

Report on Potential Inclusion of Williamson County

In the Austin-Round Rock MSA

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SECTION 1: Executive Summary

At the request of Williamson County Commissioners Court, GDS Associates, Inc. (GDS) prepared this response to a proposed decision by United States Environmental Protection Agency (USEPA) to include Williamson County in the Austin-Round Rock MSA. GDS examined of the environmental and demographic data relative to the Nine Factors (see below), which must be addressed by USEPA and other regulators in making this decision. Based on this review, GDS found **only one** economic statistic that supported the inclusion of Williamson County in the Travis County Non-Attainment Area and **many more that do not support inclusion**.

As revised by their December 4, 2008 letter on this process (see Exhibit A), the Nine Factors required by USEPA to be considered in this process are:

1. Air quality data
2. Emissions data (location of sources and contribution to ozone concentrations)
3. Population density and degree of urbanizations (including commercial developments)
4. Traffic and commuting patterns
5. Growth rates and patterns
6. Meteorology (weather/transport patterns)
7. Geography/Topography (mountain ranges or other air basin boundaries)
8. Jurisdictional boundaries (e.g., counties, air districts, existing non-attainment areas, reservations, metropolitan planning organizations (MPOs))
9. Level of control of emissions sources

The only statistic that supports inclusion is the commuting statistic between Williamson County and Travis County inside the Austin-Round Rock MSA. According to CAMPO data, 54.6 percent of the employed residents of Williamson County commute daily to Travis County while 5 percent of Travis County's employed residents commute daily to Williamson County. However, this draw of commuters to Travis County and the core city of Austin, Texas is not unique to Williamson County. Over two-thirds of the employed residents of Hays, Caldwell, Bastrop, Williamson, and Travis Counties work in Travis County (see Exhibit L and Finding 4).

This means that an estimated 90 thousand Williamson County residents commute to Travis County and 119 thousand employed residents of Hays, Caldwell, and Bastrop Counties commute to Travis County each day. However, Travis County has **1.5 times** more employed residents (and potential commuters) than Hays, Caldwell, Bastrop, and Williamson Counties combined. In addition, the portion of employed residents commuting from Hays, Caldwell, Bastrop, and Williamson Counties into Travis County ranges 30 to 55 percent. The OMB standard for establishing a MSA relationship is 25 percent

Therefore, if air pollution from commuters were the only test for whether or not to join a county to Travis County in forming a non-attainment area, clearly Hays, Caldwell, and Bastrop Counties would be included as well as Williamson County. However, the TCEQ staff did not recommend including these three counties in the A-RR Non-Attainment Area. Therefore, the TCEQ staff must have judged the other eight USEPA factors as having more weight

In examining the other eight factors, GDS concluded that the balance of the actual environmental and demographic data *does not support* an adverse environmental connection between Williamson County and Travis County in forming the A-RR Non-Attainment Area. These facts include:

1. All of the monitors outside Travis County were deactivated prior to the end of 2008. Available monitoring data shows steady decline to 74 ppb in 2008 despite a 17 percent increase in population over the same time. State monitors installed in Williamson County from 2006 through 2008 appears to indicate that O₃ levels were 76 ppb in 2006 and decreased to 71 ppb in 2007 and 2008 despite a 9 percent increase in population over the same time period.

2. The TCEQ data on permitted point sources (see Exhibit O) shows 18 permitted point sources in Travis County alone compared to 5 respectively in Williamson County. The permitted point source data for Williamson County show combined emissions of VOC and NO_x (≤ 100 tons per year) that are only a small fraction (<1 percent) of the emissions in A-RR MSA.

3. Because the only two ozone monitors in Williamson County have been deactivated, state officials will only be able to infer from modeling rather than measure ozone levels in Williamson County in 2009 and beyond.

4. The population density and degree of urbanization in Williamson County more closely resembles Hays and Bell Counties than Travis County. Williamson County's population density of 326 people per square mile is: (1) only 23 percent greater than the average of Bell, Hays, and Williamson Counties, and (2) 35 percent of Travis County. By contrast, Travis County's population density of 919 people per square mile is: (1) 3.5 times greater than the composite density of Hays, Bell, and Williamson Counties; (2) almost 14.5 times greater than the composite density of Bastrop, Burnet, and Caldwell counties; and (3) more than 5 times the composite density of all six of these other counties combined.

5. The largest city in Williamson County is Round Rock at just over 95 thousand people. The largest city in Travis County is Austin at just over 727 thousand people. Austin is more than 7 times bigger than Round Rock and is positioned south of Round Rock in the prevailing wind direction.

6. Overall projected population growth from 1990 to 2020 in the A-RR MSA plus Burnet and Bell Counties is 2.71 per year. In absolute numbers, Travis County population over this 30-year period is projected to grow by 561 thousand while the population in Bastrop, Bell, Burnet, Caldwell, Hays, and Williamson Counties is projected to grow by 775 thousand in the same time frame.

7. However, this projected incremental growth in the counties outside Travis County is dispersed over a combined area of 5,366 square miles while the Travis County growth will occur over an area of only 1,022 square miles. The difference in population density growth rates alone represents *almost 4 times* as much of a potential impact on the region's air quality coming from growth in Travis County alone compared to the combined growth in the other six counties.

8. The prevailing wind flow in the area is from a southerly-to-southeasterly direction during the ozone formation season. What little air transport that occurs between

Williamson County and the Travis County is more likely from Travis County to Williamson County.

9. Geological and geographical features such as deep valleys and mountain ranges or plateaus conducive to the formation of air pollution do not appear to be present in Williamson County.

10. Only one Central Texas county is non-attainment for the 75 ppb eight-hour ozone standard. That county is Travis County. However, four other Central Texas counties (i.e., Williamson, Bastrop, Caldwell, and Hays) are included in the newly formed Austin-Round Rock (A-RR) MSA, but are in attainment with the 75 ppb eight-hour ozone standard.

11. There are active planning efforts and mitigation efforts being conducted by: the Capital Area Council of Governments, Clean Air Task Force of Central Texas, Capitol Area Metropolitan Planning Organization, and Capitol Metro transportation system. The active planning efforts by local agencies show an ability to reduce and maintain ozone levels below the 75 ppb standard.

12. At the same time, the additional controls that would be required as a result of this action would severely constrain, if not eliminate, the ability county to develop its resources and bring some independent economic projects to its jurisdiction and thereby reduce the amount of inter-county (Williamson to Travis) commuting currently being experienced.

At their December 10, 2008 agenda session, the TCEQ Commissioners raised questions about why the TCEQ staff would not consider air quality data provided by non-state monitors in the absence of state monitors. The state removed its two Williamson County monitors as well as the monitors in Bastrop and Hays Counties from service in December 2008. Without local monitoring data in Williamson County, it is next to impossible to say with any absolute scientific certainty (1) the actual ozone level in Williamson County, (2) the impact of its emissions on the Travis County Non-Attainment Area, or (3) the impact of the Travis County Non-Attainment Area on Williamson County. Instead, state officials will only be able to infer from modeling rather than measure ozone levels in Williamson County in 2009 and beyond.

Given (1) the chilling effect that being included in the Travis County Non-Attainment Area would have on the ability of Williamson County to grow and develop its resources in the long term and (2) the fact that voluntary efforts in the region have resulted in ozone levels below the 75 ppb standard everywhere but Travis County, it makes a lot of sense to base the decision on ***actual, measured environmental data*** rather than a ***superficial economic statistic*** (i.e., commuting percentages) and inferred levels from mathematical models.. In fact, it is entirely possible that preserving the ability of the county to develop its own resources would grow jobs inside Williamson County and actually reduce the commuters from Williamson County to Travis County.

Until such ***real*** environmental data from monitor(s) on the ground in Williamson County is available, this proposed ***inclusion*** of Williamson County in the Travis County Non-Attainment Area ***is unfounded*** based on the preponderance of evidence available.

GDS makes the following recommendations:

1. USEPA should reconsider this decision and hold it abeyance until scientifically sound environmental data from state air quality monitors shows that the voluntary measures in the region are not maintaining ozone levels in Williamson County at or below the 75 ppb standard.

2. As USEPA's agent for overseeing air quality programs in Texas, TCEQ should work with stakeholders in Hays, Caldwell, Bastrop, Williamson, and Bell Counties to return the deactivated monitors to service so they can track the effectiveness of the voluntary efforts by determining and measuring:

- Ground level ozone in Williamson County as well as surrounding counties without monitors.
- Compliance with the new 8-hour ozone NAAQS.
- Ozone precursors (i.e., NO_x and VOC)

3. Throughout this process, TCEQ (as agent for USEPA) should meet regularly with and seek input from stakeholders in Hays, Caldwell, Bastrop, Williamson, and Bell Counties regarding the monitoring results, trends, and expected controls.

SECTION 2: Background

2.1. Redefinition of Core Based Statistical Areas

The Office of Management and Budget (OMB) recently implemented new Standards for Defining Metropolitan and Micropolitan Statistical Areas. While these standards took effect in 2003, the rational for their final form was published in the December 27, 2000 issue of the *Federal Register* (see Exhibit A).

These new standards replaced and superseded the 1990 standards for defining Metropolitan Statistical Areas (MSA). The purpose of the Standards for Defining Metropolitan and Micropolitan Statistical Areas was to provide nationally consistent definitions for collecting, tabulating, and publishing Federal statistics for a set of geographic areas. The new standards also implemented a new set of definitions that included the following:

- *Core Based Statistical Area (CBSA)*. A statistical geographic entity consisting of the county or counties associated with at least one core (urbanized area or urban cluster) of at least 10,000 population, plus adjacent counties having a high degree of social and economic integration with the core as measured through commuting ties with the counties containing the core. Metropolitan and Micropolitan Statistical Areas are the two categories of Core Based Statistical Areas.
- *Metropolitan Statistical Area (MeSA)*. A Core Based Statistical Area associated with at least one urbanized area that has a population of at least 50,000. The Metropolitan Statistical Area comprises the central county or counties containing the core, plus adjacent outlying counties having a high degree of social and economic integration with the central county as measured through commuting.
- *Micropolitan Statistical Area (MiSA)*. A Core Based Statistical Area associated with at least one urban cluster that has a population of at least 10,000, but less than 50,000. The Micropolitan Statistical Area comprises the central county or counties containing the core, plus adjacent outlying counties having a high degree of social and economic integration with the central county as measured through commuting.

Under these standards, Texas now has 25 areas that are either MeSA or MiSA (instead of the previous 27 MSA). As a result, the Greater Austin Area was redefined as the Austin-Round Rock (A-RR) metropolitan area. The A-RR Area consists of the following five (5) counties: Williamson, Travis, Hays, Caldwell, and Bastrop. The central county (Travis in this case) has an estimated 2007 population of 974,365 (see Table 2.1). This certainly more than meets the criteria for a MeSA where the central county must have a population of at least 50,000 and have at least 50 percent of its population living in urban areas of 10,000 or more.

Table 2.1: 2007 Population Estimates of Counties in Austin-Round Rock Metropolitan Statistical Area	
COUNTY	POPULATION
Travis	974,365
Williamson	373,363
Hays	141,480
Bastrop	72,248
Caldwell	36,705
Annual Estimates of the Population for Counties of Texas: April 1, 2000 to July 1, 2007 (CO-EST2007-2007-01-48); Source: Population Division, U.S. Census Bureau, Release Date: March 20, 2008	

Figure 1 demonstrates the configuration of the A-RR MSA. The four outlying counties border Travis County on the north, east, and south. Together, these five Central Texas counties have a history of voluntary cooperation in reducing the emissions of ozone precursors since 1997. These efforts included implementing an Early Action Compact (EAC) and executing two Memoranda of Agreement (MOA) to ensure continued attainment of the ozone NAAQS.

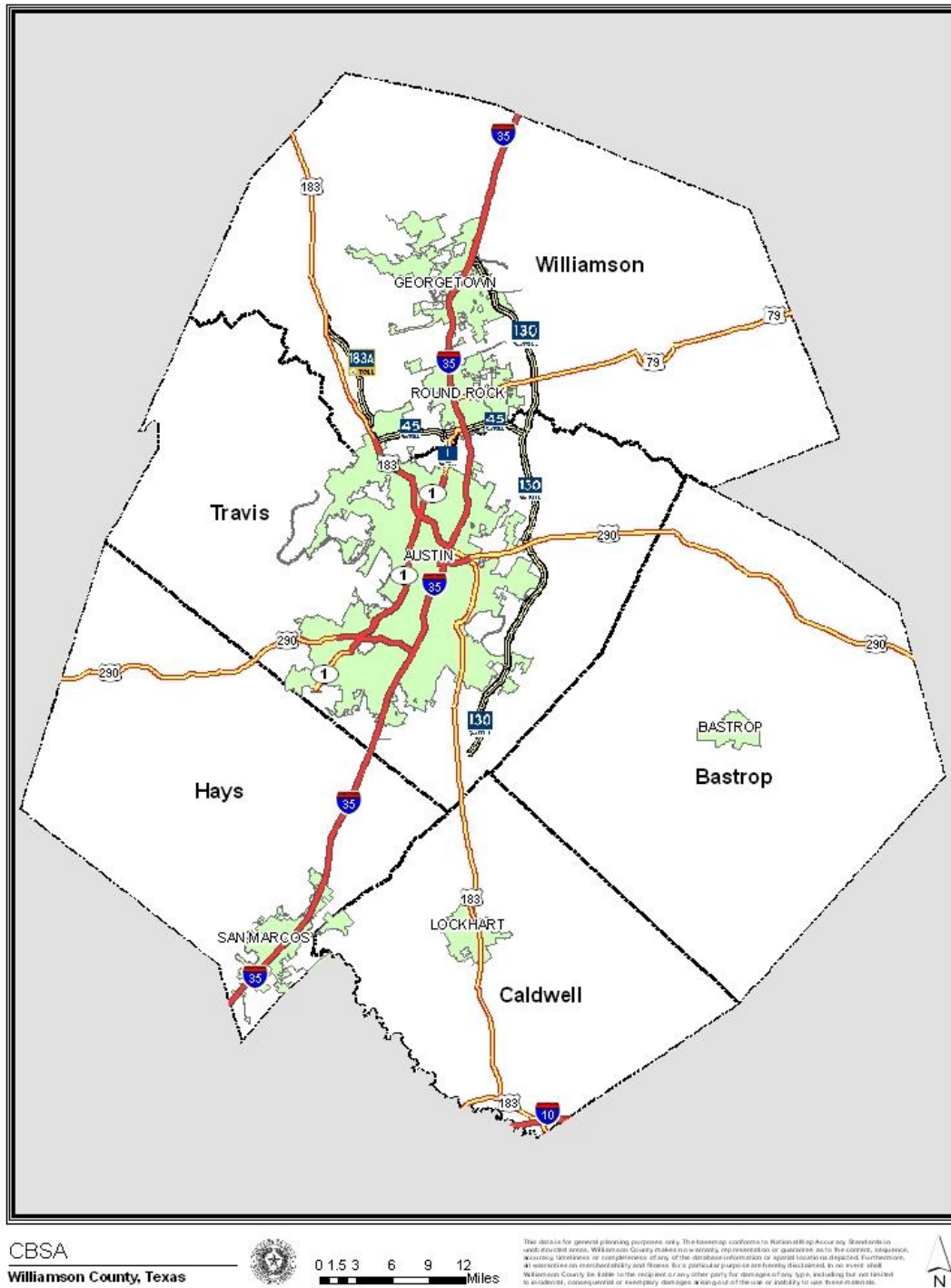


Figure 1: Map of county alignment under new CBSA (see Exhibit B)

2.2. New Ozone (O₃) Standard

Effective March 27, 2008, USEPA revised the level of the 8-hour standard from 0.08 parts per million (ppm) to 0.075 ppm. See Exhibit C for the notice published in the *Federal Register*. With regard to the secondary standard for O₃, EPA revised the 8-hour standard by making it identical to the revised primary standard. EPA also made conforming changes to the Air Quality Index (AQI) for O₃, setting an AQI value of 100 equal to 0.075 ppm, 8-hour average, and made proportional changes to the AQI values of 50, 150 and 200).

According to Boundary Guidance on Air Quality Designations for the 8-Hour Ozone National Ambient Air Quality standard (NAAQS) of USEPA (see Exhibit D), “In reducing ozone concentrations above the NAAQS, EPA believes it is best to consider controls on sources over a larger area due to the pervasive nature of ground level ozone and transport of ozone and its precursors. Thus, EPA recommends that the Metropolitan Statistical Area or the Consolidated Metropolitan Statistical Area (C/MSA) serve as the presumptive boundary for 8-hour NAAQS nonattainment areas.”

This assertion is based on the demonstrated concept that ozone and ozone precursors [e.g., oxides of nitrogen (NO_x) and volatile organic compounds (VOC)] wash into and out of a geographic area with the prevailing winds creating increased O₃ levels as the process unfolds. As discussed in Finding 6 on Meteorology, the prevailing winds from the area airports are as follows:

- Austin-Bergstrom International Airport (ABIA) – predominantly from the south to southeast towards the north to north west (41 percent combined) and north to north-northeast towards the south to south-southwest (15 percent combined)
- Waco – predominantly from the south-southeast to north-northwest (43 percent combined) and from the north towards the south (10 percent)

Under the previous and new ozone regulations and rules, each state is required to operate USEPA-approved O₃ monitors in each MSA. The minimum number of monitors is based on the population of each of their Metropolitan Statistical Areas (MSA) and the most recently measured O₃ levels in each area. There are eight O₃ monitors in or near the A-RR MSA: two in Williamson County, two in Travis County, two in Hays County, one in Bastrop County, one in Fayette County, and none in Caldwell County.

In his March 2000 memorandum (see Exhibit E), John S. Seitz, Director of the USEPA Office of Air Quality Planning and Standards, stated that the EPA believes that any county with an ozone monitor showing a violation of the NAAQS and any nearby contributing area needs to be designated as non-attainment. He alluded to difficulty in defining the boundaries of new attainment/non-attainment areas without additional monitoring in the MSA below 350,000.

2.3. Brief Characterization of Williamson County

Williamson County covers 1,136 square miles and is situated in Central Texas, with its nearest border about 15 miles north-northeast of downtown Austin. Interstate Highway 35 is the principle transportation route through the center of the county for about 12 miles. State Highway (SH) 29 runs east to west through Georgetown while RR 1431 runs east to west from midway between Round Rock and Georgetown to Cedar Park. US Highway 183 transects Williamson County on the western half of the county from northwest Austin to Cedar Park and on to Leander and Lampasas.

State Highways 130 and 45 as well as Loop 1 are toll roads in Williamson County. SH130 splits from IH35 north of Georgetown and runs parallel to IH 35 but to the east of Georgetown, Round Rock, and Pflugerville. SH45 runs east to west connecting SH130 to US 183 and Loop1. Loop 1 runs north to south connecting Round Rock to Austin. The rest of the county's paved roads are farm-to-market roads and state highways. Figure 2.3.1 from Exhibit F below describes the general layout of Williamson County.

Currently, 373,363 people live in Williamson County. Georgetown is the county seat and has 46,867 residents. Round Rock is the largest city with a population of 95,444 while Cedar Park has 56,724 residents (Williamson County profile, see Exhibit N). The Williamson County profile lists 16 cities that are wholly or partly in the County boundaries. The balance of the county living in unincorporated areas amounts to 100,396 people or approximately 27 percent of the county's residents.

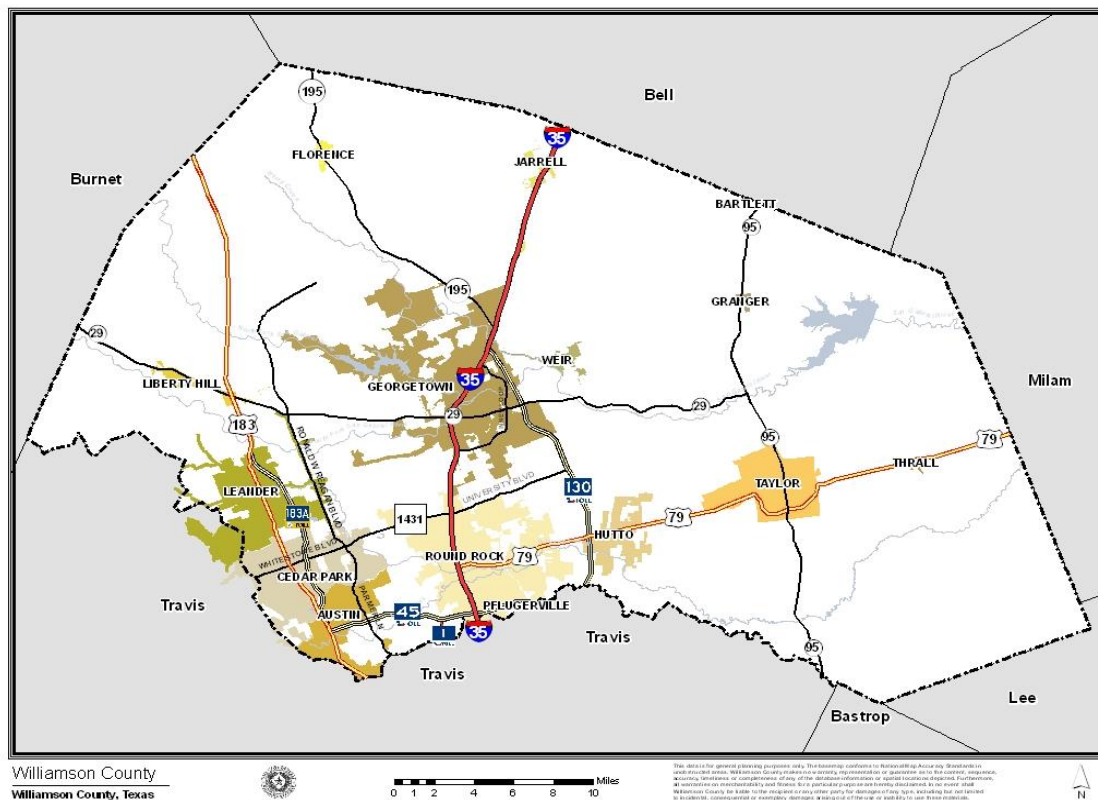


Figure 2.3.1: General layout of Williamson County.

Terrain falls away from a peak elevation of about 1,208 feet at the western-most county boundary to 400 feet at its eastern-most boundary. The San Gabriel River runs generally west to east bisecting the county to northern and southern halves. The San Gabriel River is impounded at two places: Lake Georgetown west of Georgetown, Texas and Granger Lake east of Granger, Texas.

Rolling hills characterize the southern county boundary with Travis County. Substantial limestone quarries are distributed in the western and southwestern part of the county. The western part of the county is largely committed to ranching and the vegetation is mostly grasslands, cedars, and live oak. The eastern part of the County is largely committed to cattle and farming using the rich alluvial soils in the area and principle crops include corn, grain sorghum, cotton, and wheat. See Exhibit Figure 2.3.2.

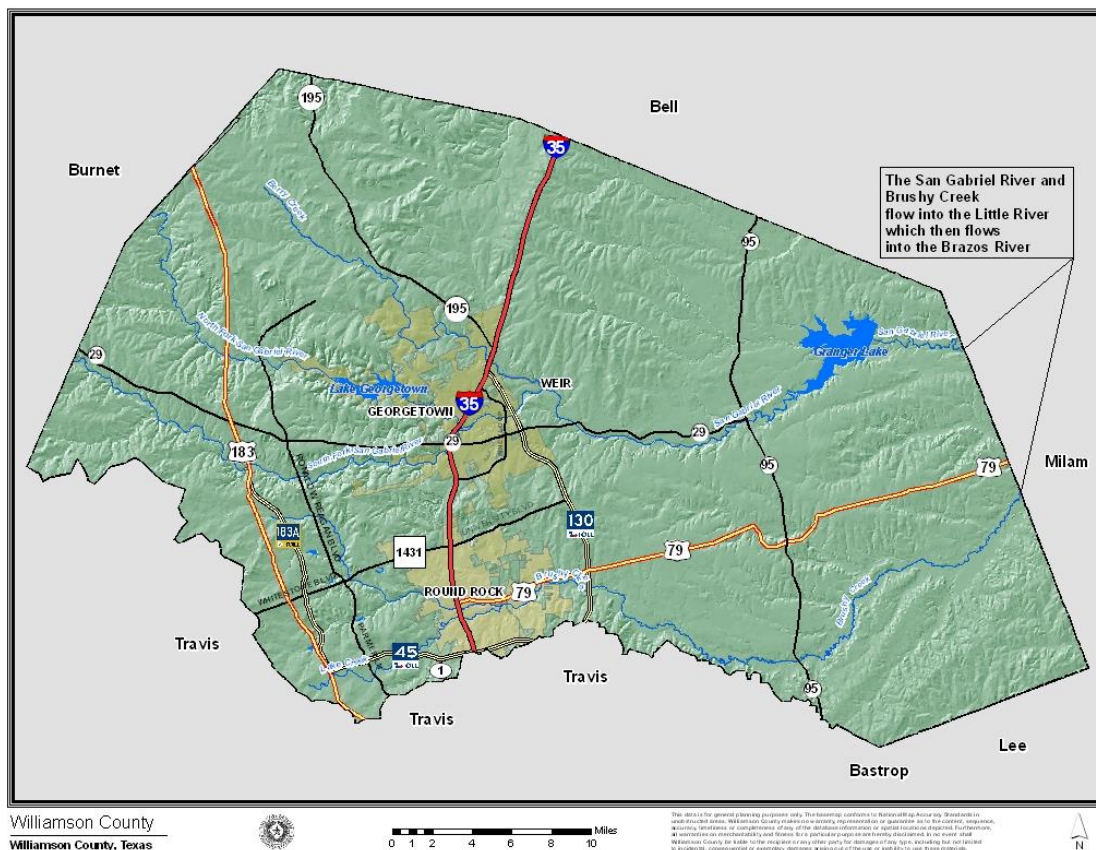


Figure 2.3.2: Relief Map of Williamson County geography, topography, and connecting roads

According to the 2006 TCEQ list of air emissions sources, there are only five operating permitted sources in Williamson County. These permitted sources emit between 26.6 and 35.0 tons of NO_x and between 44.9 and 78.2 tons of VOC per year (see Exhibit G). At the same time, the same TCEQ data shows that the 18 permitted point sources in Travis County emit between 2,390.6 and 3,865.4 tons of NO_x and between 324.6 and 545 tons of VOC per year. Compared to the total VOC and NO_x emissions from permitted point sources within the A-RR MSA, the Williamson County emissions are less than 1 percent of the total emissions in the MSA.

2.4. Response of Williamson County Leadership to Proposed Inclusion in the Austin-Round Rock MSA

On December 10, 2008, Williamson County Commissioner Valerie Covey testified before the TCEQ in opposition to the proposed inclusion of Williamson County with Travis County in forming the Austin-Round Rock (A-RR) Non-attainment Area. The TCEQ Commissioners were persuaded to support her opposition. They directed the TCEQ staff to withdraw Williamson County from the proposed non-attainment area.

Out of continued concern for the adverse impact upon its population of the possible inclusion of their county into the Austin-Round Rock MSA, the Williamson County Commissioners Court at their February ___, 2009 meeting, hired GDS Associates, Inc. (GDS) to prepare a study that responded to the revised USEPA “Nine Factors.” This report is to provide TCEQ, the Governor, and USEPA with necessary information that must be considered before deciding whether or not the inclusion is justified.

SECTION 3: Findings on Nine Factors

Summary

Below is a summary of the major findings concerning the nine factors required by USEPA to evaluate the appropriateness of including Williamson County with Travis County as non-attainment for the 75 ppb ozone standard.

Finding 1: Air quality data (Factor 1) – There have been as many as seven O₃ monitors in the five-county A-RR MSA. Of these seven monitors, two monitors are in Travis County, two are in Williamson County, one is Bastrop County, and two are in Hays County. However, all of the monitors outside Travis County were deactivated prior to the end of 2008. There is no O₃ monitor in Caldwell County. Available monitoring data throughout the A-RR MSA shows peak 4th highest values of 91 ppb in 2002. This level has been on a steady decline to 74 ppb in 2008 despite a 17 percent increase in population over the same time. State monitors installed in Williamson County from 2006 through 2008 appears to indicate that O₃ levels were 76 ppb in 2006 and decreased to 71 ppb in 2007 and 2008 despite a 9 percent increase in population over the same time period.

Finding 2: Emissions data (location of sources and contribution to ozone concentrations) (Factor 2) – The TCEQ data on permitted point sources (see Exhibit O) shows 18 permitted point sources in Travis County alone compared to 5 respectively in Williamson County. Additionally, Bell County on the north side of Williamson County is home to 5 permitted point sources. The permitted point source data for Williamson County show combined emissions of VOC and NO_x (≤ 100 tons per year) that are only a small fraction (<1 percent) of the emissions in A-RR MSA. Of the Williamson County workers, almost 55 percent commute into Travis County while almost 27 percent commute to work inside the County. Of the Travis County workers, 79 percent work inside Travis County while 5 percent commute to work in Williamson County. Unquantified biogenic emission sources include significant ranching and farming within Williamson County. In addition, there is reason to suspect that ozone and ozone precursors may be transported from sources outside the area into the A-RR MSA. Because the only two ozone monitors in Williamson County have been deactivated, state officials will only be able to infer from modeling rather than measure ozone levels in Williamson County in 2009 and beyond.

Finding 3: Population density and degree of urbanizations (including commercial developments) (Factor 3) – The population density and degree of urbanization in Williamson County more closely resembles Hays and Bell Counties than Travis County. Williamson County's population density of 326 people per square mile is: (1) only 23 percent greater than the average of Bell, Hays, and Williamson Counties, and (2) 35 percent of Travis County. By contrast, Travis County's population density of 919 people per square mile is: (1) 3.5 times greater than the composite density of Hays, Bell, and Williamson Counties; (2) almost 14.5 times greater than the composite density of Bastrop, Burnet, and Caldwell counties; and (3) more than 5 times the composite density of all six of these other counties combined. The largest city in Williamson County is Round Rock at just over 95 thousand people. The largest city in Travis County is Austin at just over 727 thousand people. Austin is more than 7 times bigger than Round Rock and is positioned south of Round Rock in the prevailing wind direction.

Finding 4: Traffic and commuting patterns (Factor 4) – About 165 thousand workers reside in Williamson County compared to 417 thousand workers who live in Travis County. Of the Williamson County workers, almost 55 percent commute into Travis County while almost 27 percent commute to work inside the County. Of the Travis County workers, 79 percent work inside Travis County while 5 percent commute to work in Williamson County.

Finding 5: Growth rates and patterns (Factor 5) – Overall projected population growth from 1990 to 2020 in the A-RR MSA plus Burnet and Bell Counties is 2.71 per year. In absolute numbers, Travis County population over this 30-year period is projected to grow by 561 thousand while the population in Bastrop, Bell, Burnet, Caldwell, Hays, and Williamson Counties is projected to grow by 775 thousand in the same time frame. However, this projected incremental growth in the counties outside Travis County is dispersed over a combined area of 5,366 square miles while the Travis County growth will occur over an area of only 1,022 square miles. The difference in population density growth rates alone represents *almost 4 times* as much of a potential impact on the region's air quality coming from growth in Travis County alone compared to the combined growth in the other six counties.

Finding 6: Meteorology (weather/transport patterns) (Factor 6) – The prevailing wind flow in the area is from a southerly-to-southeasterly direction during the ozone formation season. What little air transport that occurs between Williamson County and the Travis County is more likely from Travis County to Williamson County. Because of the prevailing southerly-to-southeasterly wind direction, it is much more likely that pollution comes into Williamson County from Travis County rather than the other way around.

Finding 7: Geography/Topography (mountain ranges or other air basin boundaries) (Factor 7) – Williamson County covers 1,136 square miles and is situated in Central Texas, with its southern boundary about 15 miles north-northeast of downtown Austin. Except for moderately urbanized areas along IH-35 and US-183, the county is largely committed to agriculture. County terrains falls away from a peak elevation of about 1,208 feet at the western most boundary to 400 feet at its eastern most boundary. The aerial photos in Exhibit W show that the topography and geography of Williamson County more closely resembles its neighbors outside Travis County than Travis County itself.

Finding 8: Jurisdictional boundaries (e.g., counties, air districts, existing non-attainment areas, reservations, metropolitan planning organizations (MPOs)) (Factor 8) – Only one Central Texas county is non-attainment for the 75 ppb eight-hour ozone standard. That county is Travis County. However, four other Central Texas counties (i.e., Williamson, Bastrop, Caldwell, and Hays) are included in the newly formed Austin-Round Rock (A-RR) MSA, but are in attainment with the 75 ppb eight-hour ozone standard. There are active planning efforts and mitigation efforts being conducted by: the Capital Area Council of Governments, Clean Air Task Force of Central Texas, Capitol Area Metropolitan Planning Organization, and Capitol Metro transportation system. There have been as many as seven O₃ monitors in the eight-county Austin-Round Rock MSA. However, only two of these monitors remain in current service. The active planning efforts by local agencies show an ability to reduce and maintain ozone levels below the 75 ppb standard.

Finding 9: Level of control of emissions sources (Factor 9) – The prevailing meteorological conditions (i.e., southerly to southeasterly) and the relatively insignificant (i.e., less than 1.2 percent) contribution of Williamson County permitted point sources to the inventory, including Williamson County with Travis County as non-attainment for ozone would provide inconsequential reductions in ozone levels in the non-attainment area. At the same time, the additional controls that would be required as a result of this action would severely constrain, if not eliminate, the ability county to develop its resources and bring some independent economic projects to its jurisdiction and thereby reduce the amount of inter-county (Williamson to Travis) commuting currently be experienced. Inside a non-attainment area that is either marginal or moderate in the degree of non-attainment, new projects that emit as little as 100 tons per year of either NO_x or VOC are required to install more stringent controls and address offsets for the new emissions. Outside the non-attainment area, only projects producing more than 250 tons per year of a NAAQS pollutant are required to install more stringent controls. Coupling Williamson County to Travis County as a non-attainment area, USEPA will effectively and dramatically reduce the ability of the county to develop vast areas of ranchland and farmland in the county.

Finding 1: Air quality data (Factor 1)

There have been as many as seven O₃ monitors in the five-county A-RR MSA. Of these seven monitors, two monitors are in Travis County, two are in Williamson County, one is Bastrop County, and two are in Hays County. However, all of the monitors outside Travis County were deactivated prior to the end of 2008. There is no O₃ monitor in Caldwell County. Available monitoring data throughout the A-RR MSA shows peak 4th highest values of 91 ppb in 2002. This level has been on a steady decline to 74 ppb in 2008 despite a 17 percent increase in population over the same time. State monitors installed in Williamson County from 2006 through 2008 appears to indicate that O₃ levels were 76 ppb in 2006 and decreased to 71 ppb in 2007 and 2008 despite a 9 percent increase in population over the same time period.

Evaluating the current level of air quality in Williamson County and the counties currently in the Austin-Round Rock MSA requires a careful examination of available monitoring data. In making this evaluation, GDS accomplished the following tasks:

- Collected air quality data from monitors in Williamson County and the counties currently in the Austin-Round Rock MSA.
- Determined the level of air quality in Williamson County compared to levels in the Austin-Round Rock MSA counties.
- Assessed the likely contribution of Williamson County to the Austin-Round Rock MSA for NO_x and VOC, the precursors to O₃.
- Assessed the likely contribution of the Austin-Round Rock MSA Counties to Williamson County for NO_x and VOC, the precursors to O₃.

In reviewing available monitoring data, GDS found that there have been as many as seven O₃ monitors in the five-county A-RR MSA. Of these seven monitors, two monitors are in Travis County, two are in Williamson County, one is Bastrop County, and two are in Hays County. However, all of the monitors outside Travis County were deactivated prior to the end of 2008. There is no O₃ monitor in Caldwell County.

Available monitoring data throughout the A-RR MSA shows peak 4th highest values of 91 ppb in 2002. This level has been on a steady decline to 74 ppb in 2008 despite a 17 percent increase in population over the same time. State monitors installed in Williamson County from 2006 through 2008 appears to indicate that O₃ levels were 76 ppb in 2006 and decreased to 71 ppb in 2007 and 2008 despite a 9 percent increase in population over the same time period.

While TCEQ has positioned many air quality monitors in Travis County over time (see Figure 3.1.1 below), relatively few of these monitors kept track of ozone levels. . This low density of O₃ air quality monitors in the Austin-Round Rock MSA stands in stark contrast to the 34 O₃ monitors in Harris County alone. Because the only two ozone monitors in Williamson County have been deactivated, state officials will only be able to infer from modeling rather than measure ozone levels in Williamson County in 2009 and beyond.

However, USEPA has long recognized this disparity in the placement of air quality monitors (see Exhibit C). In fact, about 100 MSA in the United States with populations

The map displays the following C-Code locations and their approximate coordinates (lat, lon):

- C5009**: Burnet (30.3, -98.9)
- C322**: Burnet (30.3, -98.9)
- C690**: Georgetown (30.7, -97.7)
- C674**: Georgetown (30.7, -97.7)
- C38**: Cedar Park (30.5, -97.8)
- C25**: Round Rock (30.5, -97.8)
- C3**: Round Rock (30.5, -97.8)
- C5002**: West Lake Hills (30.3, -97.8)
- C614**: Dripping Springs (30.4, -97.9)
- C32**: Austin (30.3, -97.7)
- C171**: Austin (30.3, -97.7)
- C99**: Manor (30.3, -97.6)
- C684**: Del Valle (30.1, -97.6)
- C5003**: Del Valle (30.1, -97.6)
- C675**: San Marcos (29.3, -97.9)
- C62**: San Marcos (29.3, -97.9)
- C601**: Fayetteville (30.8, -94.4)

Report on Including Williamson County in A-RR Non-attainment Area

Table 3.1.1: 2000 – 2008 Ozone Monitor Data.								
Characteristic Data		Bastrop County	Caldwell County	Burnet County	Hays County	Travis County	Williamson County	Bell County
Number O₃ Monitors	each	1	0	0	2	2	2	1
2000 Fourth Highest Average	ppb	No Data	No Data	No Data	84	88	No Data	No Data
2001 Fourth Highest Average	ppb	No Data	No Data	No Data	75	80	No Data	No Data
2002 Fourth Highest Average	ppb	No Data	No Data	No Data	No Data	91	No Data	No Data
2003 Fourth Highest Average	ppb	No Data	No Data	No Data	77	84	No Data	No Data
2004 Fourth Highest Average	ppb	No Data	No Data	No Data	75	82	No Data	No Data
2005 Fourth Highest Average	ppb	No Data	No Data	No Data	72	82	No Data	71
2006 Fourth Highest Average	ppb	71	No Data	No Data	72	83	76	77
2007 Fourth Highest Average	ppb	72	No Data	No Data	66	76	71	No Data
2008 Fourth Highest Average	ppb	70	No Data	No Data	66	74	71	No Data

Source: http://www.tceq.state.tx.us/cgi-bin/compliance/monops/8hr_attainment.pl

Note 3.1.1: The monitors in Bastrop, Hays, and Williamson Counties were deactivated prior to the close of 2008.

Finding 2: Emissions data (location of sources and contribution to ozone concentrations) (Factor 2)

The TCEQ data on permitted point sources (see Exhibit O) shows 18 permitted point sources in Travis County alone compared to 5 respectively in Williamson County. Additionally, Bell County on the north side of Williamson County is home to 5 permitted point sources. The permitted point source data for Williamson County show combined emissions of VOC and NO_x (≤ 100 tons per year) that are only a small fraction (<1 percent) of the emissions in A-RR MSA. Of the Williamson County workers, almost 55 percent commute into Travis County while almost 27 percent commute to work inside the County. Of the Travis County workers, 79 percent work inside Travis County while 5 percent commute to work in Williamson County. Unquantified biogenic emission sources include significant ranching and farming within Williamson County. In addition, there is reason to suspect that ozone and ozone precursors may be transported from sources outside the area into the A-RR MSA. Because the only two ozone monitors in Williamson County have been deactivated, state officials will only be able to infer from modeling rather than measure ozone levels in Williamson County in 2009 and beyond.

In determining the location of emission sources in Williamson County, GDS accomplished the following tasks:

- Examined TCEQ and USEPA data on permitted sources and emissions inventories for potential sources of NO_x and VOC in Williamson County and the surrounding counties.
- Identified the major stationary sources of ozone precursors that may contribute to violations of the 8-hour standard in the Williamson County and surrounding counties.
- Prepared a list of major transportation systems in Williamson County and adjacent counties including airports, shipyards, trains, and highways.
- Identified the location of other sources such as biogenic sources of ozone precursors.

The primary sources of manmade VOC and NO_x, the ozone precursors, are:

- (1) evaporation of fuels and solvents such as gasoline and consumer products;
- (2) combustion of fuels in motor vehicles, power plants and non-road engines; and
- (3) emissions from other industrial processes.

To assess the correlation between emissions and air quality in the Williamson County as well the neighboring counties (see Exhibit P), GDS accomplished the following tasks to determine whether or not the high levels of ozone come from the current non-attainment areas and not from adjacent attainment counties:

- Reviewed the current air quality standards for criteria pollutants, including ozone in those counties or areas adjacent to Williamson County and in the A-RRMSA.

- Used TCEQ emissions inventory data for those counties/areas and prepared a list of those counties that their point source data demonstrates contribution to high levels of ozone.
- Demonstrated that Williamson County contains insignificant point sources of emissions in the A-RR MSA.

Five counties in the A-RR MSA formed by the OMB in 2003 include: Travis, Williamson, Bastrop, Caldwell, and Hays (see Figure 3.8.1). Taking their lead from this economic realignment, USEPA proposed to adopt this same alignment for a redefined Austin-Round Rock MSA with the implementation of the new 8-hour ozone NAAQS.

Six counties immediately adjacent to Williamson County include: Burnet, Bell, Milam, Lee, Bastrop, and Travis Counties. As mentioned earlier, Burnet, Bell, Milam, and Lee Counties are A-RR MSA while Bastrop, Caldwell, and Hays Counties are inside the A-RR MSA (see Figure 3.8.1). Table 3.2.1 below describes the number of permitted emissions sources, the 2006 air emissions inventories of NO_x and VOC, the number of O₃ monitors, and the fourth highest eight-hour O₃ average from 2005 through 2008.

Figure 3.2.1 displays the location of point sources in the A-RR MSA. Table 3.9.1 depicts the actual point source VOC and NO_x emissions for the five counties in the Austin-Round Rock MSA from 2000 through 2006. Bell and Burnet County emissions are also included for a point of reference. When studying this data, it becomes readily apparent that Williamson County is about 100 tons or less of combined VOC and NO_x per year from permitted point sources. This amounts to little more than 1 percent of the combined 8,030 tons per year of combined NO_x and VOC coming from permitted point sources throughout the Austin-Round Rock MSA.

A review of the information in USEPA AirData maps of specific countywide emissions maps for existing NO_x and VOC emissions (see Exhibit H) show that annual emissions of Williamson County sources emit between 26 and 35 tons of NO_x and between 45 and 78 tons of VOC per year. The combined point source emissions of VOC and NO_x in Travis County are more than **37 times greater** than the combined point source emissions of VOC and NO_x in Williamson County. See Finding 9.

According to the TCEQ air emissions sources, there are only five operating permitted source in the county (see Exhibit R). In addition, these are very small sources of NO_x and VOC averaging 6 tons of NO_x and 9 tons of VOC each. For comparison purposes, the 18 permitted sources in Travis County average 142 tons of NO_x and 18 tons of VOC each the 10 permitted sources in Bell County average 16 tons of NO_x and 84 tons of VOC each.

The discussion above applies only to point source emissions. As discussed in Finding 4 regarding commuting and traffic issues, mobile source emissions in 2005 accounted for 78 percent of the total anthropogenic NO_x emissions and 33 percent of the total anthropogenic VOC emissions in the A-RR MSA. In their September 5, 2008 letter (see Exhibit X) to the TCEQ, the Capitol Area Council of Governments described an extensive set of voluntary compliance efforts among their member governments to improve air quality in the region and eliminate the need for designation as a non-attainment area.

Currently, 373,363 people live in Williamson County. Georgetown is the county seat and has 46,867 residents. Round Rock is the largest city with a population of 95,444 while Cedar Park has 56,724 residents (Williamson County profile, see Exhibit N). The

Williamson County profile lists 16 cities that are wholly or partly in the County boundaries. The balance of the county living in unincorporated areas amounts to 100,396 people or approximately 27 percent of the county's residents.

According to a recent study conducted by the Capitol Area Metropolitan Planning Organization (CAMPO) (see Exhibit L), about 165 thousand workers reside in Williamson County compared to 417 thousand workers who live in Travis County. Of the Williamson County workers, almost 55 percent commute into Travis County while almost 27 percent commute to work inside the County. Of the Travis County workers, 79 percent work inside Travis County while 5 percent commute to work in Williamson County.

In reviewing available monitoring data, GDS found that there have been as many as seven O₃ monitors in the five-county A-RR MSA. Of these seven monitors, two monitors are in Travis County, two are in Williamson County, one is Bastrop County, and two are in Hays County. However, all of the monitors outside Travis County were deactivated prior to the end of 2008. There is no O₃ monitor in Caldwell County. See Finding 1.

Available monitoring data throughout the A-RR MSA shows peak 4th highest values of 91 ppb in 2002. This level has been on a steady decline to 74 ppb in 2008 despite a 17 percent increase in population over the same time. State monitors installed in Williamson County from 2006 through 2008 appears to indicate that O₃ levels were 76 ppb in 2006 and decreased to 71 ppb in 2007 and 2008 despite a 9 percent increase in population over the same time period. See Finding 1.

While TCEQ has positioned many air quality monitors in Travis County over time (see Figure 3.1.1), relatively few of these monitors kept track of ozone levels. . This low density of O₃ air quality monitors in the Austin-Round Rock MSA stands in stark contrast to the 34 O₃ monitors in Harris County alone. Because the only two ozone monitors in Williamson County have been deactivated, state officials will only be able to infer from modeling rather than measure ozone levels in Williamson County in 2009 and beyond. See Finding 1.

In their comments on the TCEQ proposal to include designate the A-RR MSA as non-attainment for the new ozone standard (see Exhibit Z), the Clean Air Advisory Committee (CACAC) shows background concentrations of 65 to 75 ppb. While the exact portion of this background level that is from biogenic sources is not quantified, it is likely that the non-point biogenic sources such as ranching and farming contribute to these levels.

There have been as many as seven O₃ monitors in the five-county A-RR MSA. Of these seven monitors, two monitors are in Travis County, two are in Williamson County, one is Bastrop County, and two are in Hays County. However, all of the monitors outside Travis County were deactivated prior to the end of 2008. There is no O₃ monitor in Caldwell County (see Finding 1).

Available monitoring data throughout the A-RR MSA shows peak 4th highest values of 91 ppb in 2002. This level has been on a steady decline to 74 ppb in 2008 despite a 17 percent increase in population over the same time. State monitors installed in Williamson County from 2006 through 2008 appears to indicate that O₃ levels were 76 ppb in 2006 and decreased to 71 ppb in 2007 and 2008 despite a 9 percent increase in population over the same time period.

While TCEQ has positioned many air quality monitors in Travis County over time (see Figure 3.1.1 below), relatively few of these monitors kept track of ozone levels. . This low density of O₃ air quality monitors in the Austin-Round Rock MSA stands in stark contrast to the 34 O₃ monitors in Harris County alone. Because the only two ozone monitors in Williamson County have been deactivated, state officials will only be able to infer from modeling rather than measure ozone levels in Williamson County in 2009 and beyond.

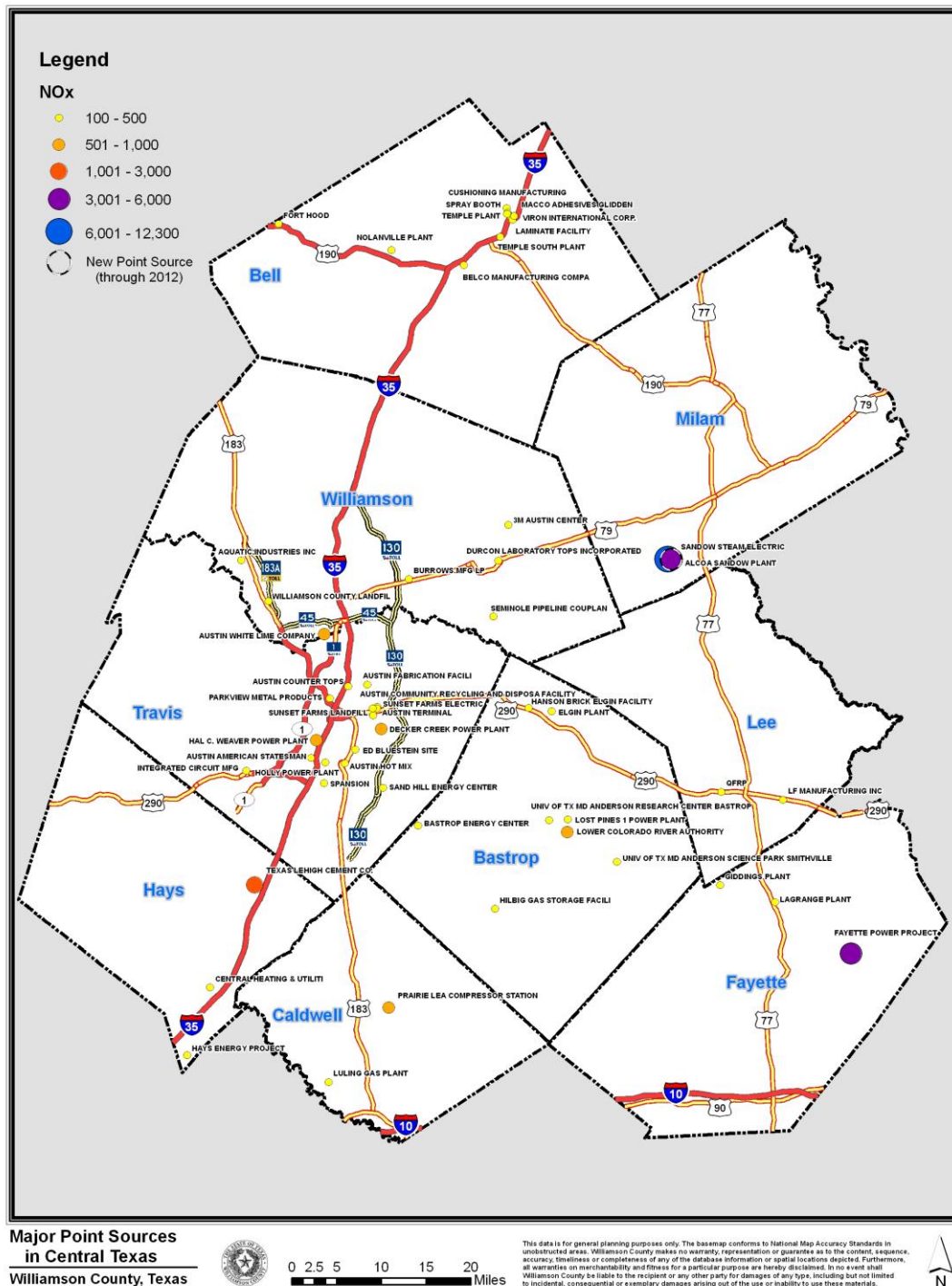


Figure 3.2.1: Display of Permitted Point Sources and County Seats.
Source: TCEQ 2006 Emissions Inventory and GIS Data.

Table 3.2.1: Permitted Point Source Emissions and Air Quality Data								
Characteristic Data		Bastrop County	Caldwell County	Burnet County	Hays County	Travis County	Williamson County	Bell County
Permitted Sources	each	8	2	0	4	18	5	10
2006 NO_x Emissions	tons per year	953	1,152	No Data	2,508	2,564	31	159
2006 VOC Emissions	tons per year	131	55	No Data	264	325	47	841
Number of O₃ Monitors	each	1	0	0	2	2	2	0
2005 Fourth Highest Average	ppb	No Data	No Data	No Data	72	82	No Data	No Data
2006 Fourth Highest Average	ppb	71	No Data	No Data	72	83	76	No Data
2007 Fourth Highest Average	ppb	72	No Data	No Data	66	76	71	No Data
2008 Fourth Highest Average	ppb	70	No Data	No Data	66	74	71	No Data

Source: TCEQ 2006 Statesum.xls (<http://www.tceq.state.tx.us/implementation/air/industei/psei/psei.html>)

Note 3.2.1: The monitors in Bastrop, Hays, and Williamson Counties were deactivated prior to the close of 2008.

Finding 3: Population density and degree of urbanizations (including commercial developments) (Factor 3)

The population density and degree of urbanization in Williamson County more closely resembles Hays and Bell Counties than Travis County. Williamson County's population density of 326 people per square mile is: (1) only 23 percent greater than the average of Bell, Hays, and Williamson Counties, and (2) 35 percent of Travis County. By contrast, Travis County's population density of 919 people per square mile is: (1) 3.5 times greater than the composite density of Hays, Bell, and Williamson Counties; (2) almost 14.5 times greater than the composite density of Bastrop, Burnet, and Caldwell counties; and (3) more than 5 times the composite density of all six of these other counties combined. The largest city in Williamson County is Round Rock at just over 95 thousand people. The largest city in Travis County is Austin at just over 727 thousand people. Austin is more than 7 times bigger than Round Rock and is positioned south of Round Rock in the prevailing wind direction.

To compare the population density and degree of urbanization in Williamson County with that of the Austin-Round Rock MSA counties, GDS accomplished the following tasks:

- Reviewed US Census Bureau and Texas Secretary of State Census data from 2000 as well as projected estimates to date.
- Extracted census data relative to population density and degree of urbanization as well as projected growth areas within Williamson County and the adjacent counties.

Five counties in the A-RR MSA formed by the OMB in 2003 include: Travis, Williamson, Bastrop, Caldwell, and Hays (see Figure 3.8.1). Taking their lead from this economic realignment, USEPA proposed to adopt this same alignment for a redefined Austin-Round Rock MSA with the implementation of the new 8-hour ozone NAAQS.

Six counties immediately adjacent to Williamson County include: Burnet, Bell, Milam, Lee, Bastrop, and Travis Counties. As mentioned earlier, Burnet, Bell, Milam, and Lee Counties are outside the A-RR MSA while Bastrop, Caldwell, and Hays Counties are inside the A-RR MSA (see Figure 3.8.1).

- County surface area,
- County total county population,
- Population of each of the counties four largest cities where available,
- Balance of the population residing in the county, and
- Overall population density in the county.

From the data presented in Table 3.3.1, it becomes readily apparent that the population characteristics of Williamson County are much more like Hays and Bell County than Travis County. The average population density of these three counties is 264 people per square mile compared to 919 in Travis County. This means that Travis County is **3.5 times more** densely populated than these other three counties. This means that Williamson

County is more like less-urbanized Hays and Bell Counties than it is like the very densely urbanized Travis County (see Exhibit K, and Exhibit S).

From the standpoint of urbanization, Williamson County more closely resembles the development patterns in Hays and Bell Counties than it does Travis County. For example, the largest city in Williamson County is Round Rock with a population of 95.4 thousand. This is one-seventh the size of the largest city in Travis County and 85 percent of the largest city in Bell County. However, when we look further down the list to other urban centers in counties inside and outside the Austin-Round Rock MSA, GDS found cities of comparable size in Williamson and Bell Counties.

Table 3.3.1: 2007 Population Density and Degree of Urbanization Data								
Characteristic Data		Bastrop County	Caldwell County	Burnet County	Hays County	Travis County	Williamson County	Bell County
Surface Area	square miles	896	547	1,020	680	1,022	1,136	1,087
2007 Total Population	1,000's	73.78	37.69	44.34	133.82	938.87	370.32	261.58
Largest City Population	1,000's	9.5	13.6	7.3	49.6	727.2	95.4	112.4
2nd Largest City Population	1,000's	7.8	5.4	5.7	23.9	34.4	56.7	58.3
3rd Largest City Population	1,000's	4.4	1.1	2.8	5.6	10.6	46.8	24.5
4th Largest City Population	1,000's	1.0	0.7	1.4	2.8	3.1	22.8	17.3
Balance of Population	1,000's	51.1	16.9	27.1	51.9	163.6	148.6	49.1
Population Density	People per mi²	82	69	43	198	919	326	240

Source: 2007 Census Bureau - The County Information Project's on-line Database.

Finding 4: Traffic and commuting patterns (Factor 4)

About 165 thousand workers reside in Williamson County compared to 417 thousand workers who live in Travis County. Of the Williamson County workers, almost 55 percent commute into Travis County while almost 27 percent commute to work inside the County. Of the Travis County workers, 79 percent work inside Travis County while 5 percent commute to work in Williamson County.

To compare the traffic and commuting patterns in Williamson County with that of the Austin-Round Rock MSA counties, GDS accomplished the following tasks:

- Reviewed US Census Bureau and Texas Secretary of State Census data from 2000 as well as projected estimates to date.
- Extracted census data relative to traffic and commuting patterns within Williamson County and the adjacent counties.
- Identified major highways and road activities in the area.
- Demonstrated that, while there may be a marginal amount of commuting between residences in Williamson County and the immediately adjacent counties (e.g., Montgomery, Liberty, Polk, Trinity, and Walker), there is almost no commuting between Williamson County and Harris County which is the core of the Austin-Round Rock MSA.

Williamson County covers 1,136 square miles and is situated in Central Texas, with its nearest border about 15 miles north-northeast of downtown Austin. Interstate Highway 35 is the principle transportation route through the center of the county for about 12 miles. State Highway (SH) 29 runs east to west through Georgetown while RR 1431 runs east to west from midway between Round Rock and Georgetown to Cedar Park. US Highway 183 transects Williamson County on the western half of the county from northwest Austin to Cedar Park and on to Leander and Lampasas.

State Highways 130 and 45 as well as Loop 1 are toll roads in Williamson County. SH130 splits from IH35 north of Georgetown and runs parallel to IH 35 but to the east of Georgetown, Round Rock, and Pflugerville. SH45 runs east to west connecting SH130 to US 183 and Loop1. Loop 1 runs north to south connecting Round Rock to Austin. The rest of the county's paved roads are farm-to-market roads and state highways. Figure 2.3.1 from Exhibit F below describes the general layout of Williamson County.

Currently, 373,363 people live in Williamson County. Georgetown is the county seat and has 46,867 residents. Round Rock is the largest city with a population of 95,444 while Cedar Park has 56,724 residents (Williamson County profile, see Exhibit N). The Williamson County profile lists 16 cities that are wholly or partly in the County boundaries. The balance of the county living in unincorporated areas amounts to 100,396 people or approximately 27 percent of the county's residents.

According to a recent study conducted by the Capitol Area Metropolitan Planning Organization (CAMPO) (see Exhibit L), about 165 thousand workers reside in Williamson County compared to 417 thousand workers who live in Travis County. Of the Williamson County workers, almost 55 percent commute into Travis County while almost 27 percent

commute to work inside the County. Of the Travis County workers, 79 percent work inside Travis County while 5 percent commute to work in Williamson County.

In the OMB decision to use commuting patterns as a basis for inclusion in a CBSA (either MeSA or MiSA), they said: “OMB accepted the Review Committee's recommendation to use data on journey to work, or commuting, as the basis for grouping counties together to form CBSAs (i.e., to qualify “outlying counties”). OMB accepted the Review Committee's recommendation to qualify a county as an outlying county if (a) at least 25 percent of the employed residents of the county work in the CBSA's central county or counties, or (b) at least 25 percent of the jobs in the potential outlying county are accounted for by workers who reside in the CBSA's central county or counties. OMB also accepted the Review Committee's recommendation not to use measures of settlement structure, such as population density, to qualify outlying counties for inclusion in CBSAs.” See page 82233 of Exhibit A.

Figure 3.4.1 below illustrates the flow of commuting traffic into and out of the five counties that comprise the A-RR MSA. Travis County residents work almost exclusively within Travis County while a 29 to 58 percent of the workers residing in the other four counties commute between their county and Travis County. In the other four counties, the fraction of resident workers commuting within the county is from 37 to 50 percent.

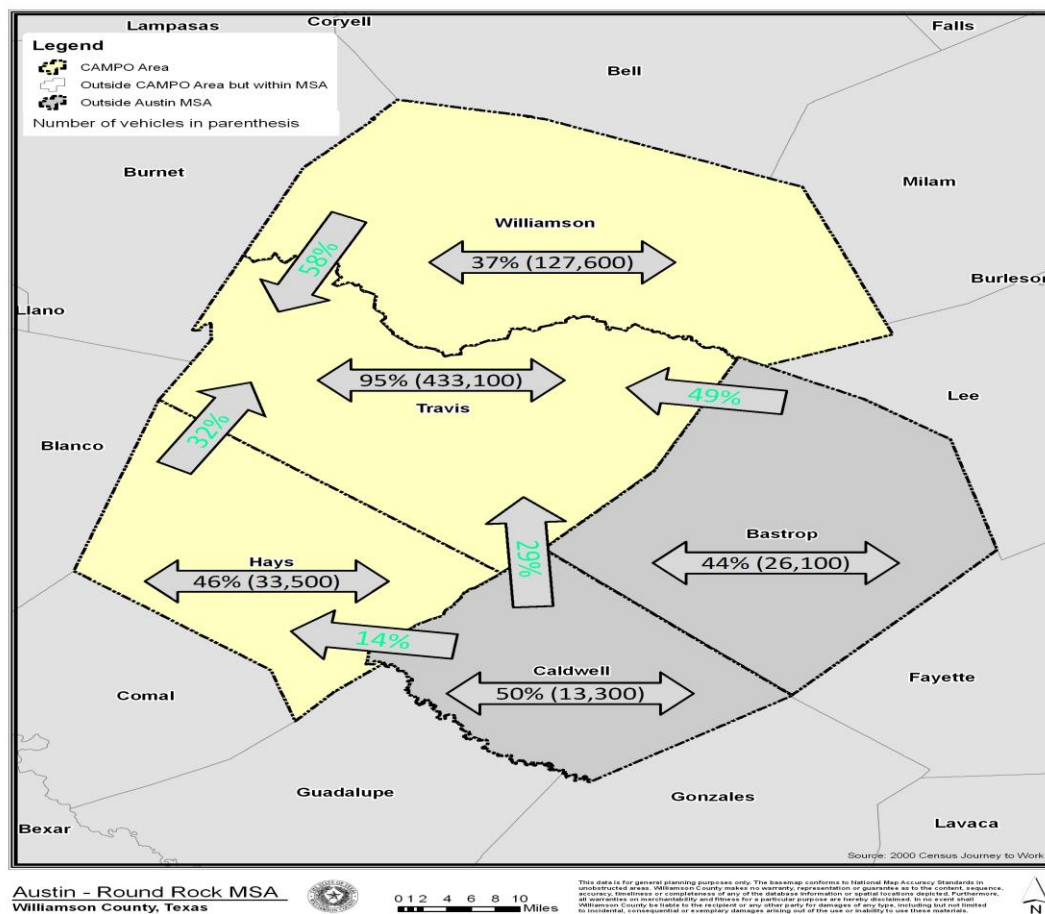


Table 3.4.1: Commuting flow for counties within the A-RR MSA. See Exhibit L.

Source: Capitol Area Metro data

Figure 3.4.2 describes the commuting flow between the San Antonio MSA and the A-RR MSA. As the figure shows, between 0.7 and 1.4 percent of employed residents from one MSA commute to the other MSA each day.

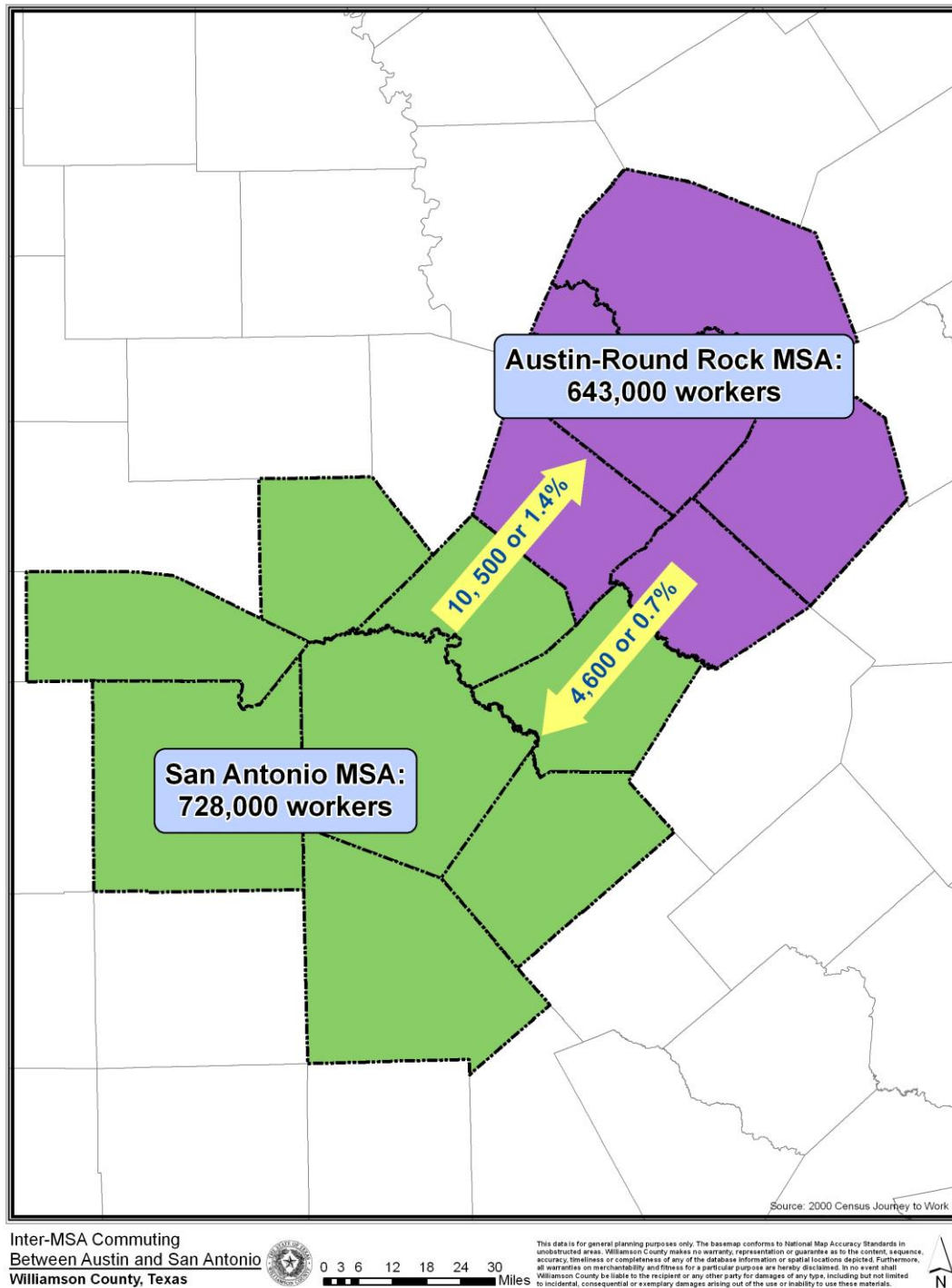


Figure 3.4.2: Commuting flow between San Antonio MSA and the A-RR MSA. See Exhibit X.

Source: Capitol Area Council of Governments September 5, 2008 letter to TCEQ

Finding 5: Growth Rates and Patterns (Factor 5)

Overall projected population growth from 1990 to 2020 in the A-RR MSA plus Burnet and Bell Counties is 2.71 per year. In absolute numbers, Travis County population over this 30-year period is projected to grow by 561 thousand while the population in Bastrop, Bell, Burnet, Caldwell, Hays, and Williamson Counties is projected to grow by 775 thousand in the same time frame. However, this projected incremental growth in the counties outside Travis County is dispersed over a combined area of 5,366 square miles while the Travis County growth will occur over an area of only 1,022 square miles. The difference in population density growth rates alone represents *almost 4 times* as much of a potential impact on the region's air quality coming from growth in Travis County alone compared to the combined growth in the other six counties.

Evaluating the expected population growth in Williamson County with that of the Austin-Round Rock MSA counties required that GDS accomplish the following tasks:

- Reviewed US Census Bureau and Texas Secretary of State Census data from 2000 as well as projected estimates to date for population growth and trends.
- Extracted census data relative to population as well as projected population growth areas within Williamson County and the adjacent counties.
- Assessed expected growth for industries and potential employers in the area (i.e., Williamson County and the surrounding counties) and the potential impact of that growth on possible violations of the 2008 eight-hour ozone standard.
- Demonstrated that current and expected population growth for the Williamson County is not sufficient to create an adverse impact on air quality in Williamson County and the surrounding counties.

Currently, 373,363 people live in the Williamson County. The largest city in the county is Round Rock with a population of 95,444 (Williamson County profile, see Exhibit N). From the data presented in Tables 3.5.1 and 3.5.2, GDS observed that the compounded 30-year growth rates in population between 1990 and 2020 are estimated at:

- Bastrop County – 3.24%
- Bell County – 1.53%
- Burnet County – 3.36%
- Caldwell County – 2.13%
- Hays County – 3.31%
- Travis County – 2.27%
- Williamson County – 4.78%

GDS compared the average of six counties (Bastrop, Bell, Burnet, Caldwell, Hays, and Williamson Counties) that are either part of the A-RR MSA or are immediately adjacent to Williamson County with Travis County that is also part of the A-RR MSA to determine if there were substantial differences. The composite annual growth rate in the six counties is

3.23% compared to 2.27% annual growth rate in Travis County. However, the absolute 30-year growth in the population in Travis County alone is projected at 561 *thousand* compared to total of 775 *thousand* in Bastrop, Bell, Burnet, Caldwell, Hays, and Williamson Counties over the same period of time.

In Travis County alone, this growth translates into an increase in population density 549 people per square mile compared to 919 people per square mile in 2007. In the other six counties, the projected population growth translates into an increase in population density of 144 people per square mile compared to 172 people per square mile in 2007. The difference in population density growth rates alone represents *almost 4 times* as much of a potential impact on the region's air quality coming from growth in Travis County alone compared to the combined growth in the other six counties. See Table 3.5.3.

Table 3.5.1: 1990 to 2020 Population Data and Projections in Thousands.

Year	Bastrop County	Caldwell County	Burnet County	Hays County	Travis County	Williamson County	Bell County
1990	38.26	26.28	22.65	65.77	581.02	140.57	191.65
1991	38.87	26.41	22.71	67.13	602.11	146.17	190.66
1992	40.04	26.60	22.97	68.64	624.95	152.62	192.95
1993	41.38	27.01	23.76	70.87	649.23	161.30	205.07
1994	43.43	27.57	25.23	74.78	671.76	171.39	221.13
1995	45.81	28.91	27.41	78.96	696.28	181.61	224.09
1996	48.74	29.55	28.82	82.01	717.19	195.55	228.42
1997	51.06	30.21	30.06	85.90	736.59	207.51	230.44
1998	53.07	30.76	31.33	89.98	761.34	220.43	233.37
1999	55.68	31.49	33.02	93.62	788.50	236.61	233.89
2000	58.31	32.48	34.52	99.01	819.90	255.04	238.76
2001	61.47	33.80	36.02	104.42	843.20	276.91	240.75
2002	64.25	34.85	37.56	111.19	846.60	290.58	244.71
2003	66.78	35.51	38.74	115.59	854.28	303.85	248.93
2004	68.43	36.34	40.24	119.26	869.36	318.10	249.75
2005	69.81	36.54	41.49	124.43	889.54	334.38	254.37
2006	71.68	36.72	42.90	130.33	921.01	353.83	257.90
2007	73.78	37.69	44.34	133.82	938.87	370.32	261.58
2008	75.70	38.56	45.67	136.99	954.36	385.89	264.61
2009	77.60	39.42	47.00	140.12	969.69	401.38	267.61
2010	79.50	40.29	48.32	143.25	984.99	416.84	270.61
2011	81.40	41.16	49.64	146.41	1000.44	432.35	273.67
2012	83.32	42.03	50.98	149.58	1016.06	447.92	276.79
2013	85.26	42.92	52.32	152.78	1031.88	463.58	279.97
2014	87.18	43.79	53.66	155.95	1047.45	479.11	283.09
2015	89.12	44.68	55.01	159.17	1063.37	494.80	286.32
2016	91.06	45.56	56.35	162.38	1079.24	510.46	289.54
2017	93.01	46.45	57.71	165.61	1095.25	526.18	292.80
2018	94.96	47.34	59.06	168.84	1111.23	541.89	296.07
2019	96.89	48.23	60.40	172.03	1127.00	557.50	299.28
2020	98.84	49.11	61.75	175.24	1142.92	573.17	302.55

Source: Woods & Poole Economics, Inc – 2007 State Profile

Table 3.5.2: 1990 to 2020 Population Growth Rate Data and Projections in Percent.

Year	Bastrop County	Caldwell County	Burnet County	Hays County	Travis County	Williamson County	Bell County
1990	-0.62	-2.03	-0.34	0.53	2.69	3.45	1.26
1991	1.57	0.48	0.25	2.02	3.50	3.83	-0.52
1992	2.91	0.73	1.12	2.20	3.65	4.23	1.19
1993	3.25	1.52	3.34	3.16	3.74	5.38	5.91
1994	4.72	2.02	5.81	5.23	3.35	5.89	7.26
1995	5.19	4.63	7.97	5.29	3.52	5.63	1.32
1996	6.01	2.17	4.88	3.72	2.92	7.13	1.90
1997	4.54	2.19	4.12	4.53	2.63	5.76	0.87
1998	3.78	1.80	4.05	4.53	3.25	5.86	1.26
1999	4.70	2.29	5.12	3.89	3.45	6.84	0.22
2000	4.51	3.06	4.36	5.44	3.83	7.23	2.04
2001	5.13	3.91	4.17	5.18	2.76	7.90	0.83
2002	4.33	3.00	4.10	6.08	0.40	4.71	1.61
2003	3.79	1.87	3.03	3.81	0.90	4.37	1.70
2004	2.42	2.27	3.73	3.08	1.73	4.48	0.33
2005	1.98	0.57	3.02	4.16	2.27	4.87	1.81
2006	2.61	0.48	3.28	4.52	3.42	5.50	1.37
2007	2.85	2.57	3.25	2.61	1.90	4.45	1.41
2008	2.53	2.26	2.92	2.31	1.62	4.03	1.15
2009	2.45	2.19	2.82	2.24	1.58	3.86	1.12
2010	2.39	2.14	2.73	2.19	1.55	3.71	1.11
2011	2.34	2.11	2.68	2.15	1.54	3.59	1.12
2012	2.30	2.08	2.62	2.12	1.54	3.48	1.13
2013	2.27	2.06	2.57	2.10	1.53	3.38	1.14
2014	2.20	1.99	2.48	2.03	1.49	3.24	1.10
2015	2.18	1.99	2.45	2.02	1.50	3.17	1.13
2016	2.13	1.94	2.39	1.98	1.47	3.07	1.11
2017	2.10	1.92	2.34	1.95	1.46	2.99	1.12
2018	2.05	1.88	2.29	1.91	1.44	2.90	1.10
2019	1.99	1.83	2.22	1.86	1.40	2.80	1.07
2020	1.97	1.81	2.18	1.84	1.39	2.73	1.08

Source: Woods & Poole Economics, Inc – 2007 State Profile

Figure 3.5.3: Summary of Population Growth Data from 1990 to 2020							
Type of Data	County-by-County Data						
	Bastrop County	Caldwell County	Burnet County	Hays County	Bell County	Williamson County	Travis County
2020 Projected Population (1,000)	99	49	62	175	303	573	1,142
1990 Actual Population (1,000)	38	26	23	66	192	141	581
30-Year Growth (1,000)	61	23	39	109	111	432	561
Ratio of 2020 Projection to 1990 Census	2.6053	1.8846	2.6956	2.6515	1.5781	4.0638	1.9656
Compounded Annual Growth Rate (%)	3.24	2.13	3.36	3.31	1.53	4.78	2.27
Area 2020 Projected Population (1,000)	1,261						1,142
Area 1990 Actual Population (1,000)	486						581
Area 30-Year Growth (1,000)	775						561
Ratio of 2020 Projection to 1990 Census	2.5947						1.9656
Compounded Annual Growth Rate (%)	3.23						2.27

Finding 6: Meteorology (weather/transport patterns) (Factor 6)

The prevailing wind flow in the area is from a southerly-to-southeasterly direction during the ozone formation season. What little air transport that occurs between Williamson County and the Travis County is more likely from Travis County to Williamson County. Because of the prevailing southerly-to-southeasterly wind direction, it is much more likely that pollution comes into Williamson County from Travis County rather than the other way around.

To assess the potential impacts of meteorology on air quality, GDS accomplished the following tasks:

- Reviewed wind rose and other available weather data from Williamson County and the surrounding counties.
- Described and evaluated air quality trends in the area that effect air quality.
- Characterized the relationships between individual meteorological parameters and ozone.
- Demonstrate wind direction in the surrounding area.

Figures 3.6.1 through 3.6.2 illustrates the direction of surface wind movement in Austin and Waco from 1984 to 1992 (see Exhibit U). Air quality and transportation planners use to help predict long-term air quality, estimate the transport of airborne COC, and lay out airports. This information came from: TCEQ Web Site: www.tceq.state.tx.us/.../monitoring/air/monops/windroses.html. These wind roses were made using software (WRPLOT) and data from 1984 through 1992 that was obtained from the USEPA.

From these wind roses, the prevailing winds from the area airports are as follows:

- Austin-Bergstrom International Airport (ABIA) – predominantly from the south to southeast towards the north to north west (41 percent combined) and north to north-northeast towards the south to south-southwest (15 percent combined)
- Waco – predominantly from the south-southeast to north-northwest (43 percent combined) and from the north towards the south (10 percent)

Figure 3.6.3 is an aerial photo of Central Texas (see Exhibit V). This photo illustrates the bracketing of Williamson County by the weather stations in Waco (north) and Austin (south). From this figure and the prevailing wind patterns, what little air transport that occurs between Williamson County and Travis County is more likely from Travis County to Williamson County rather than the other way around.

However, because of the prevailing southerly-to-southeasterly wind direction, it is much more likely that pollution comes into Williamson County from Travis County rather than the other way around. According to the Capitol Area Council of Governments letter to the TCEQ in September 2008 (See Exhibit X), the results of air modeling for the A-RR projected a substantial transport of ozone and ozone precursors into the area from anthropogenic and biogenic sources. The study observed background ozone level of

between 65 and 75 ppb so that any transport of ozone into the area either through winds or transient vehicles makes it very difficult to avoid exceedances of the 75 ppb standard.

There are 18 permitted point sources in Travis County compared to only 5 in Williamson County. In addition, the sources in Travis County emit a combined 2,889 tons of NO_x and VOC per year compared to 77 tons of NO_x and VOC per year for permitted sources in Williamson County. Therefore, with 3.6 times as many permitted point sources and 40 times as many emissions of ozone precursors, it is far more likely that Travis County sources adversely affect Williamson County than the converse.

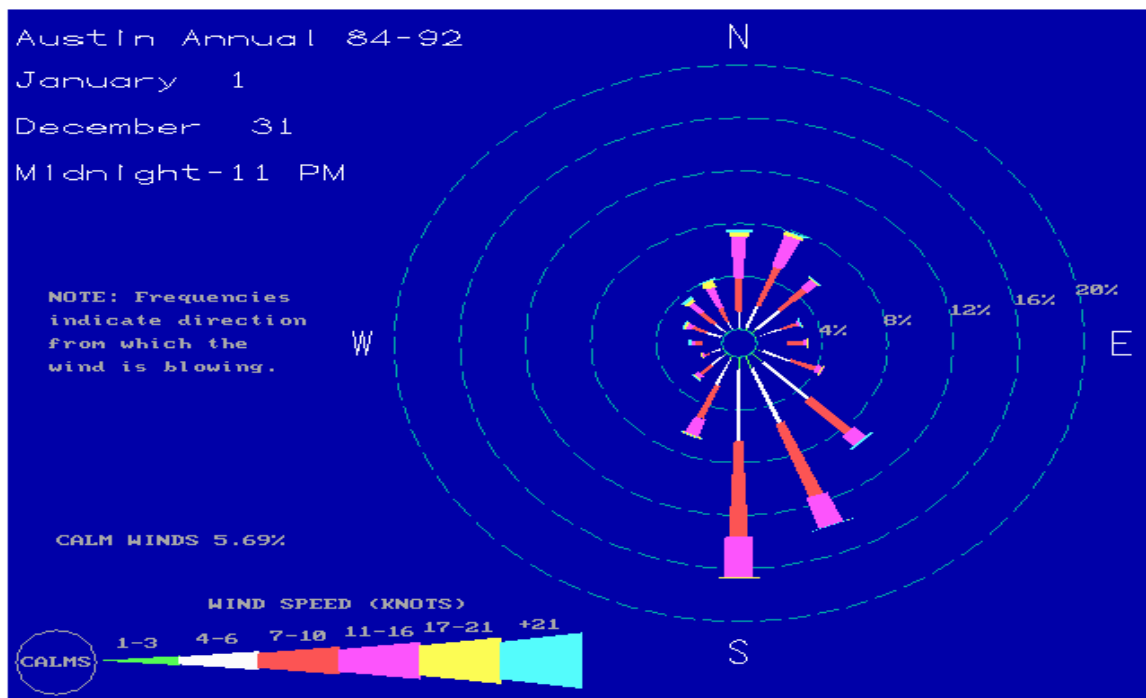


Figure 3.6.1: Wind Direction Movement at Austin

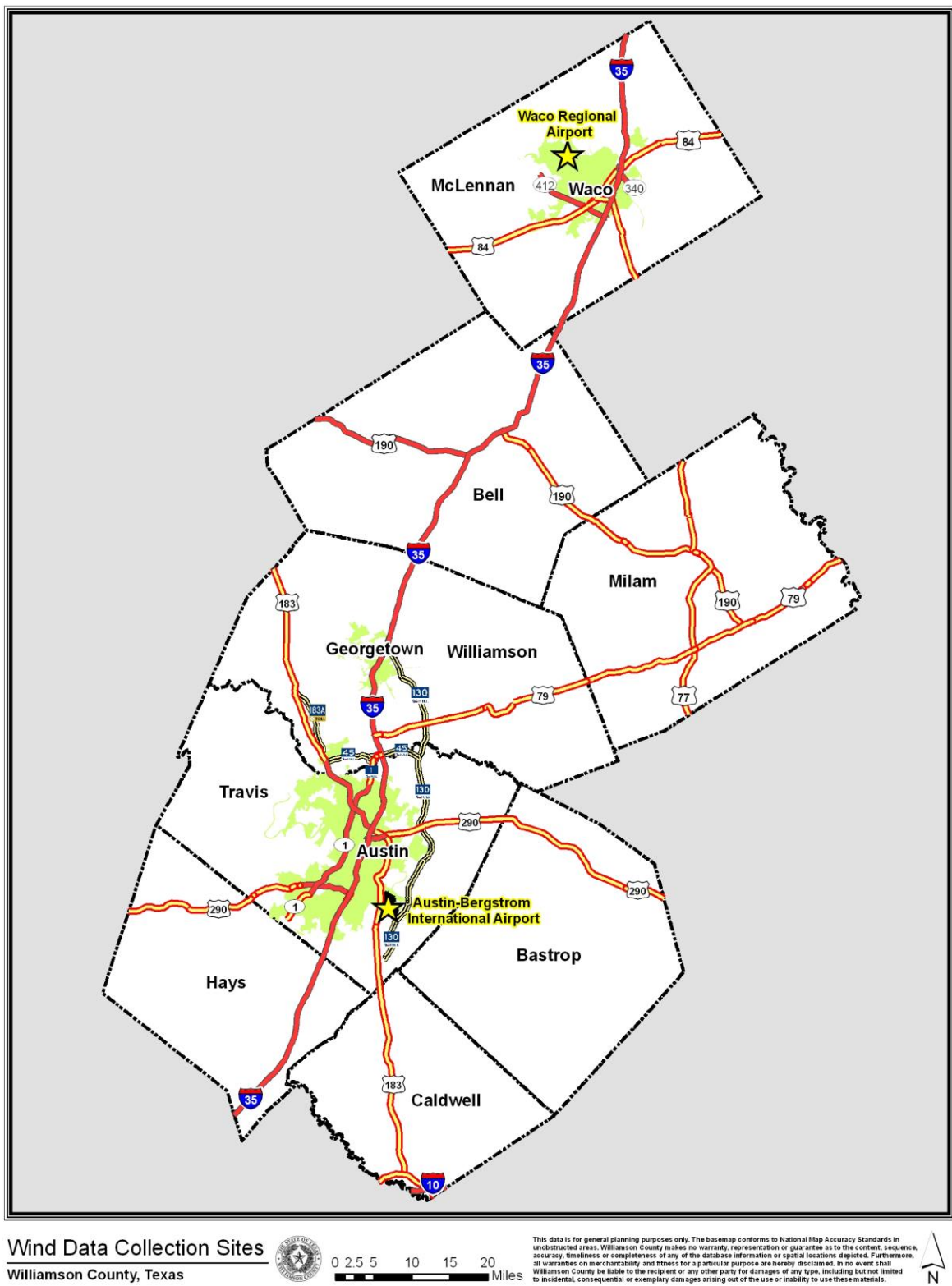


Figure 3.6.3: Location of Wind Data Collection Sites compared to Williamson County.

**Finding 7: Geography/Topography (mountain ranges or other air basin boundaries)
(Factor 7)**

Williamson County covers 1,136 square miles and is situated in Central Texas, with its southern boundary about 15 miles north-northeast of downtown Austin. Except for moderately urbanized areas along IH-35 and US-183, the county is largely committed to agriculture. County terrains falls away from a peak elevation of about 1,208 feet at the western most boundary to 400 feet at its eastern most boundary. The aerial photos in Exhibit W show that the topography and geography of Williamson County more closely resembles its neighbors outside Travis County than Travis County itself.

Comparing the geography and topography in Williamson County and surrounding counties to determine the likely impacts on air quality required that GDS accomplish the following tasks:

- Reviewed aerial photos and descriptions of the geographic and topographic details of Williamson County and the surrounding counties.
- Developed generalizations about how this geography and topography of Williamson County and the surrounding counties either mitigate or exacerbate air quality.
- Compared geographic and topographic of the proposed revised Non-Attainment Area to postulate how geography and topography interact with meteorology and emissions to affect air quality in the region.
- Demonstrated that Williamson County is primarily ranch and farm land, has few stationary emissions sources, and is moderately urbanized.

Williamson County covers 1,136 square miles and is situated in Central Texas, with its nearest border about 15 miles north-northeast of downtown Austin. Interstate Highway 35 is the principle transportation route through the center of the county for about 12 miles. State Highway (SH) 29 runs east to west through Georgetown while RR 1431 runs east to west from midway between Round Rock and Georgetown to Cedar Park. US Highway 183 transects Williamson County on the western half of the county from northwest Austin to Cedar Park and on to Leander and Lampasas.

As demonstrated earlier, the 1,136 square miles in Williamson County are primarily farm and ranch land, with few permitted point sources, and moderate urbanization that is dwarfed by the urbanization in Travis County. From the work done in support of Finding 5, GDS found that Williamson County is projected to increase at 4.78 percent compounded annual rate from 1990 through 2020.

The county's center is at 30° 38' 38.12" north latitude and 97° 36' 16.78" west longitude at 717 feet above sea level. In general, the county terrains falls away from a peak elevation of about 1,208 feet at the western most boundary to 400 feet at its eastern most boundary. The San Gabriel River runs generally west to east bisecting the county to northern and southern halves. The San Gabriel River is impounded at two places: Lake Georgetown west of Georgetown, Texas and Granger Lake east of Granger, Texas.

Rolling hills characterize the southern county boundary with Travis County. Substantial limestone quarries are distributed in the western and southwestern part of the county. The

western part of the county is largely committed to ranching and the vegetation is mostly grasslands, cedars, and live oak. The eastern part of the County is largely committed to cattle and farming using the rich alluvial soils in the area and principle crops include corn, grain sorghum, cotton, and wheat. See Exhibit W.

Aerial photos from the other six surrounding counties are included in Exhibit W. These aerial photos show that the topography and geography of Williamson County more closely resembles its neighbors outside Travis County than Travis County itself.

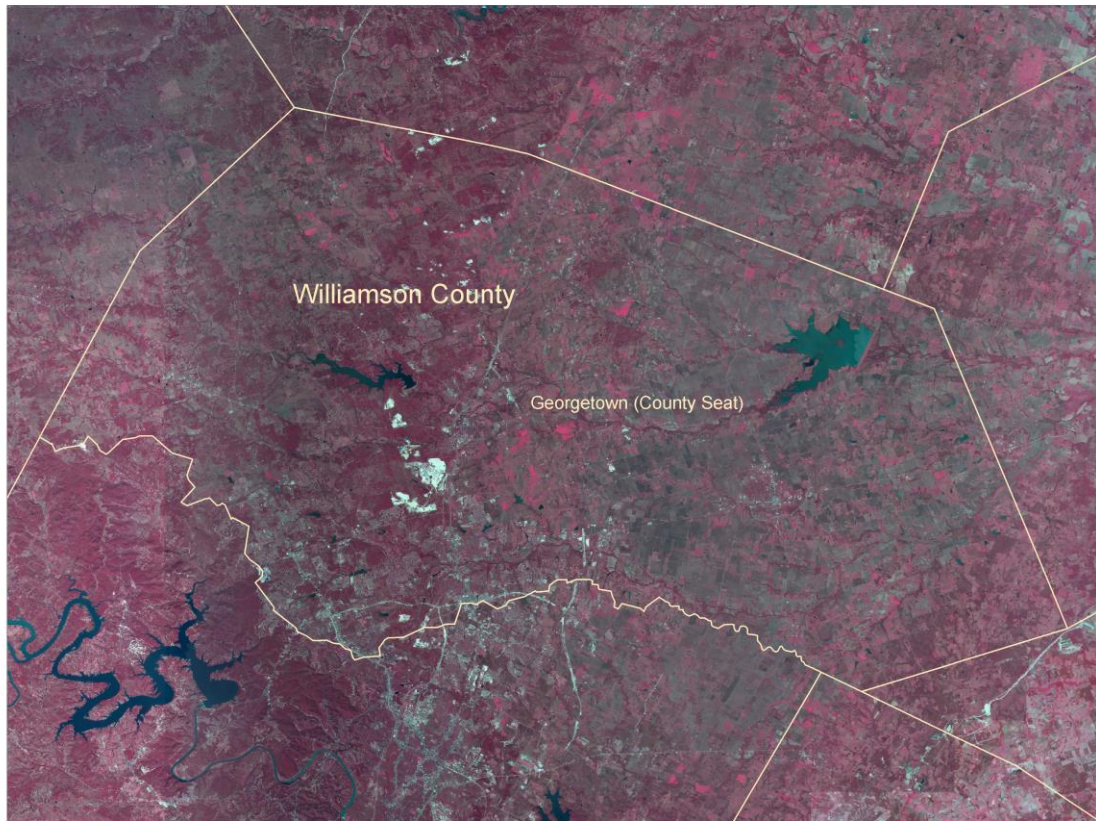


Figure 3.7.1: Aerial photo of Williamson County showing jurisdictional boundaries.

Finding 8: Jurisdictional boundaries (e.g., counties, air districts, existing non-attainment areas, reservations, metropolitan planning organizations (MPOs)) (Factor 8)

Only one Central Texas county is non-attainment for the 75 ppb eight-hour ozone standard. That county is Travis County. However, four other Central Texas counties (i.e., Williamson, Bastrop, Caldwell, and Hays) are included in the newly formed Austin-Round Rock (A-RR) MSA, but are in attainment with the 75 ppb eight-hour ozone standard. There are active planning efforts and mitigation efforts being conducted by: the Capital Area Council of Governments, Clean Air Task Force of Central Texas, Capitol Area Metropolitan Planning Organization, and Capitol Metro transportation system. There have been as many as seven O₃ monitors in the eight-county Austin-Round Rock MSA. However, only two of these monitors remain in current service. The active planning efforts by local agencies show an ability to reduce and maintain ozone levels below the 75 ppb standard.

Identifying the jurisdictional boundaries of the counties involved and their ability to control air emissions and air quality within their jurisdiction required that GDS accomplish the following tasks:

- List all counties in the Austin-Round Rock MSA and map their boundaries as well as the NO_x and VOC emissions and monitored O₃ design values within their jurisdictions.
- List all counties surrounding Williamson County and map their boundaries as well as the NO_x and VOC emissions and monitored O₃ design values within their jurisdictions.
- Determine the degree to which NO_x and VOC emissions within a county are related to the level of ozone monitored in the area.

Five counties in the A-RR MSA formed by the OMB in 2003 include: Travis, Williamson, Bastrop, Caldwell, and Hays (see Figure 3.8.1). Taking their lead from this economic realignment, USEPA proposed to adopt this same alignment for a redefined Austin-Round Rock MSA with the implementation of the new 8-hour ozone NAAQS.

Six counties immediately adjacent to Williamson County include: Burnet, Bell, Milam, Lee, Bastrop, and Travis Counties. As mentioned earlier, Burnet, Bell, Milam, and Lee Counties are A-RR MSA while Bastrop, Caldwell, and Hays Counties are inside the A-RR MSA (see Figure 3.8.1).

There have been as many as seven O₃ monitors in the five-county A-RR MSA. Of these seven monitors, two monitors are in Travis County, two are in Williamson County, one is Bastrop County, and two are in Hays County. However, all of the monitors outside Travis County were deactivated prior to the end of 2008. There is no O₃ monitor in Caldwell County.

USEPA has long recognized this disparity in the placement of air quality monitors (see Exhibit C). In fact, about 100 MSA in the United States with populations less than 350,000 presently are without any O₃ monitors, and hence they do not have an O₃ design value (see page 16502 of Exhibit C).

Table 3.1.1 of this report shows that, since 2000, the 4th highest value monitoring data for seven O₃ monitors in Williamson, Travis, Bastrop, and Hays Counties ranged from 66 to

91 ppb. However, the monitor in Bell County averaged 74 ppb plus or minus 4 percent while the monitor in Bastrop County alone averaged 71 ppb plus or minus 1 percent and the Travis County monitors produced average readings of 82 ppb plus or minus 10 percent and the Williamson County monitors produced average readings of 73 ppb plus or minus 4 percent

A review of the information in USEPA AirData maps of specific countywide emissions maps for existing NO_x and VOC emissions (see Exhibit H) show that annual emissions of Williamson County sources emit between 26 and 35 tons of NO_x and between 45 and 78 tons of VOC per year. The combined point source emissions of VOC and NO_x are 40 times greater than the combined point source emissions of VOC and NO_x in Williamson County. See Finding 9.

GDS compared the average of six counties (Bastrop, Bell, Burnet, Caldwell, Hays, and Williamson Counties) that are either part of the A-RR MSA or are immediately adjacent to Williamson County with Travis County that is also part of the A-RR MSA to determine if there were substantial differences. The composite annual growth rate in the six counties is 3.23% compared to 2.27% annual growth rate in Travis County. However, the absolute 30-year growth in the population in Travis County alone is projected at 561 *thousand* compared to total of 775 *thousand* in Bastrop, Bell, Burnet, Caldwell, Hays, and Williamson Counties over the same period of time. See Finding 5.

While there are only five stationary sources of NO_x and VOC in Williamson County, there are also a moderate number of mobile sources as evidenced by population density (326 per square mile). Interstate Highway 35 is the principle transportation route through the center of the county for about 12 miles. State Highway (SH) 29 runs east to west through Georgetown while RR 1431 runs east to west from midway between Round Rock and Georgetown to Cedar Park. US Highway 183 transects Williamson County on the western half of the county from northwest Austin to Cedar Park and on to Leander and Lampasas.

State Highways 130 and 45 as well as Loop 1 are toll roads in Williamson County. SH130 splits from IH35 north of Georgetown and runs parallel to IH 35 but to the east of Georgetown, Round Rock, and Pflugerville. SH45 runs east to west connecting SH130 to US 183 and Loop1. Loop 1 runs north to south connecting Round Rock to Austin. The rest of the county's paved roads are farm-to-market roads and state highways.

About 90 thousand (55 percent) employed residents commute from Williamson County Travis County each day. Another 44 thousand (27 percent) commute within Williamson County. About 330 thousand (79 percent) employed residents commute within Travis County each day. Another 21 thousand (5 percent) commute from Travis County to Williamson County. See Finding 4.

According to an August 25, 2008 letter from the Capitol Area Metropolitan Planning Organization (CAMPO) (see Exhibit Y), explained that the voluntary efforts within the region are significant. In addition, the CAMPO letter said that implementation of the federally mandated fuel and fleet measures should decrease on-road mobile sources significantly by 2015. CAMPO also recommended against linking the A-RR MSA with the San Antonio MSA because of existing independent transportation planning efforts and very low rates (about 1 percent) of commuting between the two areas. Finally, the CAMPO letter observes that the federal timeline ignores the impact of ozone transport into

marginal non-attainment areas from more heavily polluted areas by allowing the more heavily polluted areas more time to come into compliance. See Finding 4.

In reviewing available monitoring data, GDS found that there have been as many as seven O₃ monitors in the five-county A-RR MSA. Of these seven monitors, two monitors are in Travis County, two are in Williamson County, one is Bastrop County, and two are in Hays County. However, all of the monitors outside Travis County were deactivated prior to the end of 2008. There is no O₃ monitor in Caldwell County.

While TCEQ has positioned many air quality monitors in Travis County over time (see Figure 3.3.1 below), relatively few of these monitors kept track of ozone levels. . This low density of O₃ air quality monitors in the Austin-Round Rock MSA stands in stark contrast to the 34 O₃ monitors in Harris County alone. Because the only two ozone monitors in Williamson County have been deactivated, state officials will only be able to infer from modeling rather than measure ozone levels in Williamson County in 2009 and beyond.

This makes it difficult to determine with certainty the degree to which emissions in neighboring counties influence Williamson County ozone levels. Given the prevailing meteorological conditions (see Finding 6) and emissions from point sources (see Findings 2 and 9), it is much more likely that ozone levels in Williamson County are adversely effected by transport into Williamson County rather than the other way around.

Available monitoring data throughout the A-RR MSA shows peak 4th highest values of 91 ppb in 2002. This level has been on a steady decline to 74 ppb in 2008 despite a 17 percent increase in population over the same time. State monitors installed in Williamson County from 2006 through 2008 appears to indicate that O₃ levels were 76 ppb in 2006 and decreased to 71 ppb in 2007 and 2008 despite a 9 percent increase in population over the same time period.

Finding 9: Level of control of emissions sources (Factor 9)

The prevailing meteorological conditions (i.e., southerly to southeasterly) and the relatively insignificant (i.e., less than 1.2 percent) contribution of Williamson County permitted point sources to the inventory, including Williamson County with Travis County as non-attainment for ozone would provide inconsequential reductions in ozone levels in the non-attainment area. At the same time, the additional controls that would be required as a result of this action would severely constrain, if not eliminate, the ability county to develop its resources and bring some independent economic projects to its jurisdiction and thereby reduce the amount of inter-county (Williamson to Travis) commuting currently be experienced. Inside a non-attainment area that is either marginal or moderate in the degree of non-attainment, new projects that emit as little as 100 tons per year of either NO_x or VOC are required to install more stringent controls and address offsets for the new emissions. Outside the non-attainment area, only projects producing more than 250 tons per year of a NAAQS pollutant are required to install more stringent controls. Coupling Williamson County to Travis County as a non-attainment area, USEPA will effectively and dramatically reduce the ability of the county to develop vast areas of ranchland and farmland in the county.

Examining the level of emissions controls and therefore the degree to which emissions are currently reduced required that GDS accomplish the following tasks:

- Reviewed the Best Available Control Technology (BACT) or Maximum Available Control Technology (MACT) being applied to common sources in the Austin-Round Rock MSA.
- Reviewed the Best Available Control Technology (BACT) or Maximum Available Control Technology (MACT) being applied to common sources in Williamson County and the adjacent counties not included in the Austin-Round Rock MSA.
- Compared the efficacy of these controls on reducing emissions of NO_x and VOC as well as improving air quality through reduced O₃ levels.

30 TAC 116.12(16) defines a Major facility as “Any facility that emits or has the potential to emit 100 tons per year or more of the plant-wide applicability limit (PAL) pollutant in an attainment area; or any facility that emits or has the potential to emit the PAL pollutant in an amount that is equal to or greater than the major source threshold for the PAL pollutant in Table I of this section for nonattainment areas.”

30 TAC 116.12(17) defines a Major stationary source as “Any stationary source that emits, or has the potential to emit, a threshold quantity of emissions or more of any air contaminant (including volatile organic compounds (VOCs) for which a national ambient air quality standard has been issued. The major source thresholds are identified in Table I of this section for nonattainment pollutants and the major source thresholds for prevention of significant deterioration pollutants are identified in 40 Code of Federal Regulations (CFR) §51.166(b)(1). A source that emits, or has the potential to emit a federally regulated new source review pollutant at levels greater than those identified in 40 CFR §51.166(b)(1) is considered major for all prevention of significant deterioration pollutants.

A major stationary source that is major for VOCs or nitrogen oxides is considered to be major for ozone. The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this definition whether it is a major stationary source, unless the source belongs to one of the categories of stationary sources listed in 40 CFR §51.165(a)(1)(iv)(C).”

Table I of the 30 TAC 116.12 on page 46 of this report describes what sources constitute a major source or what amount of emissions rise to a significant level as well as how many offsets are required for sources located in a given non-attainment condition. Please note that sources become “major” at progressively lower levels depending on the degree to which the area’s air quality is impaired. Currently, Austin-Round Rock MSA is designated by the USEPA as Category IV Severe Non-Attainment with the old 8-hour ozone NAAQS. The significant impact of this designation is the requirement of relatively small sources of NO_x and VOC (larger than 25 tons per year of each) to install stringent environmental controls and buy offsets or reduce other emissions at a rate greater than what will be emitted from the new source or modification to an existing source. This requirement bears directly on the economic viability of a project.

On the other hand, prevention of significant deterioration (PSD) standards applies to projects in counties that are outside a defined non-attainment area. In the PSD world, a major source is defined by a standard of 250 tons per year of any NAAQS air pollutant. Therefore, by assigning Williamson County to the Austin-Round Rock MSA, USEPA will effectively and dramatically reduce the ability of the county to develop the part of its land that is available for development. See Exhibit X.

TABLE I

MAJOR SOURCE/MAJOR MODIFICATION EMISSION THRESHOLDS

POLLUTANT DESIGNATION	MAJOR SOURCE THRESHOLD (tons/yea)r	SIGNIFICANT LEVEL² tons/year	OFFSET RATIO minimum
OZONE (VOC, NO_x)^{3, 6}			
I marginal⁷	100	40	1.10 to 1
II moderate	100	40	1.15 to 1
III serious	50	25	1.20 to 1
IV severe	25	25	1.30 to 1
CO			
I moderate	100	100	1.00 to 1 ⁴
II serious	50	50	1.00 to 1 ⁴
SO₂	100	40	1.00 to 1 ⁴
PM₁₀			
I moderate	100	15	1.00 to 1 ⁴
II serious	70	15	1.00 to 1 ⁴
NO_x⁵	100	40	1.00 to 1 ⁴
Lead	100	0.6	1.00 to 1 ⁴

1 – Texas nonattainment area designations are specified in 40 Code of Federal Regulations §81.344.

2 – The significant level is applicable only to existing major sources and shall be evaluated after netting, unless the applicant chooses to apply nonattainment new source review (NNSR) directly to the project. The appropriate netting triggers for existing major sources of NO_x and VOC are specified in §116.150 of this title (relating to New Major Source or Major Modification in Ozone Non-Attainment Areas) and for other pollutants are equal to the major modification level listed in this table.

3 – VOC and NO_x are precursors to ozone formation and should be quantified individually to determine whether a source is subject to NNSR under §116.150 of this title. As specified in §116.150 of this title, for El Paso County, the NNSR rules apply to sources of VOC, but not to sources of NO_x.

4 – The offset ratio is specified to be greater than 1.00 to 1.

VOC = volatile organic compounds

To understand and evaluate the contribution of Williamson County to regional emissions and the impact of regional emissions reduction plans on Williamson County, GDS accomplished the following tasks:

- Reviewed the number of permitted point sources and emissions of NO_x and VOC from these sources in the Austin-Round Rock MSA since 2000.
- Identify the amounts and methods by which these emissions were reduced since 2000.
- Identify the proposed control strategies for reducing emissions as part of the HGB SIP Modeling.
- Determine the relative impact of these types of reductions on the existing and permitted point sources in Williamson County.

Table 3.9.1 depicts the actual point source VOC and NO_x emissions for the five counties in the Austin-Round Rock MSA from 2000 through 2006. Bell and Burnet County emissions are also included for a point of reference. When studying this data, it becomes readily apparent that Williamson County is about 100 tons or less of combined VOC and NO_x per year from permitted point sources. This amounts to little more than 1 percent of the combined 8,030 tons per year of combined NO_x and VOC coming from permitted point sources throughout the Austin-Round Rock MSA.

The discussion above applies only to point source emissions. As discussed in Finding 4 regarding commuting and traffic issues, mobile source emissions in 2005 accounted for 78 percent of the total anthropogenic NO_x emissions and 33 percent of the total anthropogenic VOC emissions in the A-RR MSA. In their September 5, 2008 letter (see Exhibit X) to the TCEQ, the Capitol Area Council of Governments described an extensive set of voluntary compliance efforts among their member governments to improve air quality in the region and eliminate the need for designation as a non-attainment area. These efforts include:

- Implementing an Ozone Flex Plan
- Cementing inter-county cooperation in the Early Action Compact
- Using measures such as vehicle inspection and maintenance programs, locally enforced heavy vehicle idling limits, power plant emission reductions, and 200 other locally implemented measures to reduce NO_x and VOC emissions.

According to the Capitol Area Council of Governments letter, the ozone monitoring data shows that the level of ozone in 2007 was one part per billion lower than it was in 1997 despite the fact that population in the area has increased from about 700 thousand in 1997 to 1.55 million in 2007. After peaking at 89 ppb in 1999 and 2000, the measured ozone in the area dropped steadily over the next seven years to 80 ppb. Citing the Texas Transportation Institute research and the results of air modeling for the A-RR MSA, the Capitol Area Council of Governments projected a substantial decrease in on-road mobile source emissions of VOC and NO_x from a combined 99.5 tons per year in 2007 to 47.2 tons per year in 2015 to 33.7 tons per year in 2030.

Given the prevailing meteorological conditions described elsewhere in this report and the relatively insignificant contribution of Williamson County permitted point sources to the inventory, including Williamson County in the non-attainment area based on the Austin-

Round Rock MSA would provide inconsequential reductions in ozone levels in the non-attainment area. At the same time, the additional controls that would be required as a result of this action would severely constrain, if not eliminate, the ability county to develop its resources and bring some independent economic projects to its jurisdiction.

Table 3.9.1: Regional Point Source Emissions Reductions									
Characteristic Data			Bastrop County	Caldwell County	Burnet County	Hays County	Travis County	Williamson County	Bell County
Permitted Sources		each	8	2	0	4	18	5	10
2000	VOC	tpy	155.75	19.98	0	247.77	545.04	51.34	817.74
	NO_x	tpy	2,693.34	888.58	0	2,831.80	3,865.35	33.50	146.95
2001	VOC	tpy	187.44	13.87	0	298.64	416.34	44.93	673.47
	NO_x	tpy	1,491.99	409.42	0	2,318.82	3,050.75	30.80	133.94
2002	VOC	tpy	131.91	23.13	0	349.02	364.47	65.67	770.99
	NO_x	tpy	1,383.47	898.32	0	2,610.76	2,390.55	35.0	131.63
2003	VOC	tpy	128.17	48.64	0	259.58	337.62	65.56	1,109.67
	NO_x	tpy	1,254.16	1,262.81	0	2,485.16	2,506.67	26.60	202.61
2004	VOC	tpy	139.11	35.07	0	222.75	376.79	78.21	1,039.42
	NO_x	tpy	989.20	1,768.60	0	2,525.71	2,965.14	32.40	197.94
2005	VOC	tpy	131.25	54.58	0	263.55	324.58	70.71	840.76
	NO_x	tpy	953.36	1,152.44	0	2,507.91	2,564.32	30.79	158.64
2006	VOC	tpy	131.25	54.58	0	263.55	324.58	46.69	840.76
	NO_x	tpy	953.36	1,152.44	0	2507.91	2,564.32	30.79	158.64

Source: TCEQ 2006 Statesum.xls

(<http://www.tceq.state.tx.us/implementation/air/industei/psei/psei.html>)

SECTION 4: Conclusions

After a thorough review of the Nine Factors to be considered by USEPA in making the decision whether or not to include Williamson County with Travis County in the Austin-Round Rock Non-attainment Area, there is only one statistic or observation that supports inclusion while there are many others that do not support inclusion.

The only statistic that supports inclusion is the commuting statistic between Williamson County and Travis County inside the Austin-Round Rock MSA. According to CAMPO data, 54.6 percent of the employed residents of Williamson County commute daily to Travis County while 5 percent of Travis County's employed residents commute daily to Williamson County. However, this draw of commuters to Travis County and the core city of Austin, Texas is not unique to Williamson County. Over two-thirds of the employed residents of Hays, Caldwell, Bastrop, Williamson, and Travis Counties work in Travis County (see Exhibit L and Finding 4).

This means that an estimated 90 thousand Williamson County residents commute to Travis County and 119 thousand employed residents of Hays, Caldwell, and Bastrop Counties commute to Travis County each day. However, Travis County has **1.5 times** more employed residents (and potential commuters) than Hays, Caldwell, Bastrop, and Williamson Counties combined. In addition, the portion of employed residents commuting from Hays, Caldwell, Bastrop, and Williamson Counties into Travis County ranges 30 to 55 percent. The OMB standard for establishing a MSA relationship is 25 percent

Therefore, if air pollution from commuters were the only test for whether or not to join a county to Travis County in forming a non-attainment area, clearly Hays, Caldwell, and Bastrop Counties would be included as well as Williamson County. However, the TCEQ staff did not recommend including these three counties in the A-RR Non-Attainment Area. Therefore, the TCEQ staff must have judged the other eight USEPA factors as having more weight

In examining the other eight factors, GDS concluded that the balance of the actual environmental and demographic data **does not support** an adverse environmental connection between Williamson County and Travis County in forming the A-RR Non-Attainment Area. These facts include:

1. There have been as many as seven O₃ monitors in the five-county A-RR MSA. Of these seven monitors, two monitors are in Travis County, two are in Williamson County, one is Bastrop County, and two are in Hays County. However, all of the monitors outside Travis County were deactivated prior to the end of 2008.

2. Available monitoring data throughout the A-RR MSA shows peak 4th highest values of 91 ppb in 2002. This level has been on a steady decline to 74 ppb in 2008 despite a 17 percent increase in population over the same time. State monitors installed in Williamson County from 2006 through 2008 appears to indicate that O₃ levels were 76 ppb in 2006 and decreased to 71 ppb in 2007 and 2008 despite a 9 percent increase in population over the same time period.

3. The TCEQ data on permitted point sources (see Exhibit O) shows 18 permitted point sources in Travis County alone compared to 5 respectively in Williamson County. Additionally, Bell County on the north side of Williamson County is home to 5 permitted point sources while Bastrop, Caldwell, and Hays Counties have a combined 14 permitted point sources.

4. The permitted point source data for Williamson County show combined emissions of VOC and NO_x (≤ 100 tons per year) that are only a small fraction (< 1 percent) of the emissions in A-RR MSA.

5. Unquantified biogenic emission sources include significant ranching and farming within Williamson County. In addition, there is reason to suspect that ozone and ozone precursors may be transported from sources outside the area into the A-RR MSA.

6. Because the only two ozone monitors in Williamson County have been deactivated, state officials will only be able to infer from modeling rather than measure ozone levels in Williamson County in 2009 and beyond.

7. The population density and degree of urbanization in Williamson County more closely resembles Hays and Bell Counties than Travis County. Williamson County's population density of 326 people per square mile is: (1) only 23 percent greater than the average of Bell, Hays, and Williamson Counties, and (2) 35 percent of Travis County. By contrast, Travis County's population density of 919 people per square mile is: (1) 3.5 times greater than the composite density of Hays, Bell, and Williamson Counties; (2) almost 14.5 times greater than the composite density of Bastrop, Burnet, and Caldwell counties; and (3) more than 5 times the composite density of all six of these other counties combined.

8. The largest city in Williamson County is Round Rock at just over 95 thousand people. The largest city in Travis County is Austin at just over 727 thousand people. Austin is more than 7 times bigger than Round Rock and is positioned south of Round Rock in the prevailing wind direction.

9. Overall projected population growth from 1990 to 2020 in the A-RR MSA plus Burnet and Bell Counties is 2.71 per year.

10. In absolute numbers, Travis County population over this 30-year period is projected to grow by 561 thousand while the population in Bastrop, Bell, Burnet, Caldwell, Hays, and Williamson Counties is projected to grow by 775 thousand in the same time frame.

11. However, this projected incremental growth in the counties outside Travis County is dispersed over a combined area of 5,366 square miles while the Travis County growth will occur over an area of only 1,022 square miles.

13. The difference in population density growth rates alone represents *almost 4 times* as much of a potential impact on the region's air quality coming from growth in Travis County alone compared to the combined growth in the other six counties.

14. The prevailing wind flow in the area is from a southerly-to-southeasterly direction during the ozone formation season. What little air transport that occurs between Williamson County and the Travis County is more likely from Travis County to Williamson County.

15. Williamson County covers 1,136 square miles and is situated in Central Texas, with its southern boundary about 15 miles north-northeast of downtown Austin. Except for moderately urbanized areas along IH-35 and US-183, the county is largely committed to agriculture. County terrains falls away from a peak elevation of about 1,208 feet at the western most boundary to 400 feet at its eastern most boundary.

16. The aerial photos in Exhibit W show that the topography and geography of Williamson County more closely resembles its neighbors outside Travis County than Travis County itself. Geological and geographical features such as deep valleys and mountain ranges or plateaus conducive to the formation of air pollution do not appear to be present in Williamson County.

17. Only one Central Texas county is non-attainment for the 75 ppb eight-hour ozone standard. That county is Travis County. However, four other Central Texas counties (i.e., Williamson, Bastrop, Caldwell, and Hays) are included in the newly formed Austin-Round Rock (A-RR) MSA, but are in attainment with the 75 ppb eight-hour ozone standard.

18. There are active planning efforts and mitigation efforts being conducted by: the Capital Area Council of Governments, Clean Air Task Force of Central Texas, Capitol Area Metropolitan Planning Organization, and Capitol Metro transportation system. The active planning efforts by local agencies show an ability to reduce and maintain ozone levels below the 75 ppb standard.

19. The prevailing meteorological conditions (i.e., southerly to southeasterly) and the relatively insignificant (i.e., less than 1.2 percent) contribution of Williamson County permitted point sources to the inventory, including Williamson County with Travis County as non-attainment for ozone would provide inconsequential reductions in ozone levels in the non-attainment area.

20. At the same time, the additional controls that would be required as a result of this action would severely constrain, if not eliminate, the ability county to develop its resources and bring some independent economic projects to its jurisdiction and thereby reduce the amount of inter-county (Williamson to Travis) commuting currently be experienced. Inside a non-attainment area that is either marginal or moderate in the degree of non-attainment, new projects that emit as little as 100 tons per year of either NO_x or VOC are required to install more stringent controls and address offsets for the new emissions. Outside the non-attainment area, only projects producing more than 250 tons per year of a NAAQS pollutant are required to install more stringent controls. Coupling Williamson County to Travis County as a non-attainment area, USEPA will effectively and dramatically reduce the ability of the county to develop vast areas of ranchland and farmland in the county.

At their December 10, 2008 agenda session, the TCEQ Commissioners raised questions about why the TCEQ staff would not consider air quality data provided by non-state monitors in the absence of state monitors. As stated earlier in this report the state removed its two Williamson County monitors as well as the monitors in Bastrop and Hays Counties from service in December 2008. Without local monitoring data in Williamson County, it is next to impossible to say with any absolute scientific certainty (1) the actual ozone level in Williamson County, (2) the impact of its emissions on the Travis County Non-Attainment Area, or (3) the impact of the Travis County Non-Attainment Area on

Williamson County. Instead, state officials will only be able to infer from modeling rather than measure ozone levels in Williamson County in 2009 and beyond.

Given (1) the chilling effect that being included in the Travis County Non-Attainment Area would have on the ability of Williamson County to grow and develop its resources in the long term and (2) the fact that voluntary efforts in the region have resulted in ozone levels below the 75 ppb standard everywhere but Travis County, it makes a lot of sense to base the decision on *actual, measured environmental data* rather than a *superficial economic statistic* (i.e., commuting percentages) and inferred levels from mathematical models.. In fact, it is entirely possible that preserving the ability of the county to develop its own resources would grow jobs inside Williamson County and actually reduce the commuters from Williamson County to Travis County.

Until such *real* environmental data from monitor(s) on the ground in Williamson County is available, this proposed *inclusion* of Williamson County in the Travis County Non-Attainment Area *is unfounded* based on the preponderance of evidence available.

SECTION 5: Recommendations

While there is *only one economic* statistic or observation that supports including Williamson County in the Austin-Round Rock MSA, there are many more environmental and demographic facts that *do not support* this inclusion. This decision has an enormous effect on the growth and future of Williamson County and should be made only after a careful consideration of sound, scientifically gathered environmental data rather than on a single commuting statistic used to establish the economic relationships within a region.

In this case, voluntary efforts involving governmental agencies (i.e., city, county, and regional) responsible for environmental, health, planning, and transportation in Central Texas over the past decade resulted in a demonstrable decrease in ozone levels since 2000 despite experiencing population growth rates about 3 times the national average. Since the voluntary efforts are achieving what mandatory efforts are intended to do, it makes little sense to implement mandatory measures at this time.

For these reasons, GDS makes the following recommendations:

4. USEPA should reconsider this decision and hold it abeyance until scientifically sound environmental data from state air quality monitors shows that the voluntary measures in the region are not maintaining ozone levels in Williamson County at or below the 75 ppb standard.
5. As USEPA's agent for overseeing air quality programs in Texas, TCEQ should work with stakeholders in Hays, Caldwell, Bastrop, Williamson, and Bell Counties to return the deactivated monitors to service so they can track the effectiveness of the voluntary efforts by determining and measuring:
 - Ground level ozone in Williamson County as well as surrounding counties without monitors.
 - Compliance with the new 8-hour ozone NAAQS.
 - Ozone precursors (i.e., NO_x and VOC)
6. Throughout this process, TCEQ (as agent for USEPA) should meet regularly with and seek input from stakeholders in Hays, Caldwell, Bastrop, Williamson, and Bell Counties regarding the monitoring results, trends, and expected controls.

Until such *environmental data* rather than a *single economic statistic* demonstrates that mandatory controls are required to maintain the 75 ppb standard, it is inappropriate to expand the Travis County Non-attainment Area beyond Travis County at this time.

SECTION 6: Exhibits

Exhibit A: December 4, 2008 letter from Robert Meyers, USEPA revising non-attainment area designations criteria from 11 factors to 9 factors

Exhibit B: Williamson County Community Resolutions Regarding Clean Air

Exhibit C: March 27, 2008, USEPA revising the level of the 8-hour standard from 0.08 parts per million (ppm) to 0.075 ppm published in the *Federal Register*.

Exhibit D: Boundary Guidance on Air Quality Designations for the 8-Hour Ozone National Ambient Air Quality standard (NAAQS) of USEPA

Exhibit E: March 2000 memorandum, John S. Seitz, Director of the USEPA Office of Air Quality Planning and Standards

Exhibit F: General layout and transportation system in and around Williamson County

Exhibit G: TCEQ List of Permitted Point Sources in nine Central Texas Counties

Exhibit H: USEPA AirData maps of specific countywide emissions maps for existing NO_x and VOC emissions

Exhibit I: 2008 Season Highest 8-hour Ozone Values from A-RR MSA

Exhibit J: Distribution of State CAMS Monitors

Exhibit K: Secretary of State County Profiles for Williamson, Hays and Bell Counties

Exhibit L: Capitol Area Metropolitan Planning Organization commuting data for Central Texas

Exhibit M: December 27, 2000 OMB “Standards for Defining Metropolitan and Micropolitan Statistical Areas” published in the *Federal Register*

Exhibit N: Reserved

Exhibit O: Reserved

Exhibit P: Permitted Point Source Emissions and Air Quality Data in Central Texas

Exhibit Q: Reserved

Exhibit R: Reserved

Exhibit S: Secretary of State County Profile for Travis County

Exhibit T: Reserved

Exhibit U: Austin and Waco Meteorological Data from 1984 to 1992

Exhibit V: Map of Central Texas Counties showing bracketing of Williamson County by Austin and Waco Airports

Exhibit W: Aerial photos of Williamson County and surrounding counties

Exhibit X: September 5, 2008 letter from the TCEQ to the Capitol Area Council of Governments

Exhibit Y: August 25, 2008 letter from the Capitol Area Metropolitan Planning Organization (CAMPO) to TCEQ

Exhibit Z: Clean Air Advisory Committee (CACAC) comments to TCEQ on proposal to include designate the A-RR MSA as non-attainment for the new ozone standard