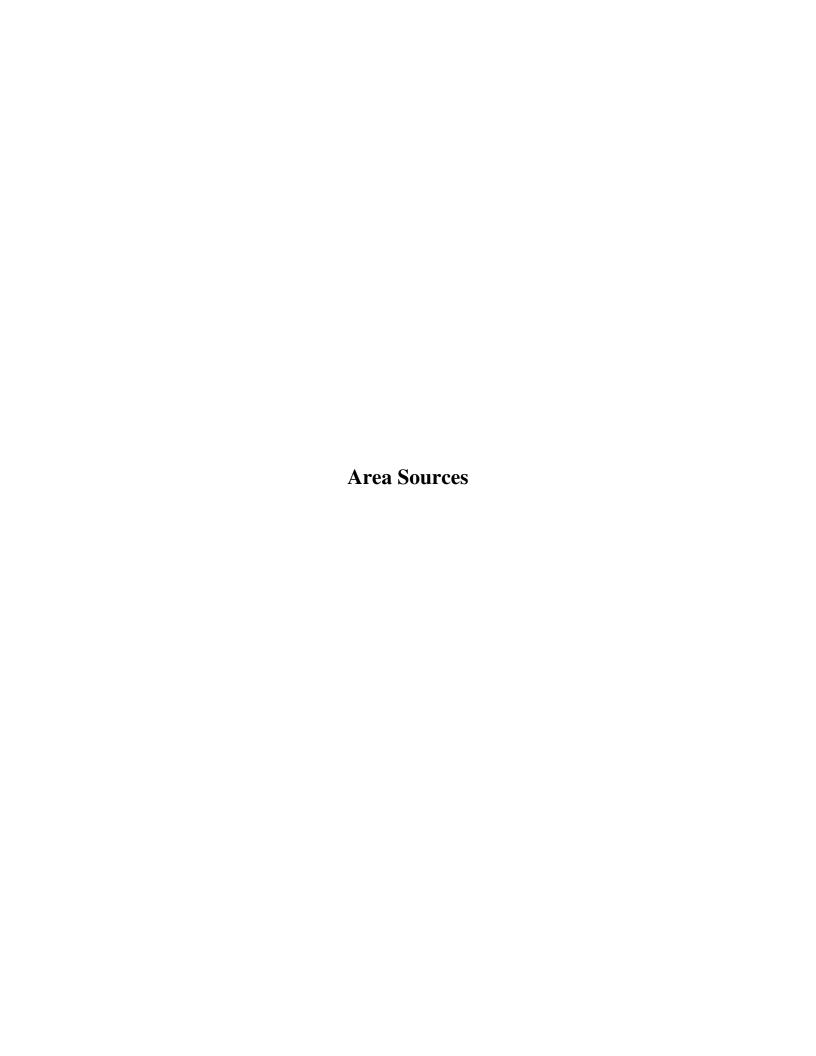


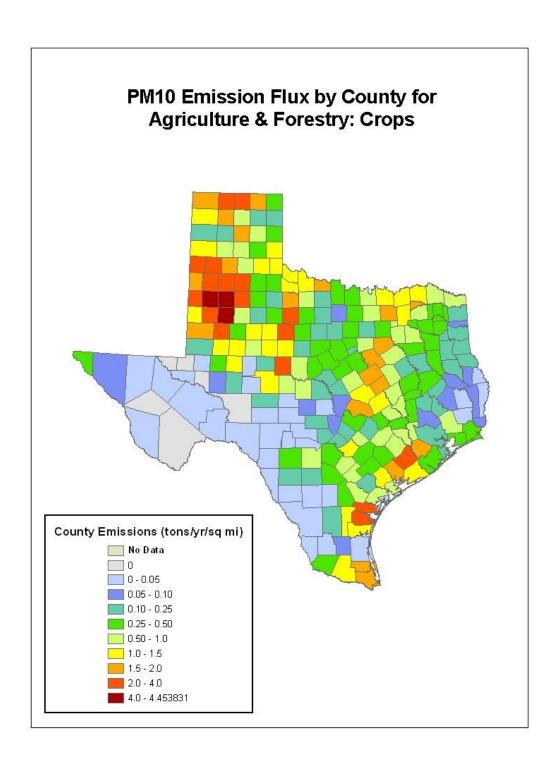


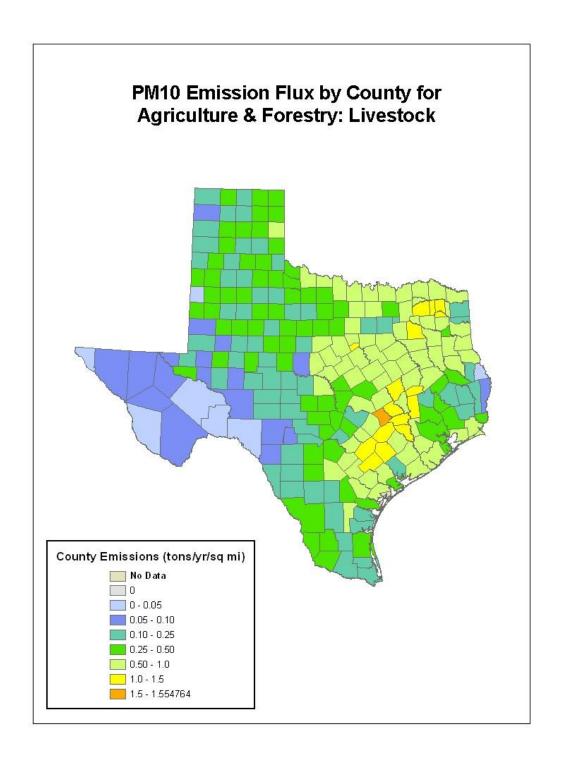


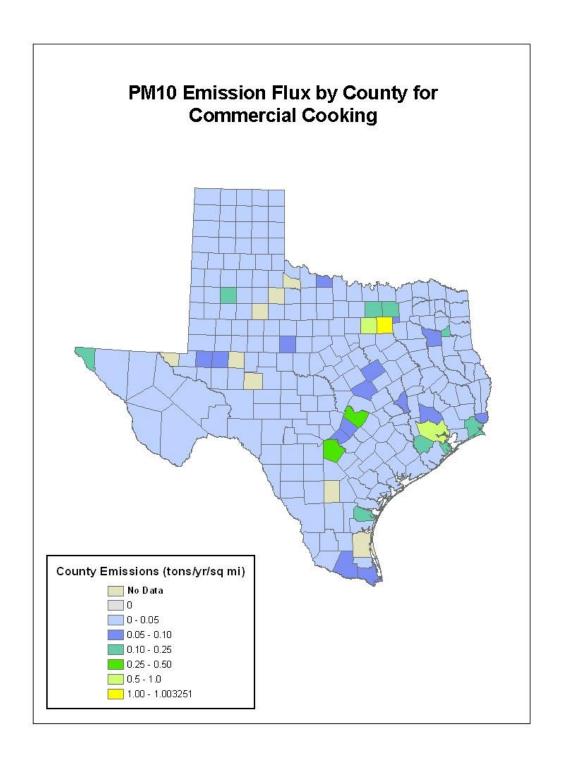


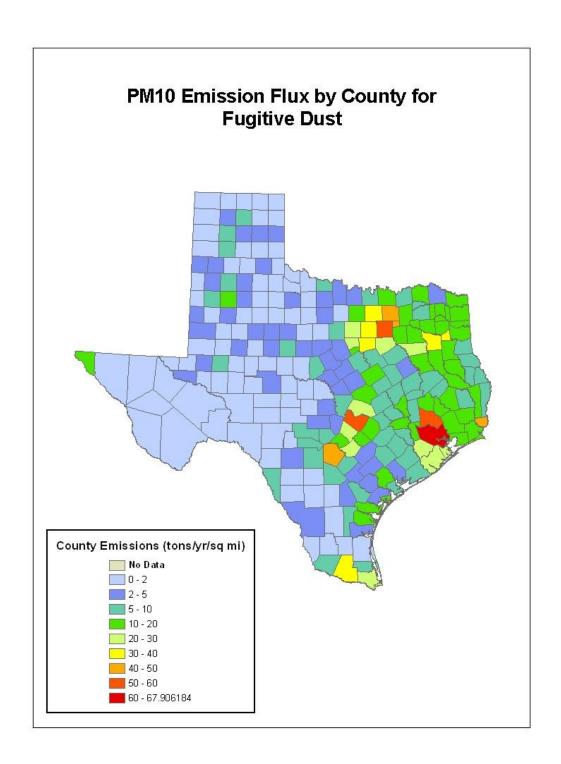


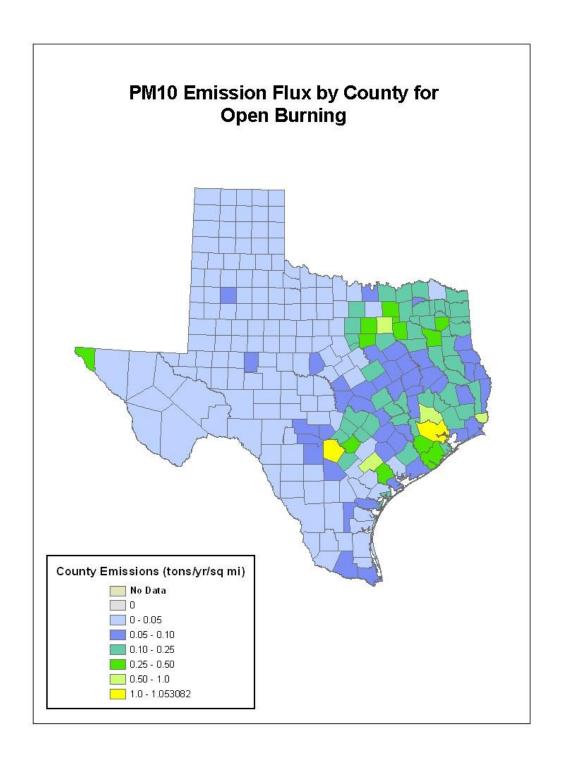


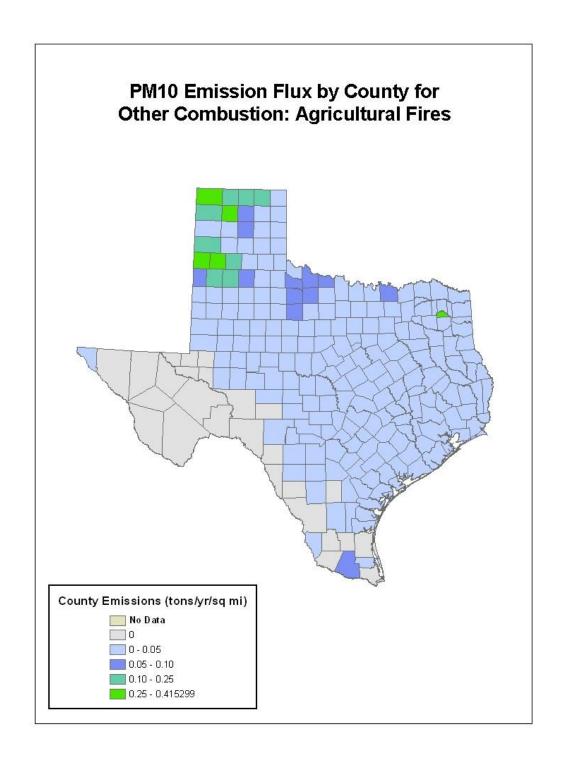


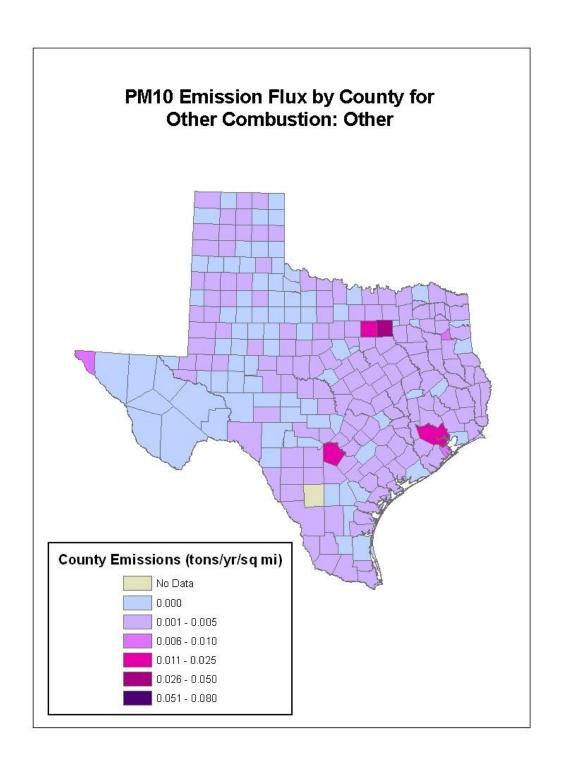


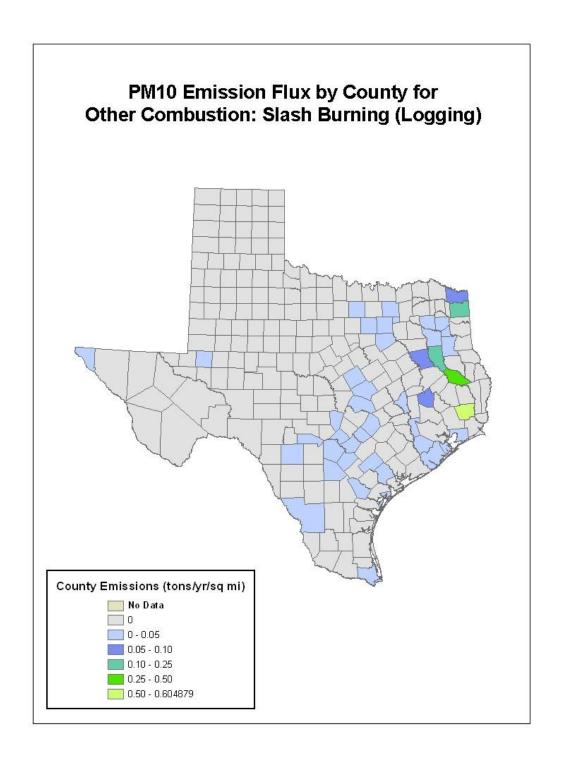


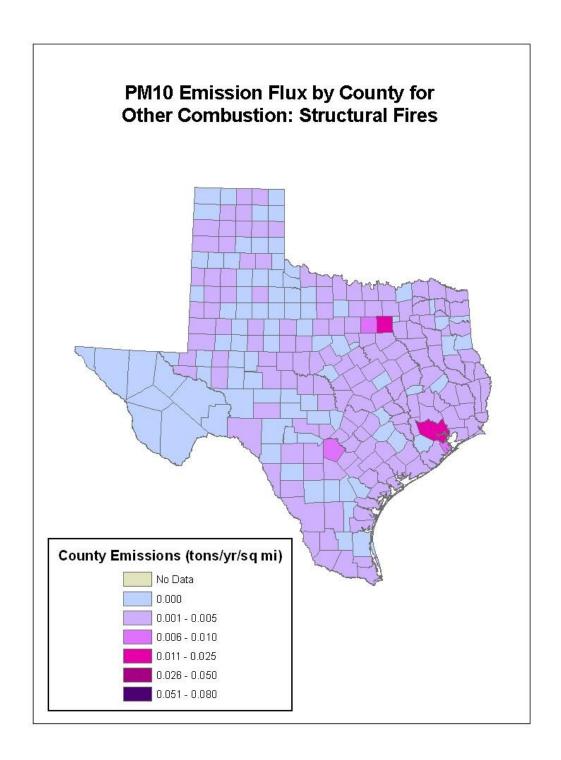


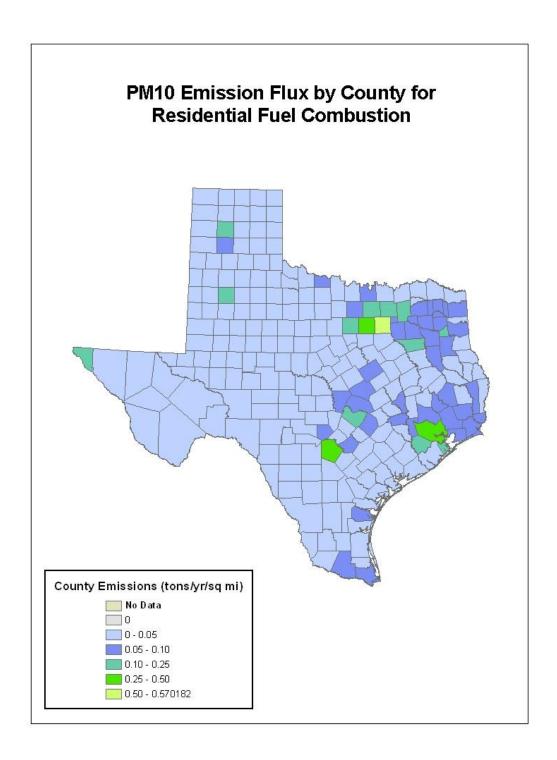


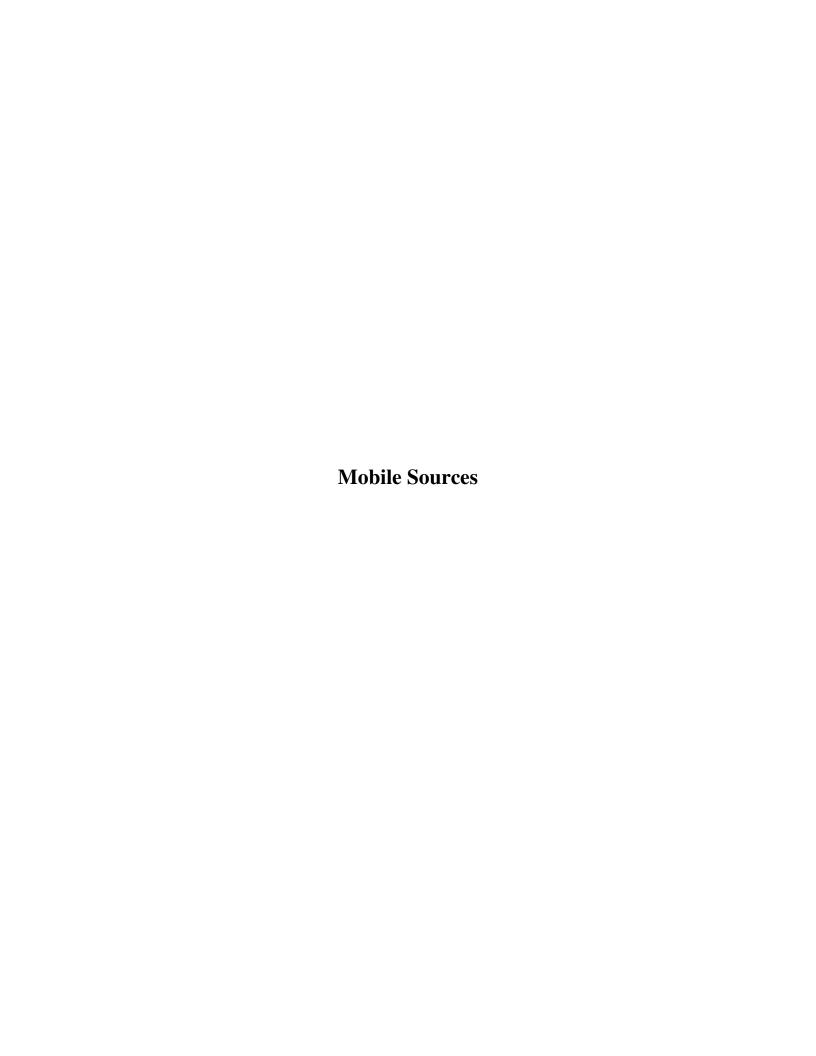


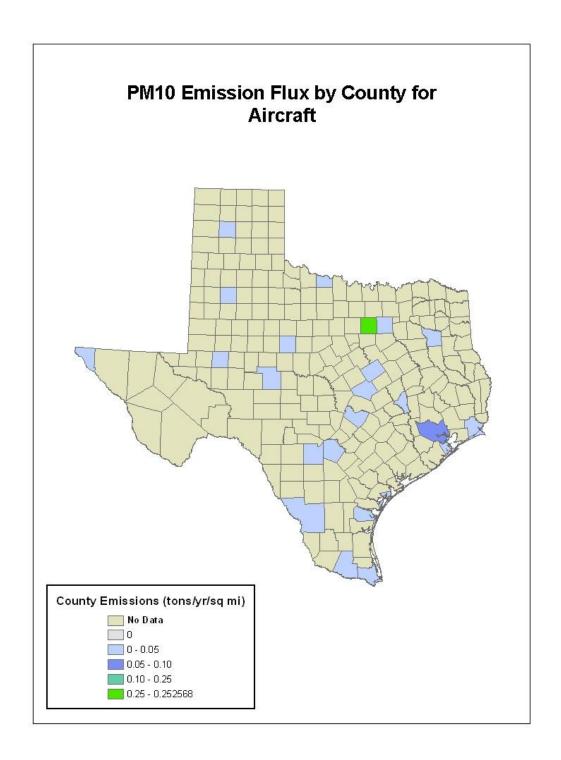


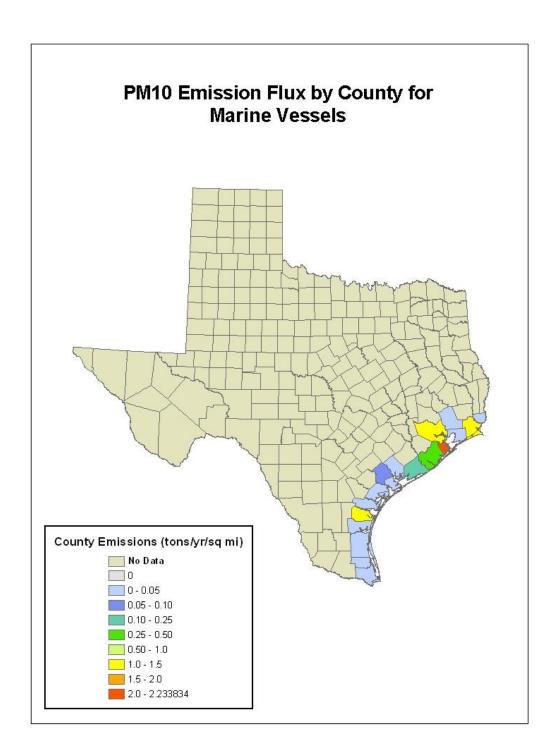


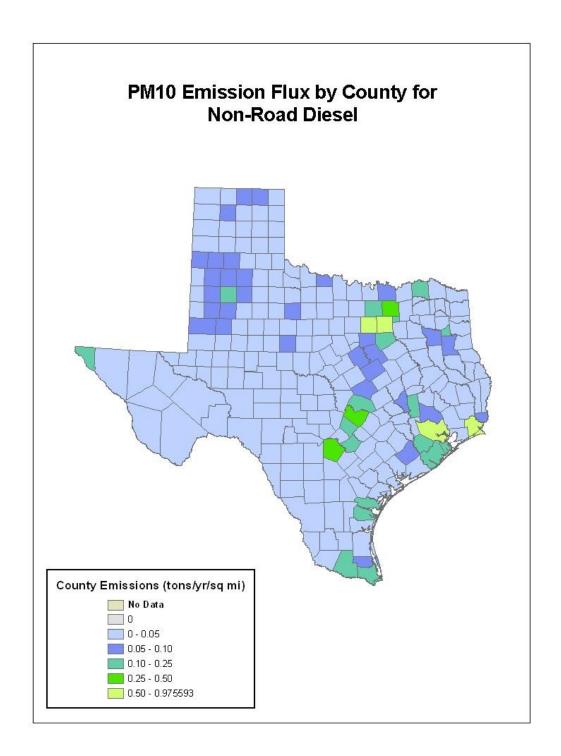


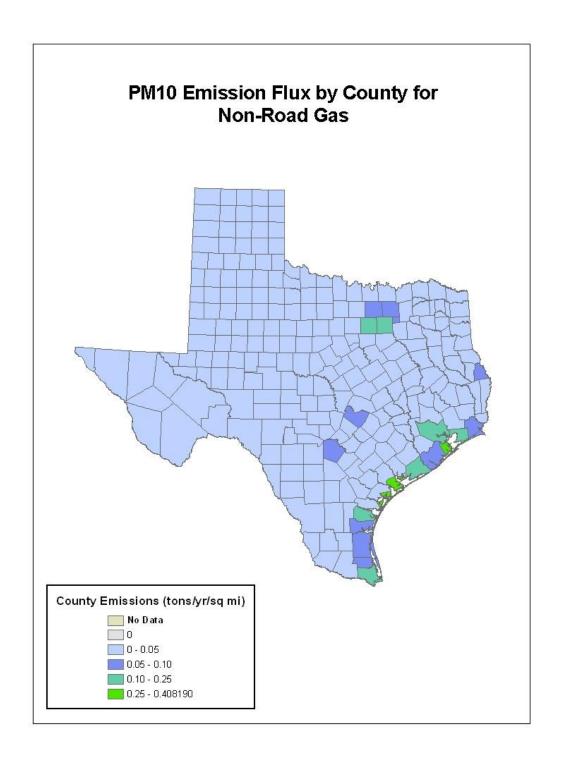


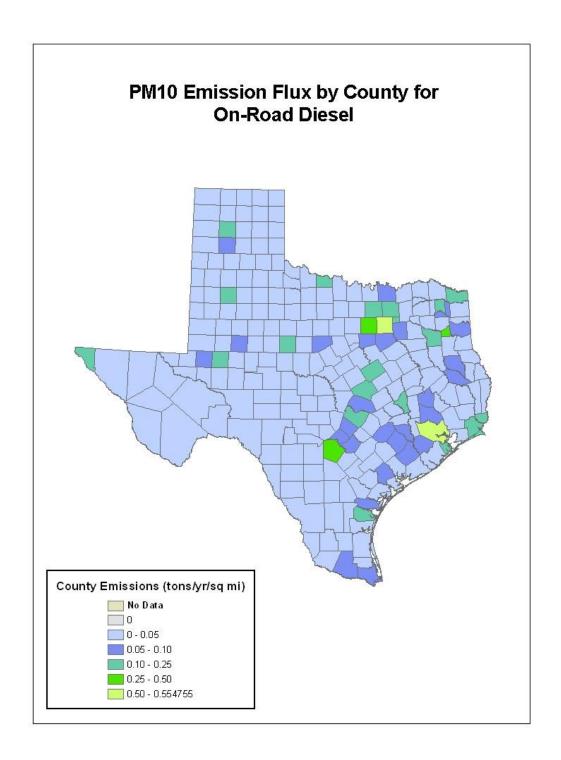


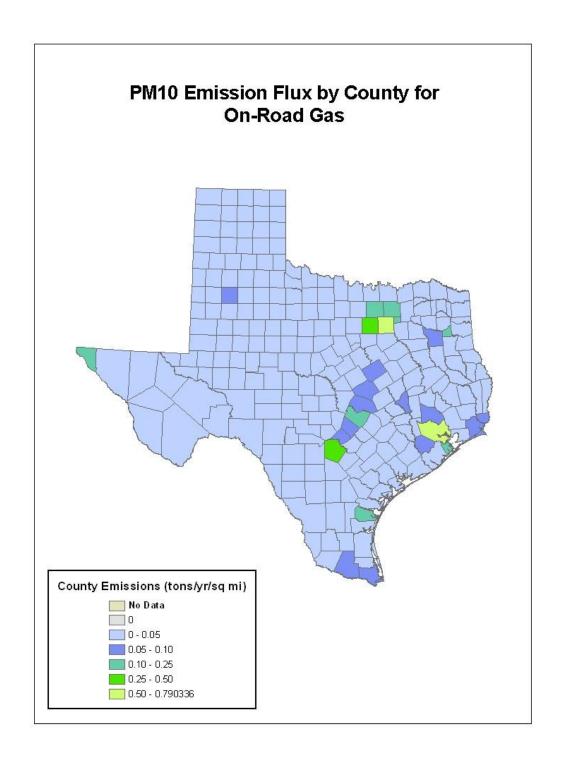


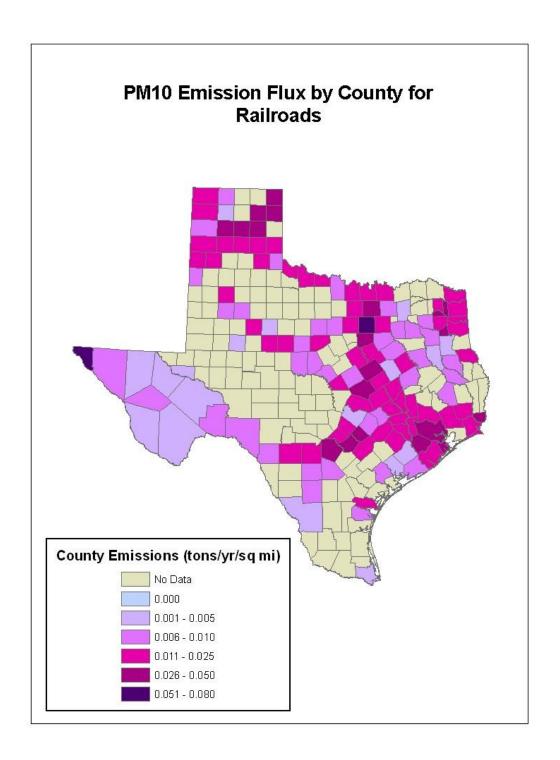




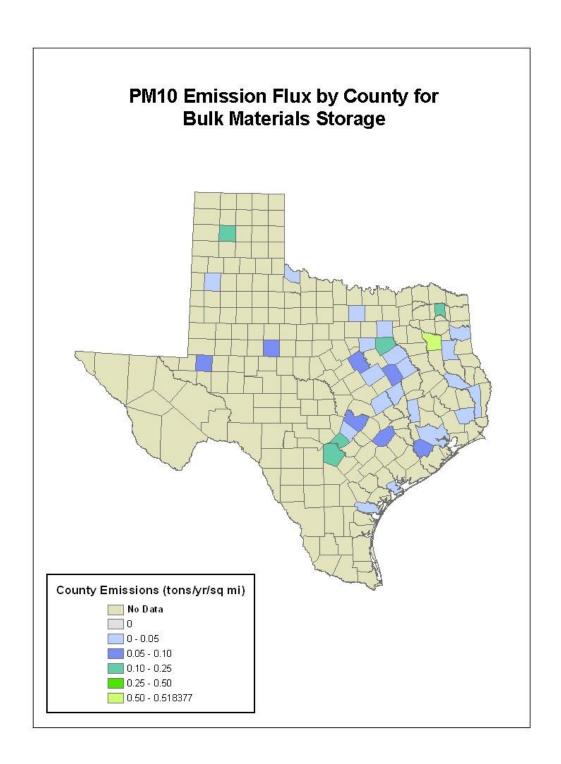


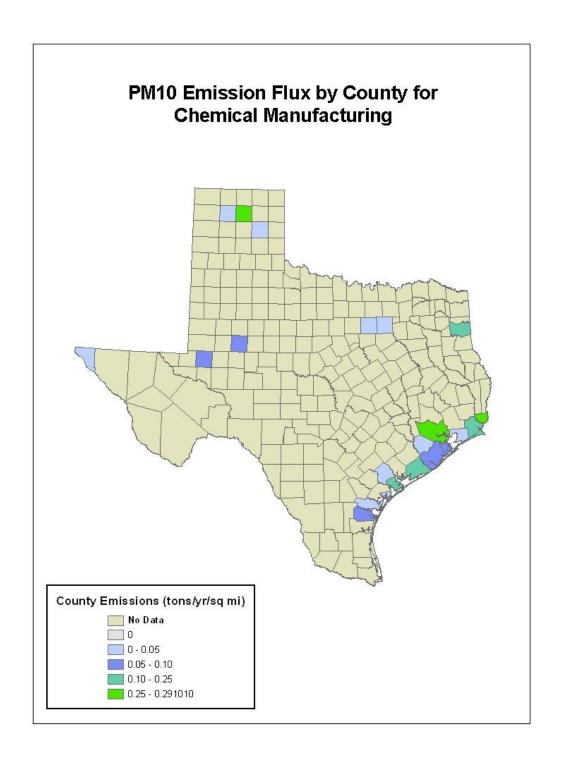


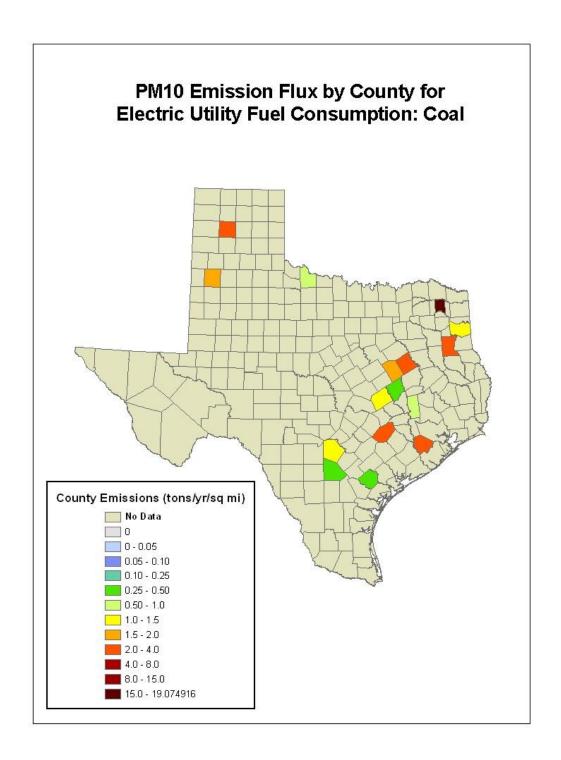


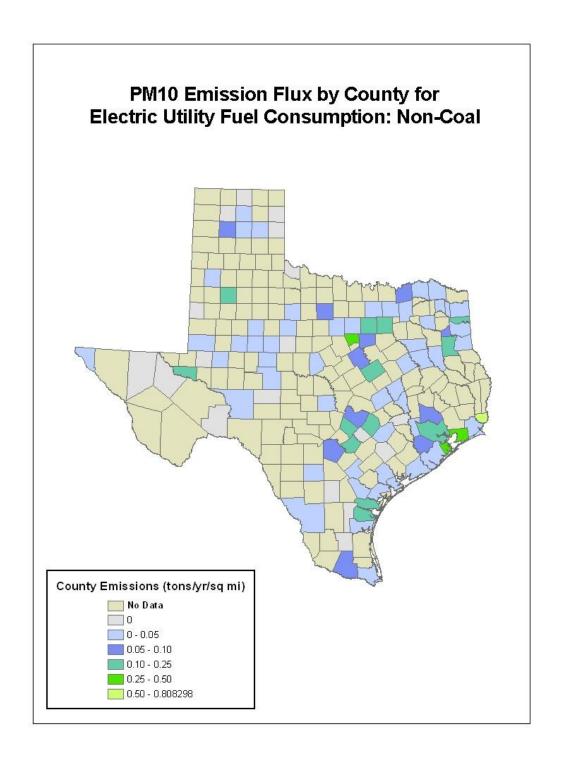


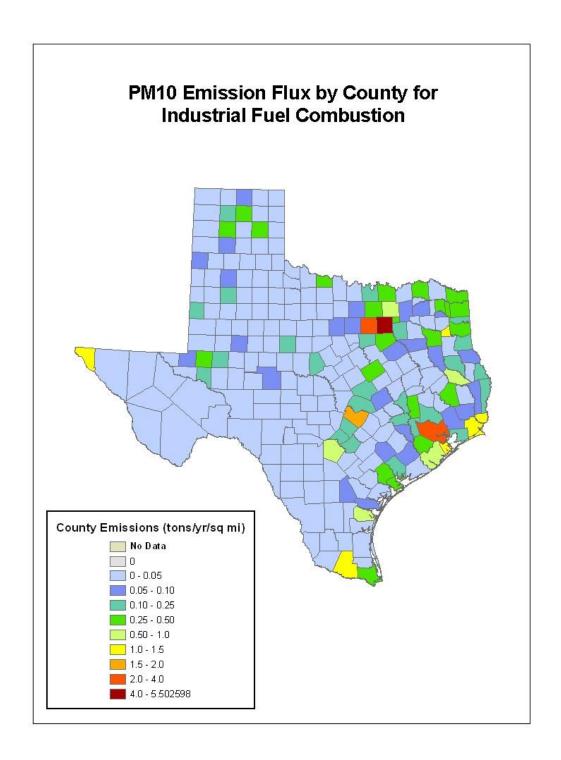


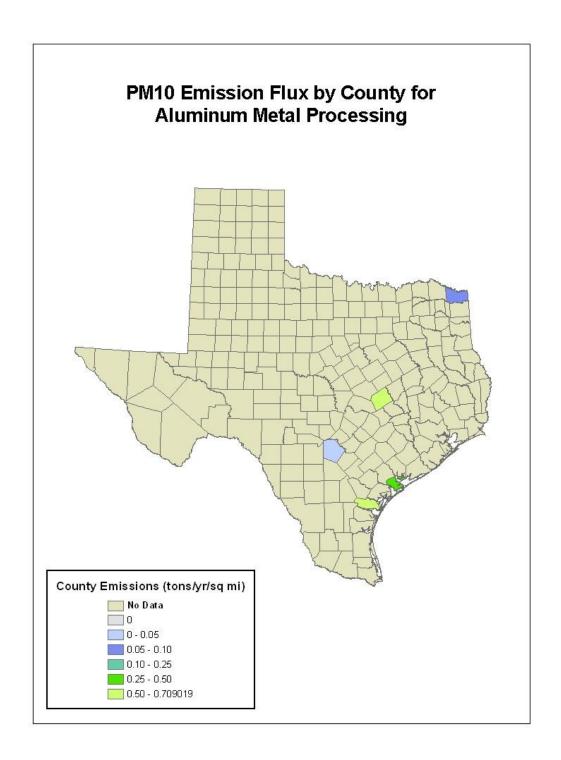


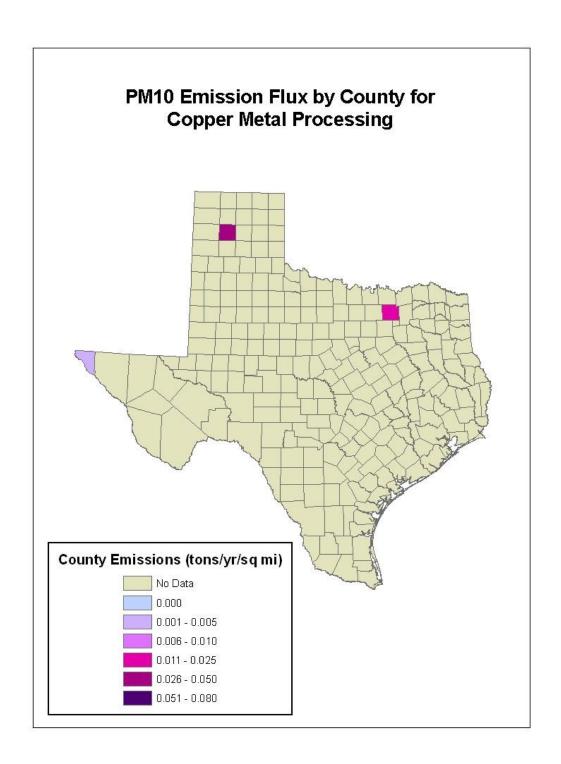


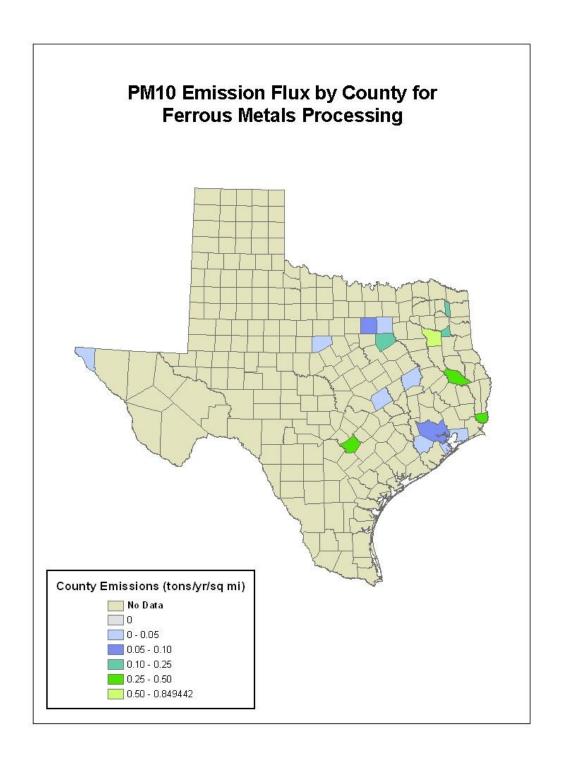


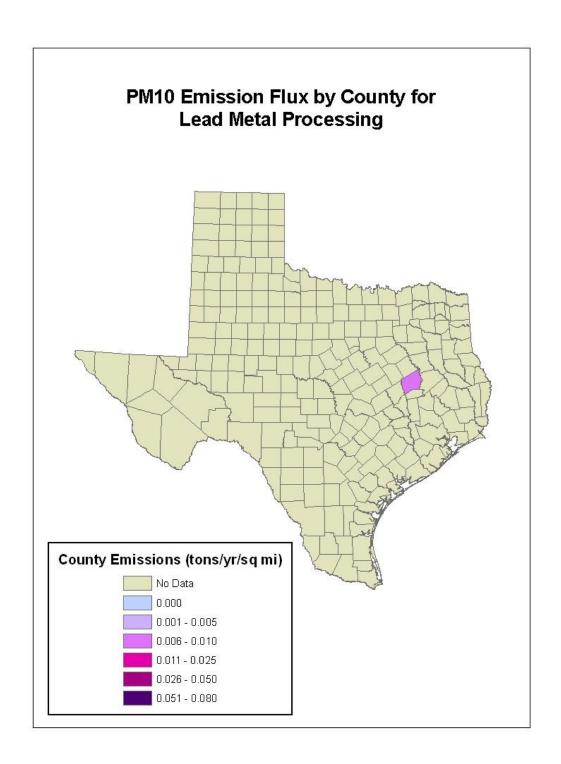


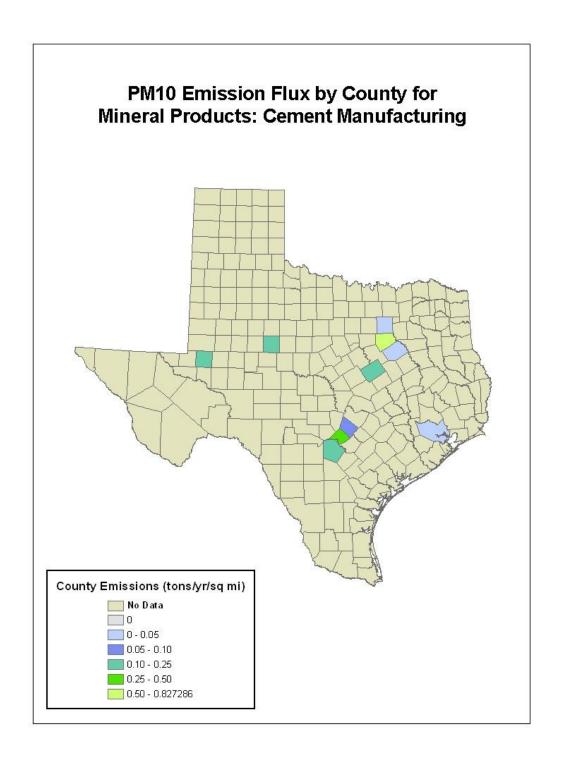


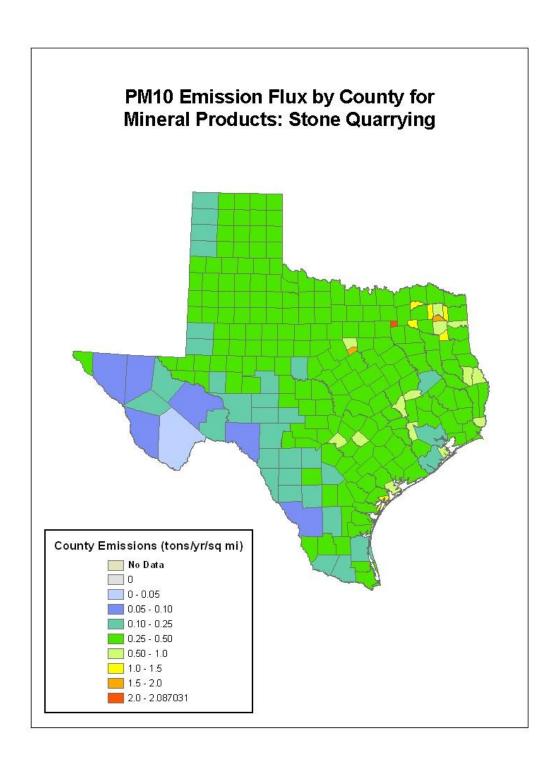


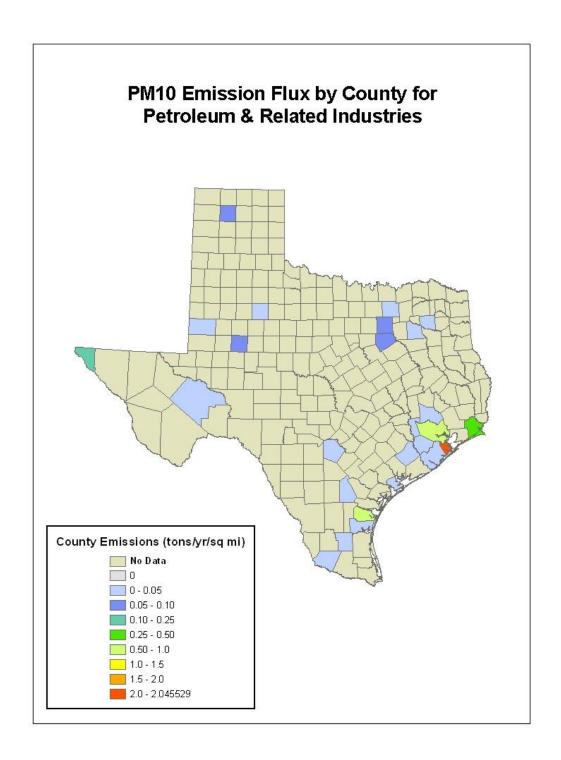


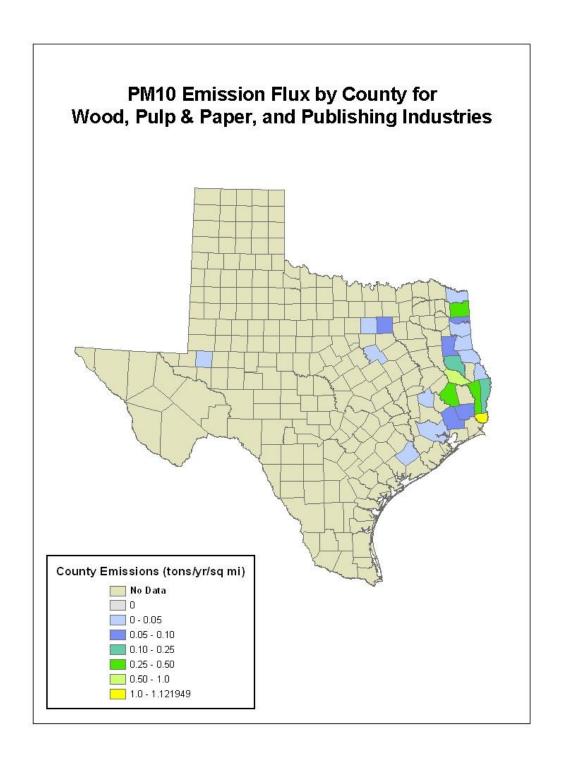




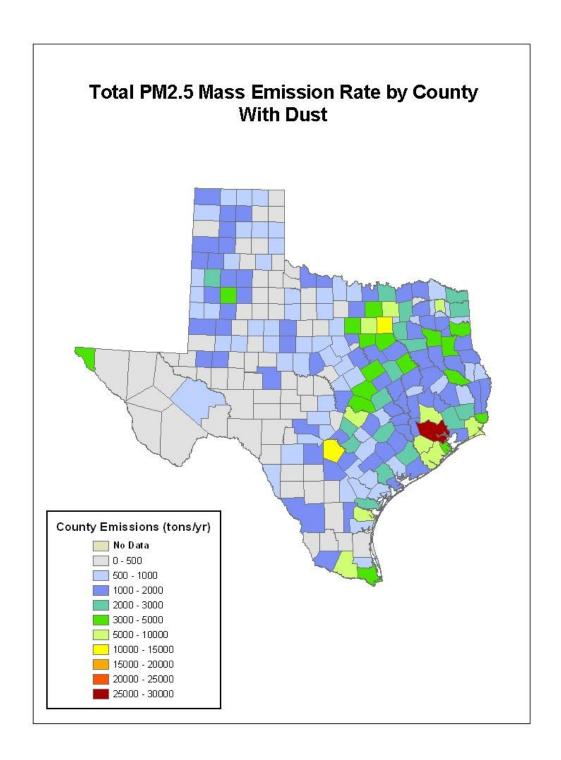


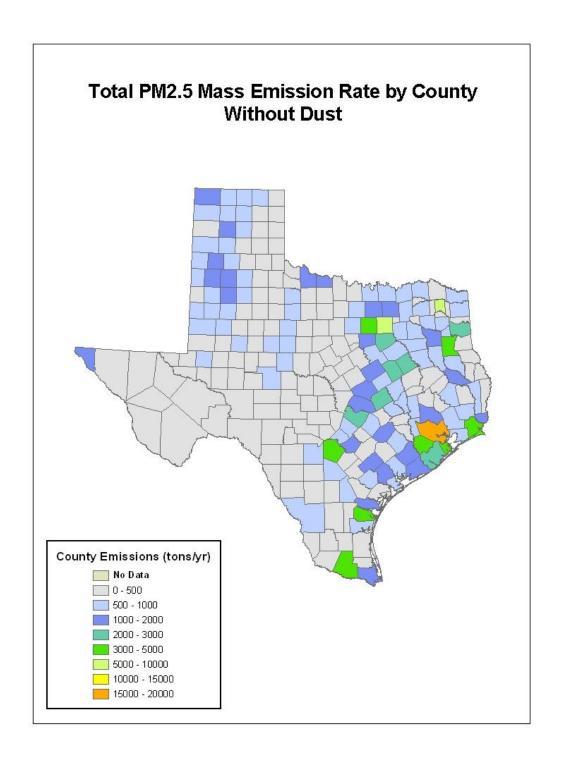


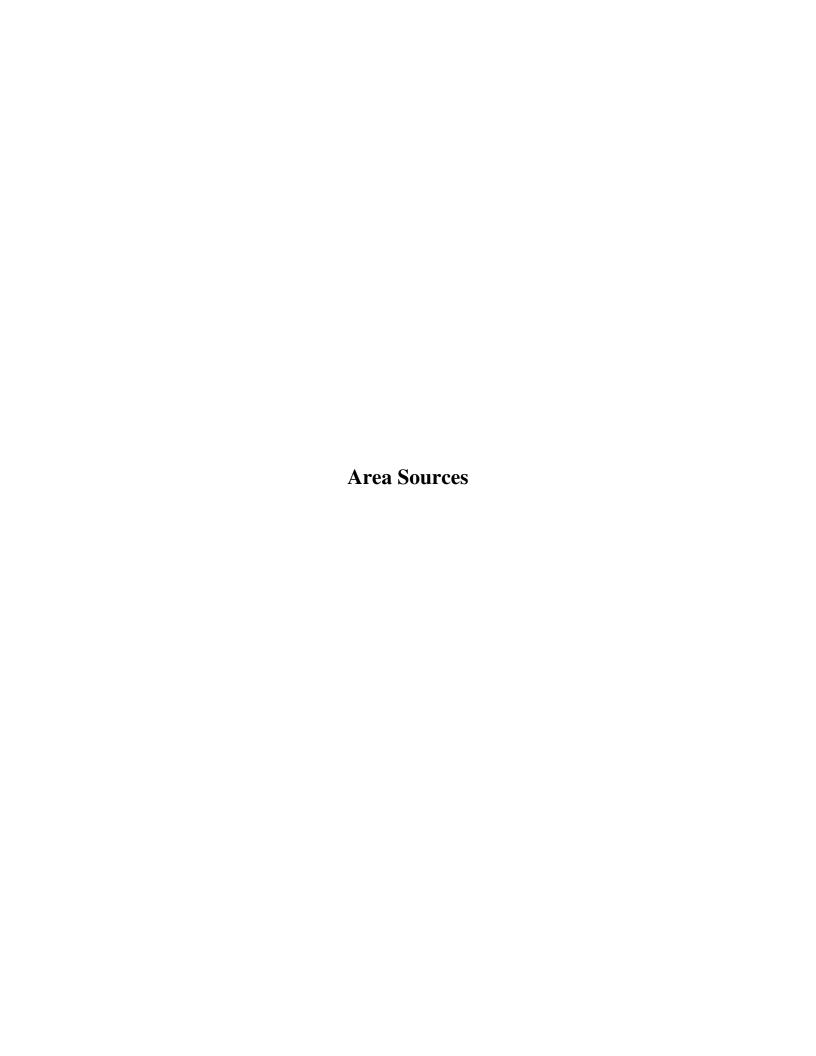


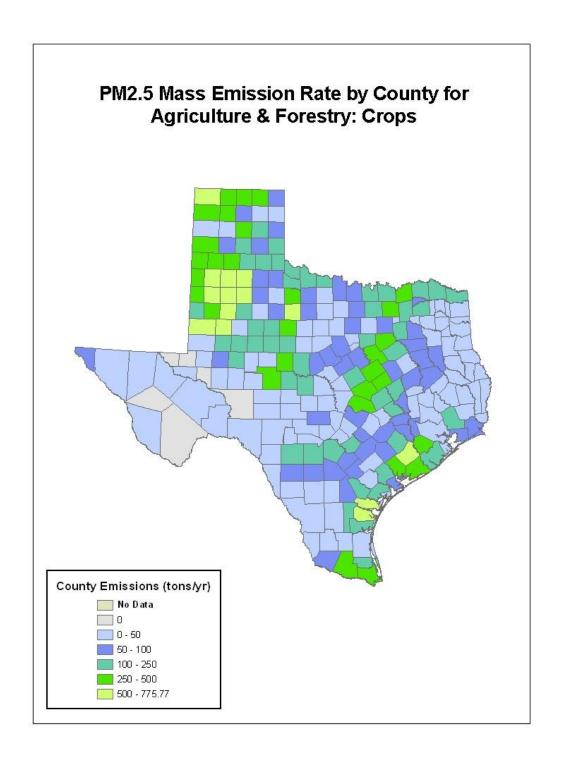


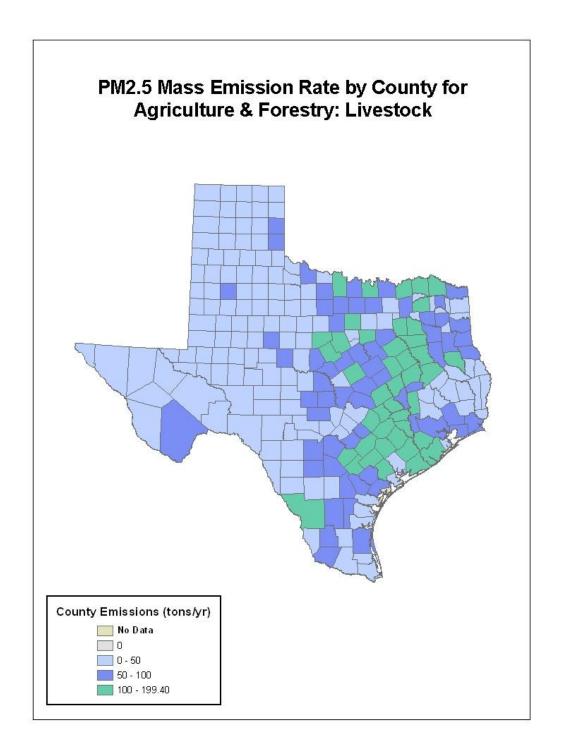


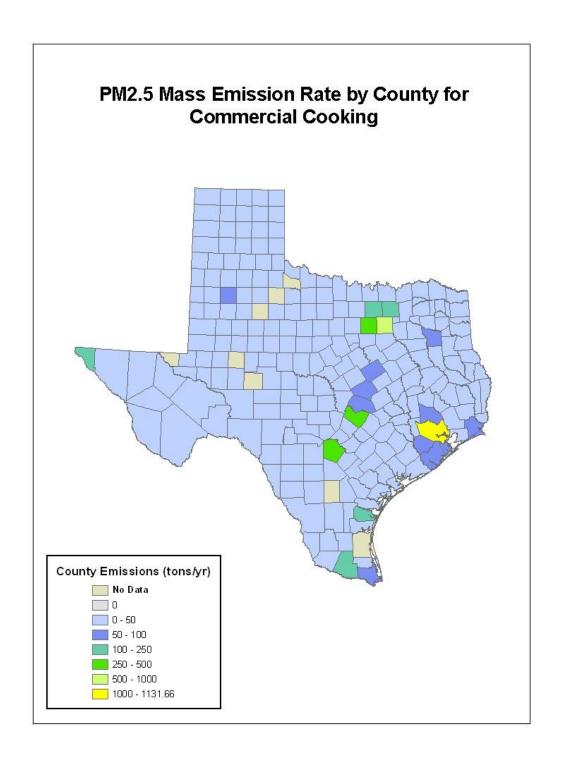


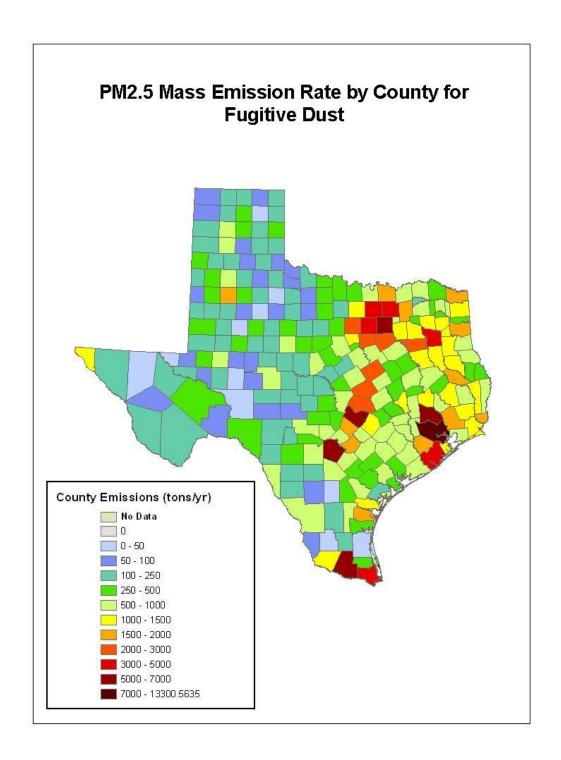


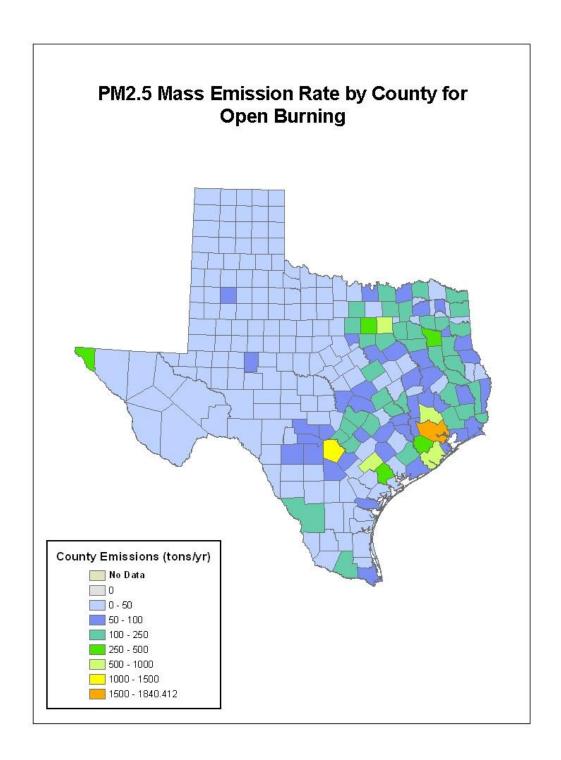


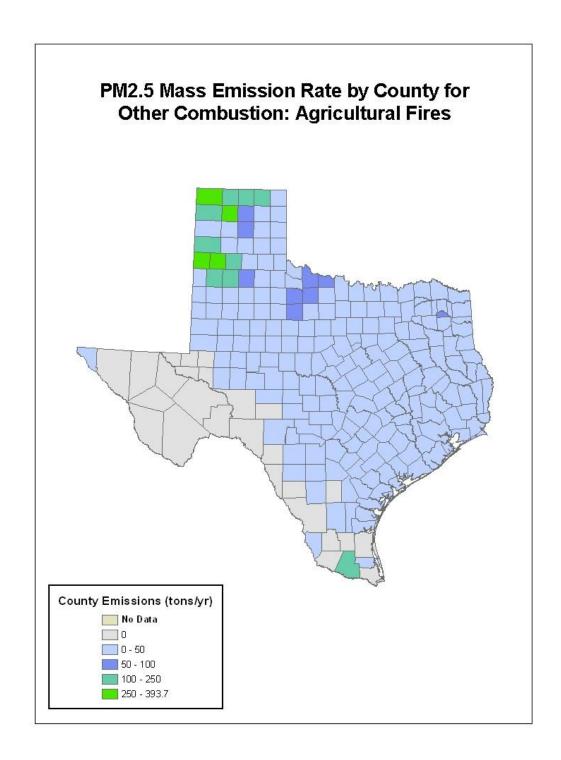


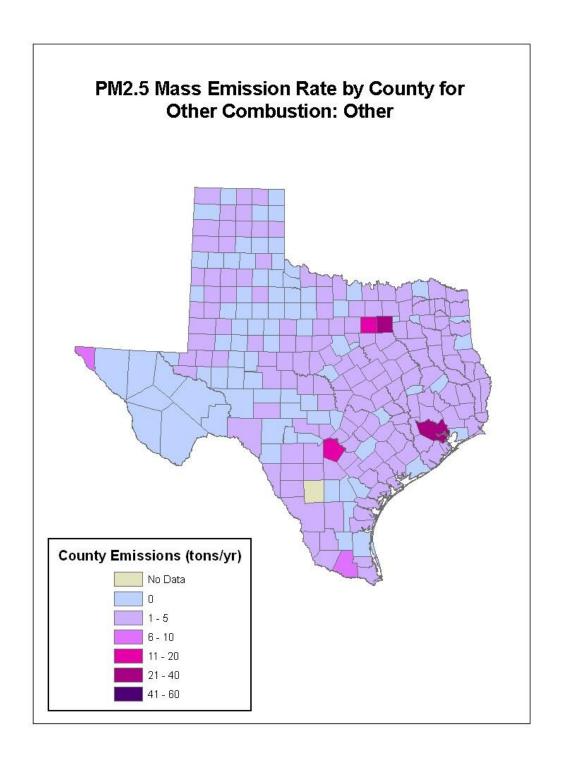


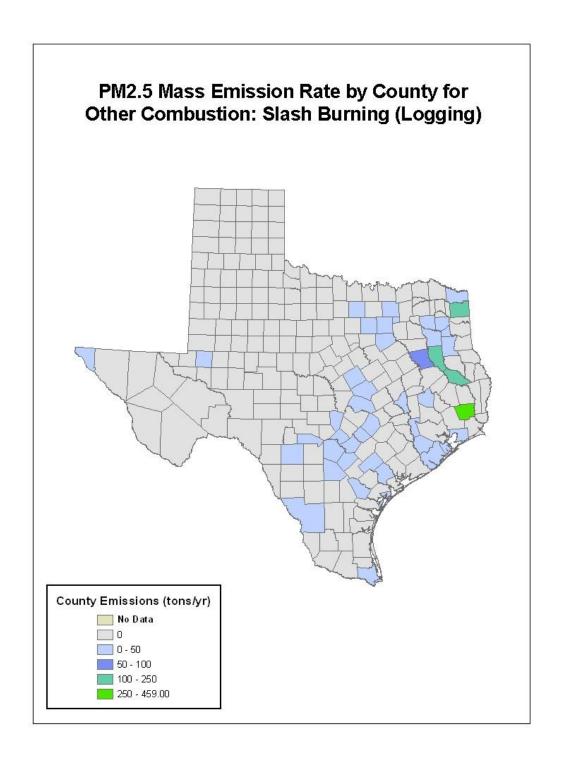


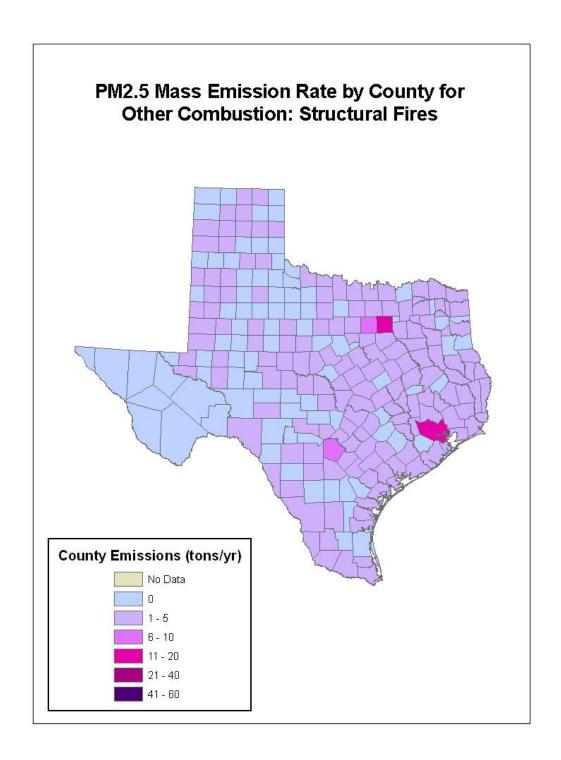


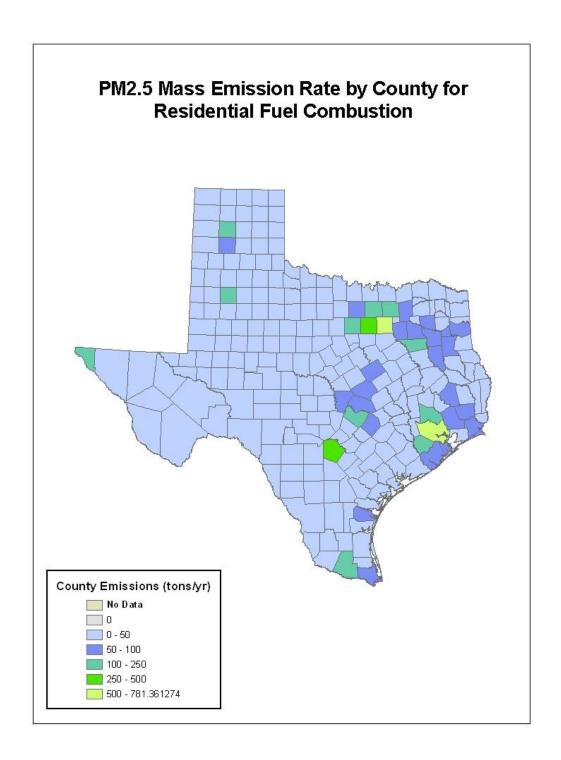


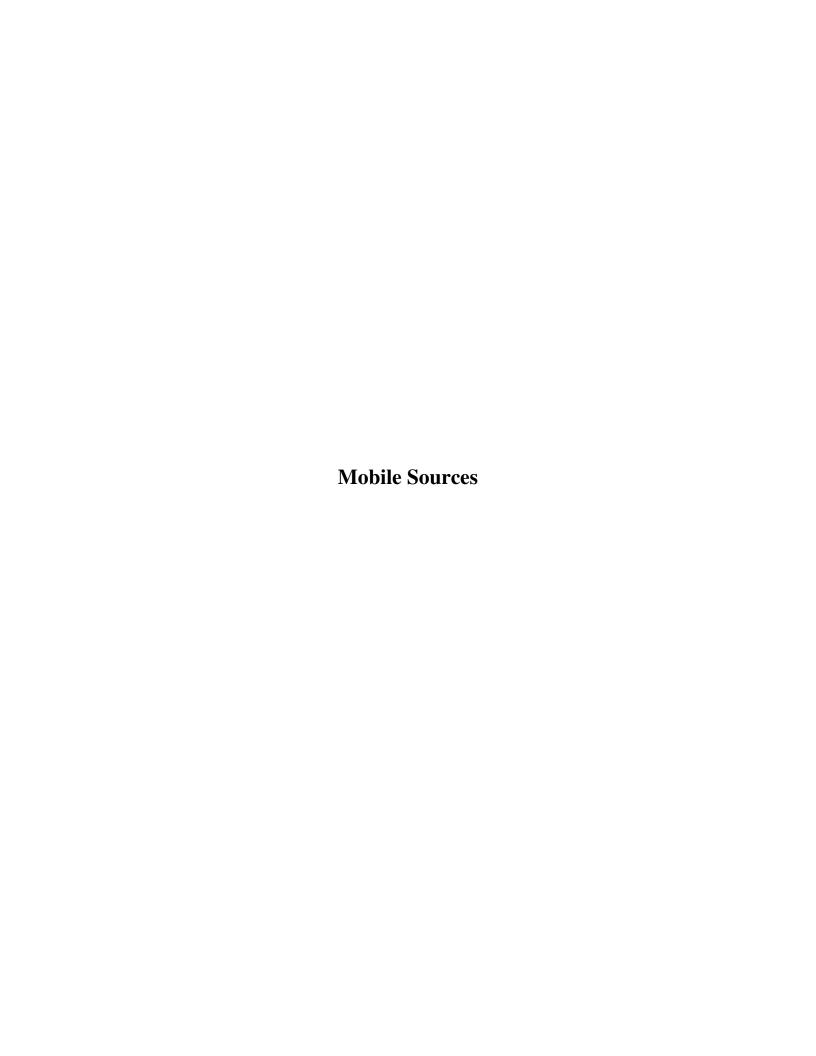


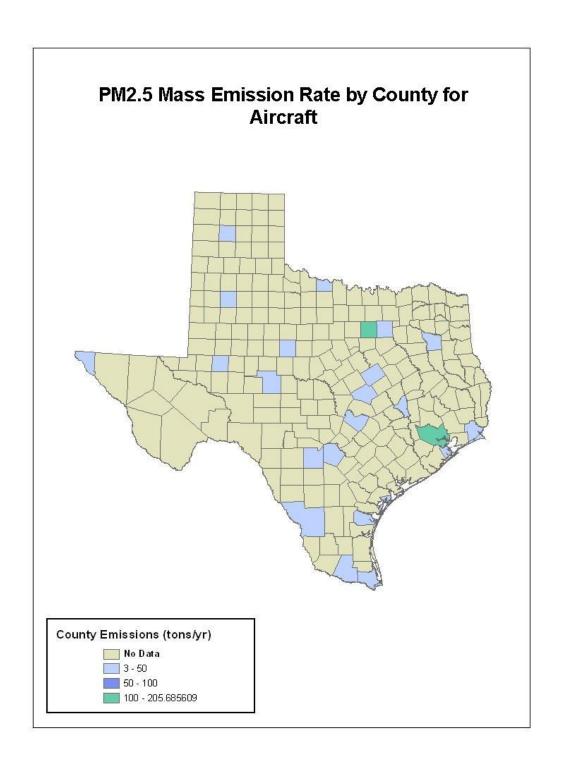


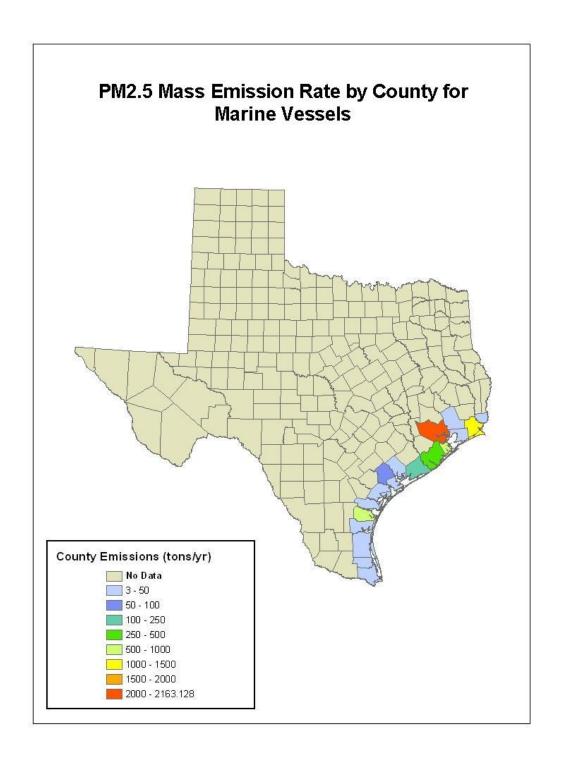


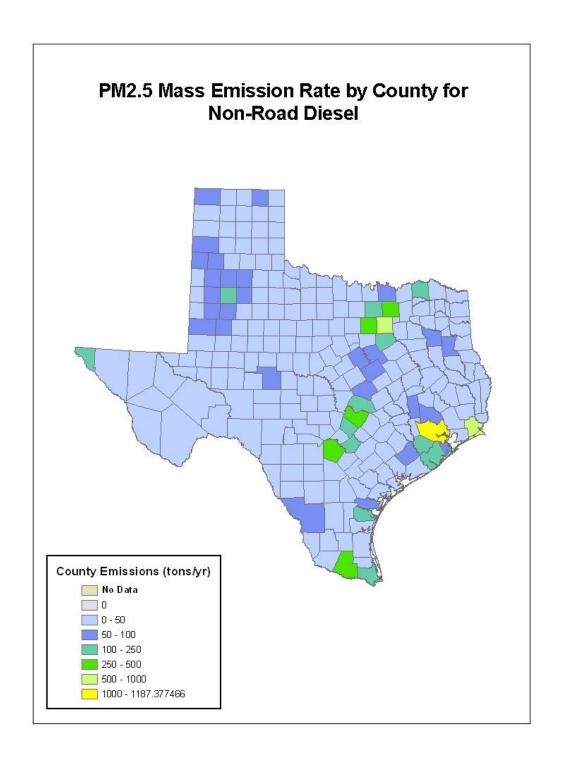


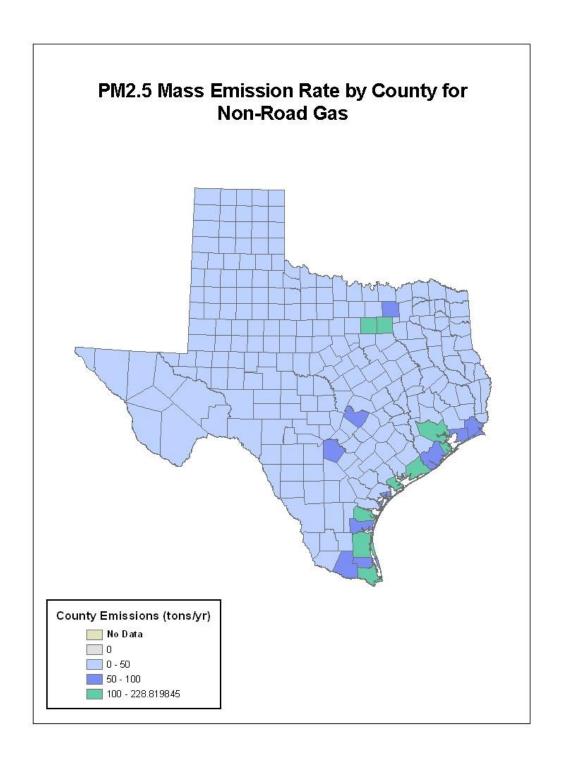


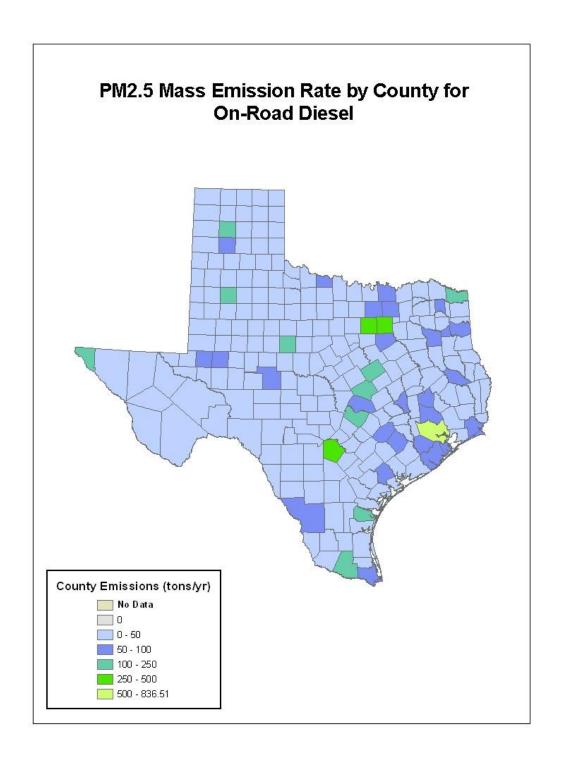


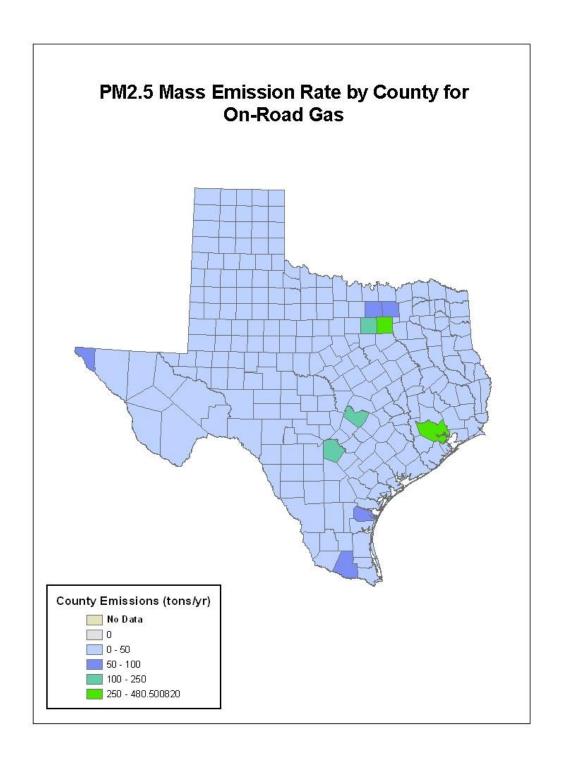


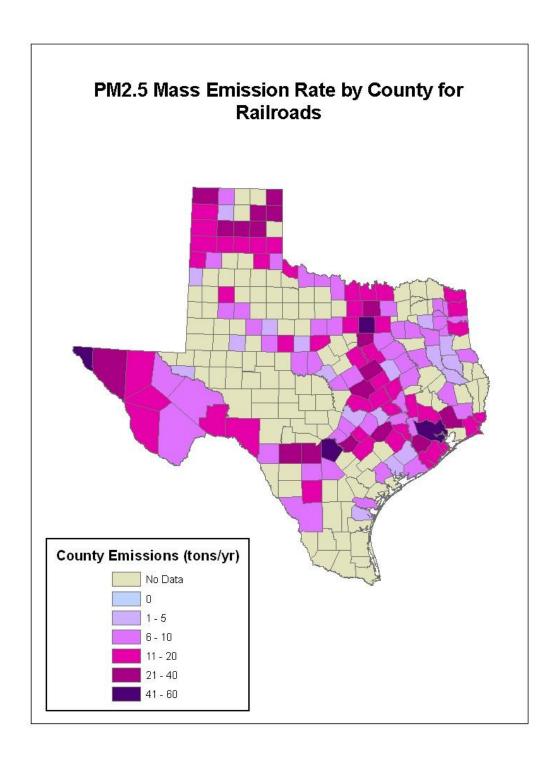




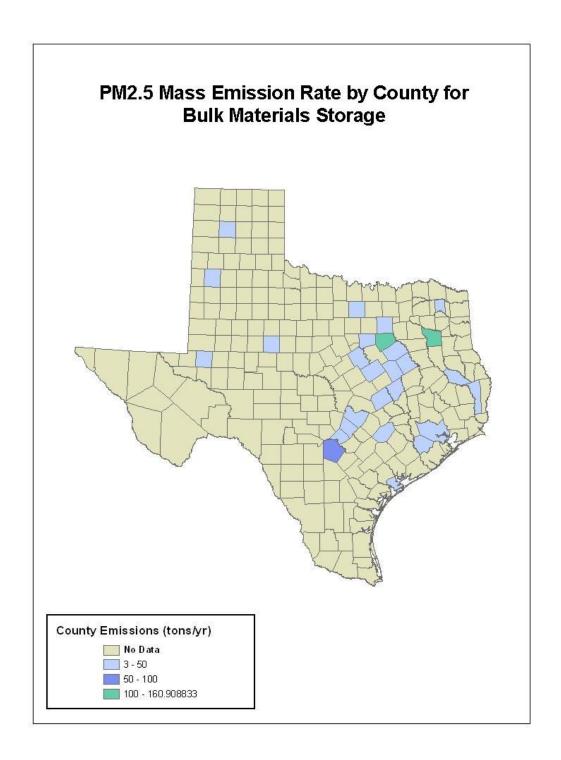


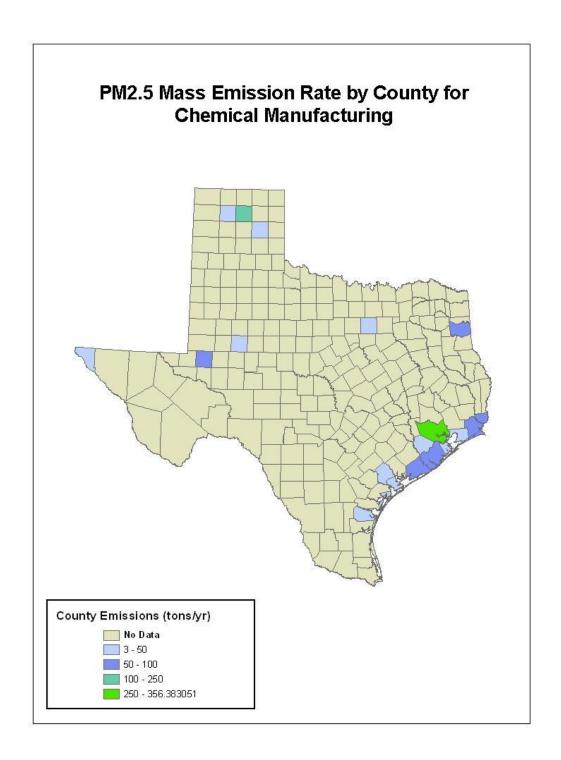


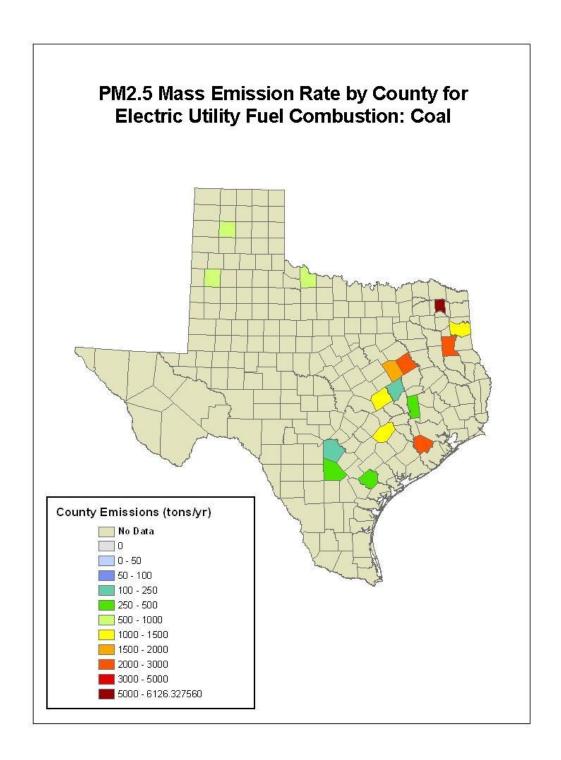


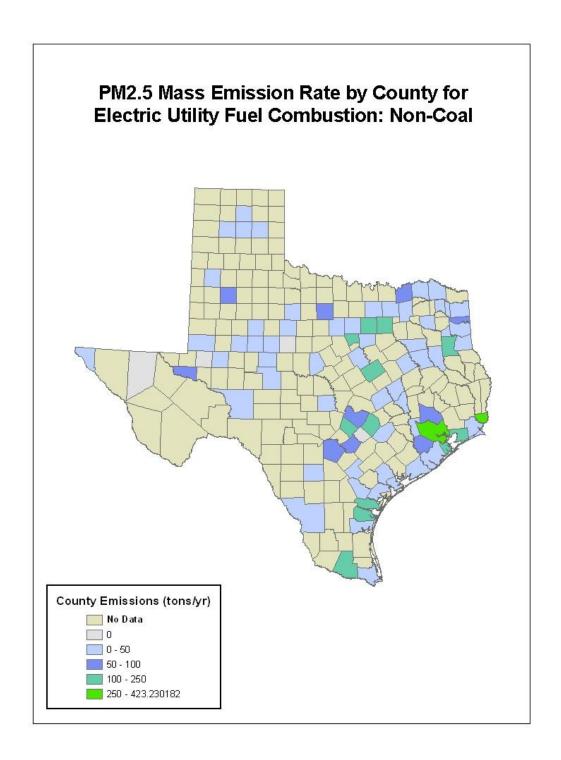


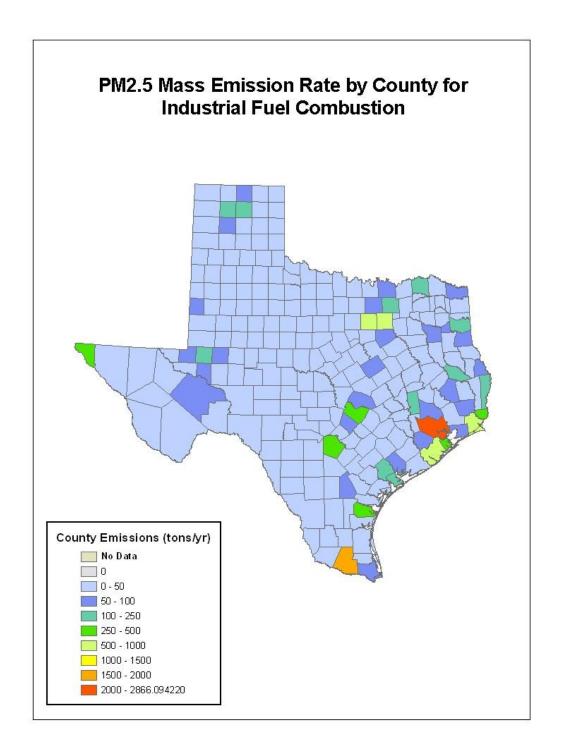


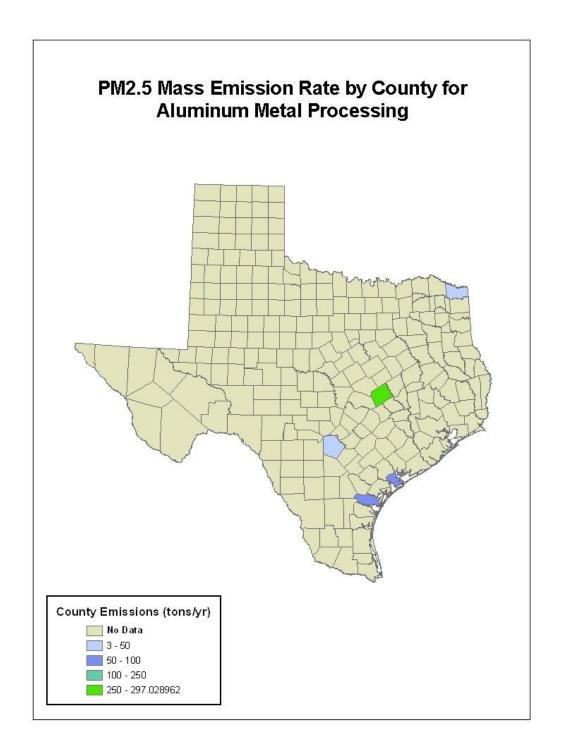


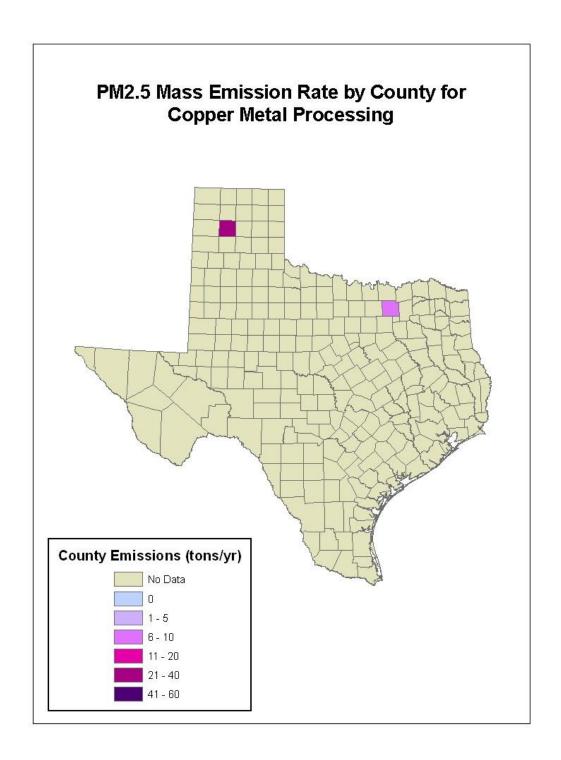


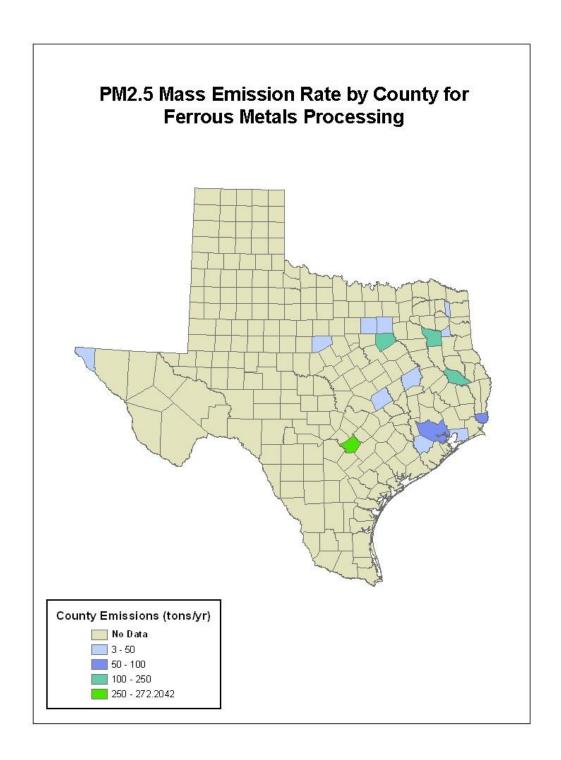


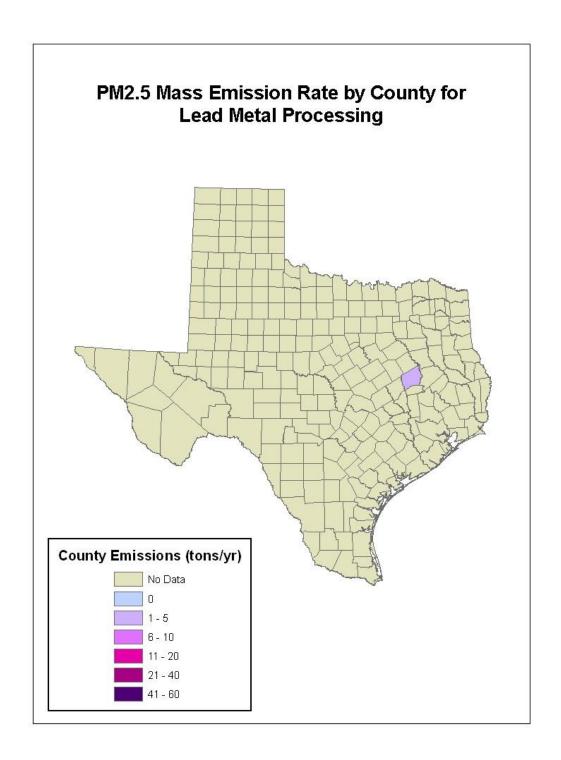


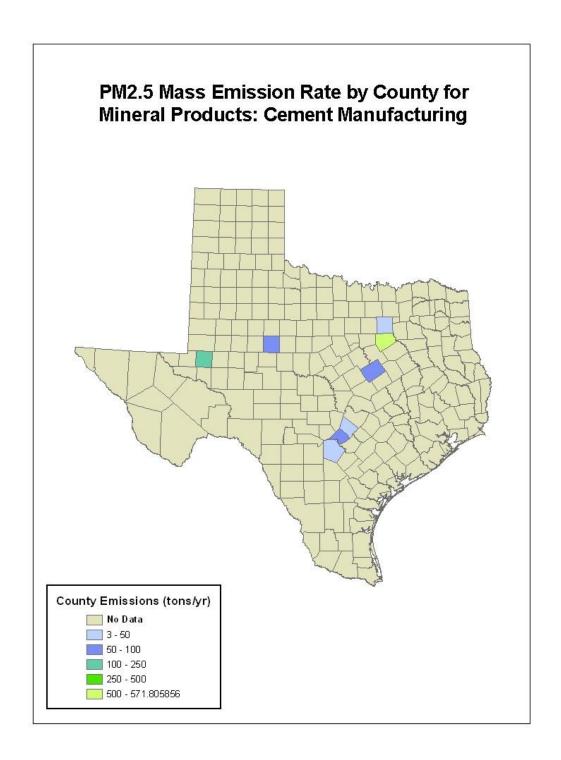


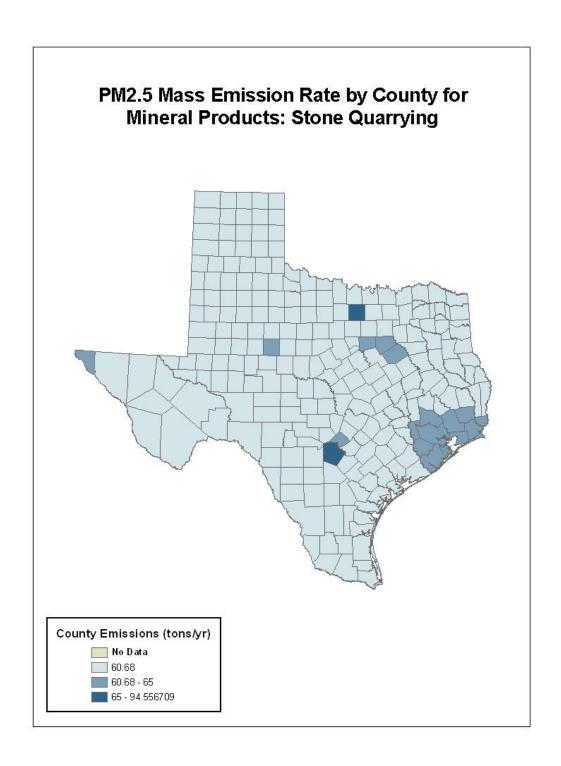


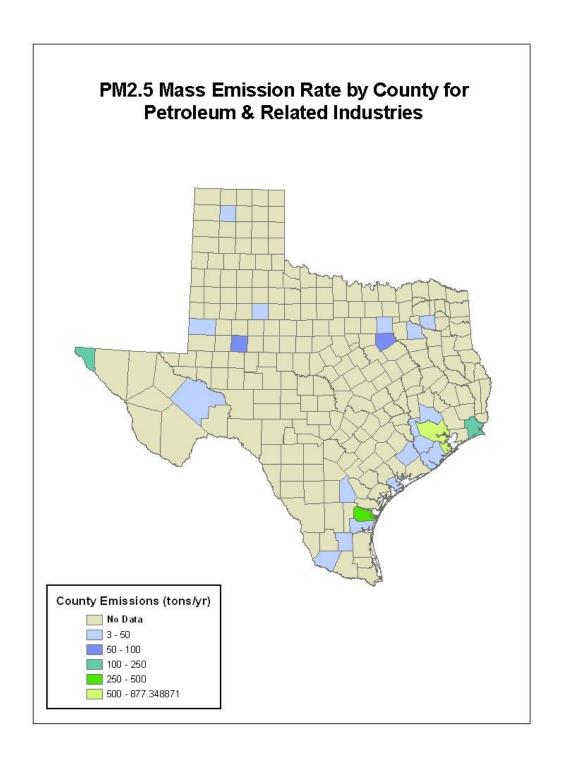


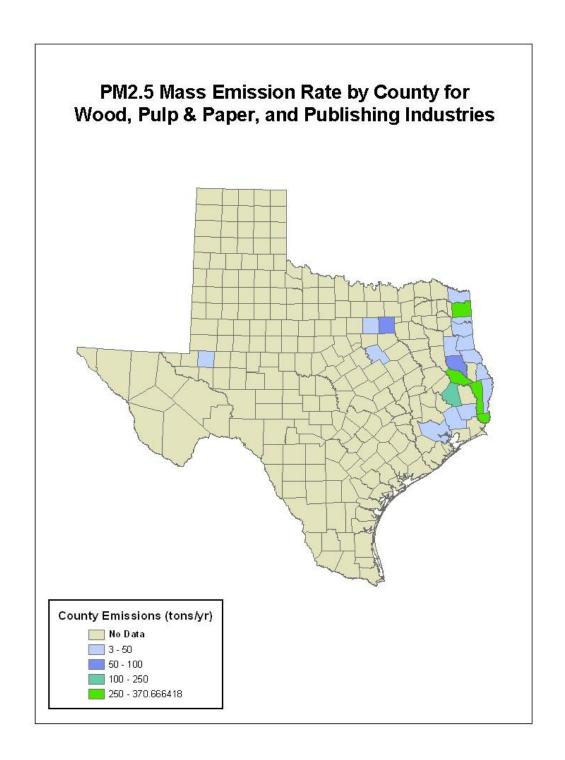


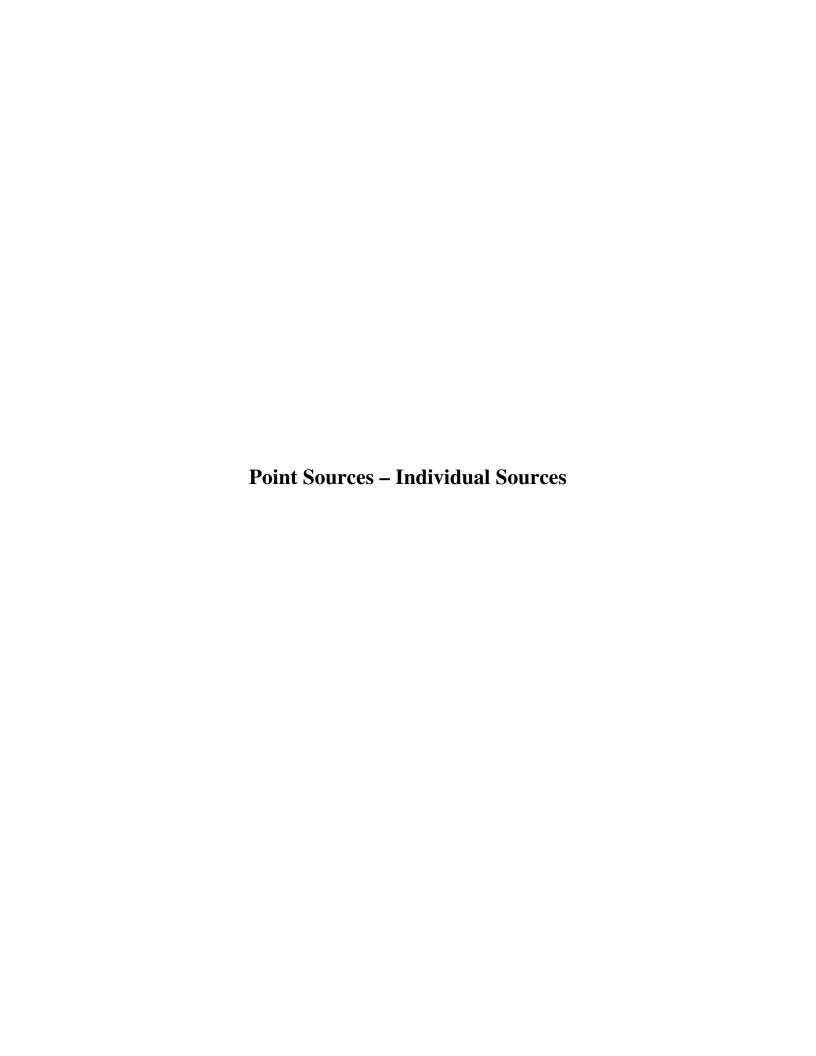




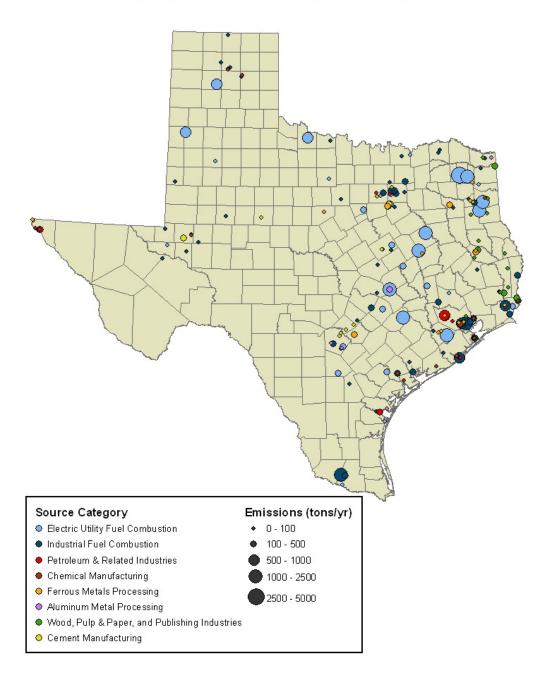




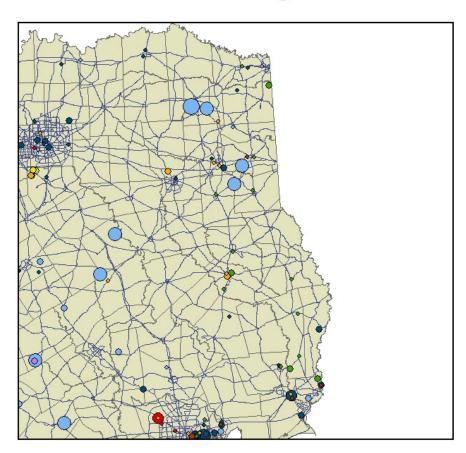




**PM2.5 Point Source Emissions** 

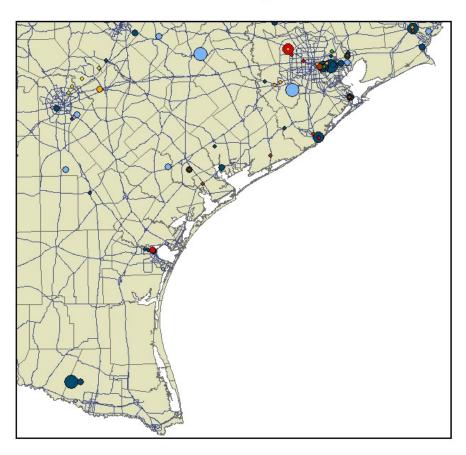


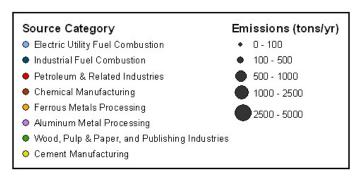
PM2.5 Point Source Emissions: East Texas Region



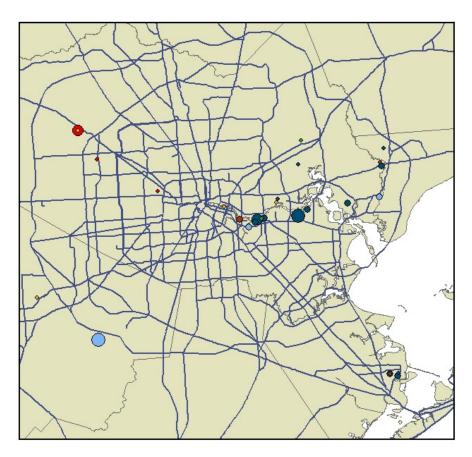
## Source Category © Electric Utility Fuel Combustion Industrial Fuel Combustion Petroleum & Related Industries Chemical Manufacturing Ferrous Metals Processing Aluminum Metal Processing Wood, Pulp & Paper, and Publishing Industries Cement Manufacturing Emissions (tons/yr) 0 100 - 100 100 - 500 1000 - 2500 2500 - 5000

PM2.5 Point Source Emissions: Coastal Region



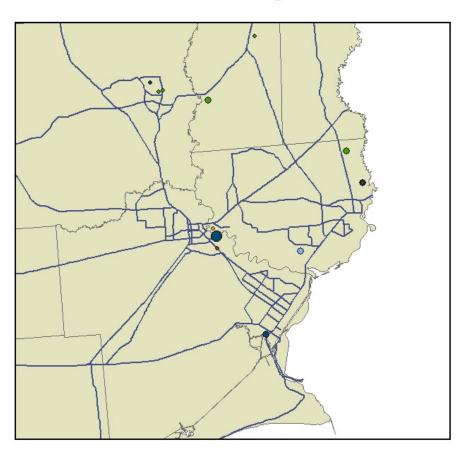


PM2.5 Point Source Emissions: Houston-Galveston Region



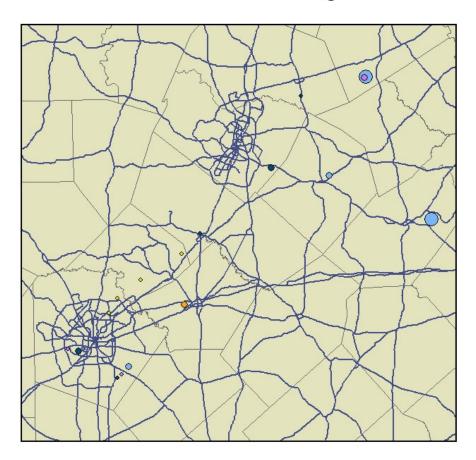
## Source Category Electric Utility Fuel Combustion Industrial Fuel Combustion Petroleum & Related Industries Chemical Manufacturing Ferrous Metals Processing Aluminum Metal Processing Wood, Pulp & Paper, and Publishing Industries Cement Manufacturing

PM2.5 Point Source Emissions: Beaumont Region



## Source Category © Electric Utility Fuel Combustion Industrial Fuel Combustion Petroleum & Related Industries Chemical Manufacturing Ferrous Metals Processing Aluminum Metal Processing Wood, Pulp & Paper, and Publishing Industries Cement Manufacturing

PM2.5 Point Source Emissions: Austin - San Antonio Region



## Source Category © Electric Utility Fuel Combustion Industrial Fuel Combustion Petroleum & Related Industries Chemical Manufacturing Ferrous Metals Processing Aluminum Metal Processing Wood, Pulp & Paper, and Publishing Industries Cement Manufacturing Emissions (tons/yr) 0 100 100 - 500 1000 - 2500 2500 - 5000

PM2.5 Point Source Emissions: Dallas-Fort Worth Region

