# Austin-Round Rock Metropolitan Statistical Area Annual Air Quality Report January 1, 2014 – December 31, 2014

Prepared by the Capital Area Council of Governments Air Quality Program

July 14, 2015

PREPARED UNDER A GRANT FROM THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

The preparation of this report was financed through grants from the State of Texas through the Texas Commission on Environmental Quality. The content, findings, opinions, and conclusions are the work of the author(s) and do not necessarily represent findings, opinions, or conclusions of the TCEQ.

# **Executive Summary**

This report provides information on local air quality and the status of air quality planning efforts in Austin-Round Rock Metropolitan Statistical Area (MSA) for 2014. The Austin-Round Rock MSA, as defined by the Office of Management and Budget (OMB) in 2013, includes Bastrop, Caldwell, Hays, Travis, and Williamson Counties.

The report was prepared by the Capital Area Council of Governments (CAPCOG) Air Quality Program on behalf of the Central Texas Clean Air Coalition (CAC). CAPCOG is a Texas regional planning commission, established under state law, covering ten counties in Central Texas, including Bastrop, Blanco, Burnet, Caldwell, Fayette, Hays, Lee, Llano, Travis, and Williamson Counties. The CAC is a committee of local elected officials representing jurisdictions that participate in the region's air quality planning efforts. The CAC is the organization that is formally participating in the U.S. Environmental Protection Agency's (EPA) Ozone Advance Program (OAP), and CAPCOG provides staff support to the CAC.

In addition to providing a general overview of the status of air quality in the region, this report also serves as the first annual report for the region's OAP Action Plan, adopted by the CAC in December 2013. As such, the report is designed to fulfill the U.S. Environmental Protection Agency's (EPA's) requirements for annual reporting under the OAP and to provide the region, the Texas Commission on Environmental Quality (TCEQ), and the public at large a regular review of the extent to which the region is meeting its air quality goals. As expressed in the Action Plan, the region's air quality goals are the following:

- 1. Stay in attainment of the 2008 eight-hour ozone NAAQS of 75 parts per billion (ppb);
- 2. Continue reducing the region's 8-hour ozone design value to avoid being designated nonattainment;
- 3. Put the region in the best possible position to bring the area into attainment of an ozone standard expeditiously if it is does violate an ozone standard or gets designated nonattainment;
- 4. Reduce the ozone exposure of vulnerable populations on high ozone days; and
- 5. Minimize the costs to the region of any potential future nonattainment designation.

This report provides updated information on the following:

- The status of ambient air quality in the MSA (Section 1);
- Status updates and data on emission reduction measures implemented as part of the OAP Action Plan in 2014 (Section 2);
- Other data useful for understanding the context of local ozone-related planning efforts (Section 3);
- A summary of ozone-related planning activities conducted in 2014 (Section 4); and
- An outlook for air quality activities in 2015 and beyond (Section 5).

In general, local ground-level ozone concentrations were lower in 2014 than they have been since the state began monitoring air pollution in the region in the 1970s. A combination of favorable meteorology and ongoing emission reductions from federal, state, regional, and local efforts helped the region stay in attainment of all National Ambient Air Quality Standards (NAAQS). A continuation of this trend could put the region in a position to avoid a nonattainment designation for a new ozone NAAQS, even if EPA sets the standard at the lowest level of the 65-70 part per billion (ppb) range it proposed in November 2014.

# Contents

E	xecutive Sum	mary	2
1	Update o	n Air Pollution Levels	7
	1.1 Air P	ollution Monitoring Stations Operated in 2014	7
	1.1.1	Ozone Monitoring	7
	1.1.2	Carbon Monoxide Monitoring	7
	1.1.3	Nitrogen Oxides Monitoring	8
	1.1.4	Particulate Matter Monitoring	8
	1.1.5	Sulfur Dioxide Monitoring	8
	1.1.6	Hydrocarbon Canister Sampling	8
	1.1.7	Summary of Parameters Measured at Local Continuous Air Monitoring Stations	8
	1.2 Loca	I Air Quality Compared to the NAAQS	9
	1.3 Ozor	ne and PM Design Value Trends	11
	1.4 Com	parison of Number of Days with Moderate or Higher Air Pollution	13
	1.5 Accu	iracy of Air Quality Forecasts in 2014	16
	1.6 Estir	nated Seasonal Ozone Exposure for Vegetation	18
2	Status of	Ozone Advance Program Action Plan Emission Reduction Measures	18
	2.1 Volu	ntary Local Emission Reduction Measures	18
	2.1.1	Summary of Implementation Status of Emission Reduction Measures by Organization	20
	2.1.2	Summary of Implementation Status of Emission Reduction Measures by Category	21
	2.1.3	Details on Texas Lehigh Cement Company Voluntary NO <sub>x</sub> Reduction Program	22
	2.2 Regi	onal Emission Reduction Measures	23
	2.2.1	Commute Solutions Program	23
	2.2.2	Air Quality Outreach and Education	24
	2.2.3	DERA Grant Emission Reductions	24
	2.3 State	e Emission Reduction Measures Applicable to the Region	25
	2.3.1	Vehicle Emissions Inspection and Maintenance Program Data	25
	2.3.2	Drive a Clean Machine Program	2/
2	2.3.3	Texas Emission Reduction Plan (TERP) Grants	28
3	Other Da	ta Relevant to Local Air Quality Planning	29
	3.1 Popt	Jiation Data	30
	3.2 Ope	rational Data for OAP Action Plan Participating Organizations	31
	3.2.1	Employees & Commuting Data	31
	3.2.2	Parking	34 24
	3.2.3	Data on Gas, Electricity, and Water Consumption	34 24
	3.2.4 2.2 F	Pieer and Fuer Consumption Data	34 27
	3.2.5	Backup Generators	37 27
	5.2.0 2 7 7	Pood Construction and Maintonance	יכ 27
	5.2.7 2 7 0	Other Operational Data	20
	2.2.0 2.2 Pogi	onal Electricity Data	<u>79</u>
	2.2 Negi	2014 Emissions Data for Electric Congrating Units	40
	5.5.1 2 2 7	Austin Energy Electricity Sales	40 11
	3.3.2 2.2.2	Fnergy Efficiency Deak Demand Savings	+⊥ ∕\?
	221	Energy Efficiency Avoided Emissions	42 //2
	235	Solar Rehate Program	
	3.2.5 3.4 Fmic	sions and Activity Data for Surrounding Counties	 ΔΛ
	341	Activity in the Fagle Ford Shale Oil and Gas Play	44
	<b>UI</b>		

3.4.	2 Point Source Emissions Data from Surrounding Counties	47				
4 Air (	Quality Planning Activities Conducted in 2014	47				
4.1	Clean Air Coalition	47				
4.1.	1 New CAC Members	48				
4.1.	2 CAC Meetings	48				
4.1.	3 Clean Air Coalition Advisory Committee	49				
4.2	Outreach and Education Plan and CACAC Outreach and Education Subcommittee	49				
4.3	CLEAN AIR Force	49				
4.3.	1 Clean Air Partners Program	50				
4.3.	2 Clean School Bus Program	51				
4.3.	3 CAF Board of Directors	51				
4.3.	4 CAF Technical Advisory Committee	52				
4.3.	5 Other CAF Activities	52				
4.4	Technical Research	53				
4.5	Update of Austin Energy Resource, Generation, and Climate Protection Plan Update	54				
5 Loo	king Forward	55				
5.1	Air Quality Plan Update	55				
5.2	New Near-Nonattainment Grant	55				
5.3	CLEAN AIR Force Projects for 2015	55				
5.4	Technical Research Projects Planned for 2015	56				
Conclusio	on	56				
Appendix	A: Complete List of Emission Reduction Measures Reported	58				
CAC M	lembers	59				
Other	Participating Organizations	65				
Appendix	K B: TERMS	69				
Existin	g TERMS Commitments	69				
New T	ERMS	90				
Appendix	C: State Rules and Programs Applicable to the Region	99				
Table 1: /	Air Monitoring Stations in Operation in 2014	8				
Table 2: 2	2012-2014 Design Values for the Austin-Round Rock MSA Compared to All NAAQS	10				
Table 3: (	Ozone and PM <sub>2.5</sub> AQI Values	13				
Table 4: (	Comparison of Current Ozone AQI to EPA's Proposed Ozone AQI Changes	14				
Table 5: V	W126 Ozone Statistics for 2014 by Monitoring Station	18				
Table 6: 9	Status of Annual Air Quality Reporting for 2014	19				
Table 7: S	Summary of Implementation Status of Emission Reduction Measures by Organization	20				
Table 8: 9	Summary of Implementation Status of Emission Reduction Measures by Category	21				
Table 9: (	Commute Solutions Data, January 1, 2014 - December 31, 2014	24				
Table 10:	DERA Grant Emission Reductions, Lifetime Reductions (tons)	25				
Table 11:	Emissions Inspection and Maintenance Tests in Travis and Williamson Counties, 2014	25				
Table 12:	Modeled NO <sub>x</sub> and VOC Reductions from the I-M Program by Vehicle Type	26				
Table 13:	Drive a Clean Machine Data for 2014	28				
Table 14	Table 14: TERP Funding for Austin-Round Rock MSA Area Projects 2002 through 2013 and New in 2014					
		29				
Table 15	CAC County Population Data, 2013-2014	30				
Table 16	CAC City Population Data, 2013-2014	30				
Table 17	: Employees, 2014	31				
Table 18:	Employee Work Schedule Data	32				

Table 19: Avg. Commuting Distance and % of Employees Commuting by Mode	. 33
Table 20: Subsidized Transit Passes for Employees	. 33
Table 21: Parking Data	. 34
Table 22: Organizational Data on Consumption of Natural Gas, Electricity, and Water	. 34
Table 23: Fuel Consumption	. 34
Table 24: Fuel Dispensed	. 35
Table 25: Fuel Consumption	. 36
Table 26: Fleet Data	. 36
Table 27: Generators	. 37
Table 28: Renewable Energy	. 37
Table 29: Road Construction and Maintenance Data	. 38
Table 30: Extent of Roads Maintained & Paved in 2014	. 38
Table 31: Road Striping Material & Asphalt Data	. 38
Table 32: City of Round Rock Demand Response Bus Service Data	. 39
Table 33: Direct Deposit Data	. 39
Table 34: Landscaping Data	. 39
Table 35: Tree Planting and Maintenance Data	. 39
Table 36: Comparison of Local Power Plant NOX Emissions Rates and Efficiencies to Other Areas in Tex	xas
	. 40
Table 37: NO <sub>x</sub> Emissions from Local EGUs on Selected High-Ozone Days, 2014 (tons per day)	. 40
Table 38: Reductions in Austin Energy Peak Demand by Customer Type, FY 2010-2014 (MW)	. 43
Table 39: Austin Energy Estimate of Avoided NOX and VOC Emissions through Energy Efficiency	
Programs for 2014 (tons)	. 43
Table 40: Solar Rebate Installations under Austin Energy Solar Rebate Program, FY 2010-FY 2014 (kW)	) 44
Table 41: 2014 Oil and Gas Production in Eagle Ford Shale Compared to AACOG Projections	. 46
Table 42: NO <sub>x</sub> Emissions from Point Sources in the Austin-Round Rock MSA and Adjacent Counties (to	ns
per year)	.47
Table 43: VOC Emissions from Point Sources in the Austin-Round Rock MSA and Adjacent Counties (to	ons
per year)	.47
Table 44: 2014 CAC Members	.4/
Table 45: Comparison of Recent On-Road Emissions Estimates for the Austin-Round Rock MSA	. 54
Table 46: Status of Emission Reduction Measures by CAC Members	. 59
Table 47: Status of Emission Reduction Measures by Other Participating Organizations	. 65
Table 48: Status of Existing TERIVIS Commitments	. 69
Table 49: New TERMS Reported	.90
Table 50: State Emission Reduction Measures Applicable to the Austin-Round Rock MSA	. 99
Figure 1: Ozone Design Value Trend, 1999-2014	. 12
Figure 2: $PM_{22}$ Design Value Trend, 2003-2014	12
Figure 3: Number of Days in the Austin-Round Rock MSA with Elevated Ozone Levels 1999-2014	14
Figure 4: Number of Days When Ozone Levels Fell Within Proposed Ozone AOI Ranges, 2014	15
Figure 5: Number of Days in 2014 when O <sub>2</sub> or PM Levels were "Moderate" or Worse Based on Current	t
and Proposed AOI	. 16
Figure 6: Austin-Round Rock Area Air Quality Forecasts for 2014	. 17
Figure 7: Average NO <sub>v</sub> Emissions per Hour at Texas Lehigh on Ozone Action Days and Selected	,
"Moderate" Prediction Days	23
Figure 8: I-M Emissions Test Failure Rates, 2008-2014	. 26
Figure 9: Estimated Emission Reductions from I-M Program. 2012, 2015, and 2018 (tons per day)	. 27

Figure 10: Estimated Austin-Round Rock MSA NO <sub>x</sub> Emission Reductions from the TERP Program, 2002	2-
2014	29
Figure 11: Austin Energy Electricity Sales by Customer Type, 2014 (kWh)	42
Figure 12: Peak Austin Energy System Demand, FY 2010-FY 2014 (MW)	43
Figure 13: Wells Permitted and Completed in the Eagle Ford Shale Play, July 1, 2015	45
Figure 14: Eagle Ford Shale Oil Production, 2008-April 2015	46

# 1 Update on Air Pollution Levels

This section provides data on ambient air pollution levels in the Austin-Round Rock MSA through the end of 2014. While traditionally, the region's air quality reports exclusively included data on ambient ozone concentrations, CAPCOG decided to include data on all pollutants measured within the region in order to provide an overall picture of air quality within the region. By providing a fuller picture of ambient air quality data for region, CAPCOG hopes that this report will help policymakers and the public gain a better understanding of how the region's ozone pollution problems fit into the larger context of ambient air quality within the region. This section includes data on the region's compliance with the NAAQS for all pollutants, a review of trends in the design values for ozone and particulate matter (PM), the number of days when air pollution levels reached "moderate" or higher, a review of the accuracy of local air quality forecasts, and the estimated ozone seasonal exposure for vegetation.

## **1.1 Air Pollution Monitoring Stations Operated in 2014**

TCEQ and CAPCOG both operated a number of continuous air monitoring stations (CAMS) within the Austin-Round Rock MSA in 2014. Pollutants measured included ozone  $(O_3)$ , carbon monoxide (CO), nitrogen oxides  $(NO_x)$  – which includes nitrogen oxide (NO) and nitrogen dioxide  $(NO_2)$ , fine particulate matter  $(PM_{2.5})$ , coarse particulate matter  $(PM_{10})$ , sulfur dioxide  $(SO_2)$ , and hydrocarbons (HC). There are no lead monitoring stations within the region. Major changes in the network included in 2014 included the following:

- TCEQ started operating CAMS 1026 on September 4, 2014, in order to monitor PM<sub>2.5</sub> levels near a foundry in East Austin.
- TCEQ started operating CAMS 1068 on April 16, 2014, in order to fulfill the requirement for a nearroad NO<sub>2</sub> monitor for core-based statistical areas (CBSAs) with populations of 500,000 or more under 40 CFR Part 58 Appendix D.
- TCEQ suspended monitoring of CO at CAMS 3 in late 2014 due to measurements continuing to show ambient levels far below the level of the NAAQS.
- CAPCOG converted two research ozone monitors that had been operated on a temporary basis in 2013 into full-fledged CAMS that report to TCEQ's web-based data collection system (CAMS 1603 – Gorzycki Middle School and CAMS 1604 – Lockhart).

## 1.1.1 Ozone Monitoring

For  $O_3$ , there are nine monitoring stations that collected ozone data in 2014, two of which meet full federal regulatory requirements –CAMS 3 and CAMS 38, which are operated by TCEQ. The other seven ozone monitoring stations are operated by CAPCOG and are used for research purposes, but do not meet full regulatory requirements. Apart from the addition of CAMS 1603 and CAMS 1604 to the network on a permanent basis, the other event of note in the network was the relocation of instruments at CAMS 6602 (Hutto), which caused problems for the data for the entirety of the ozone season. The equipment was moved to a third, better location in 2015 and future data collected at CAMS 6602 should not suffer from the same problems as occurred in 2014.

## 1.1.2 Carbon Monoxide Monitoring

For carbon monoxide CO, there was only one monitoring station that collected data in 2014 – CAMS 3. CO data had been collected at this station for several years, and collected data in 2014 through

November 26, at which point TCEQ suspended data collection due to pollution levels consistently far below the level of the NAAQS.

## 1.1.3 Nitrogen Oxides Monitoring

There are two monitoring stations that collected data on  $NO_x$  in 2014 – CAMS 3 and the new CAMS 1068. Neither one of these stations has the full three years of data necessary for a comparison to the NAAQS.

## 1.1.4 Particulate Matter Monitoring

For fine particulate matter ( $PM_{2.5}$ ), while there are five stations that collect  $PM_{2.5}$  data, only two – CAMS 38 and CAMS 171 – have Federal Reference Method (FRM)  $PM_{2.5}$  sampling. These two stations are also the only two stations that collect coarse particulate matter ( $PM_{10}$ ) data, both of which conform to the FRM. CAMS 326 and 1026 are equipped with tapered element oscillating microbalance (TEOM) instruments and are designed to measure micro-scale  $PM_{2.5}$  levels associated with a nearby foundry. CAMS 3 is also equipped with a TEOM.

## 1.1.5 Sulfur Dioxide Monitoring

For SO<sub>2</sub>, the only sampler in operation in 2014 was at CAMS 3. The station's SO<sub>2</sub> sampler has been collecting data since November 30, 2012. Since there is less than a full three years of data required for comparison to the NAAQS, , there is no full design value for SO<sub>2</sub> for 2012-2014.

## 1.1.6 Hydrocarbon Canister Sampling

CAMS 171 is equipped with a canister sampler that is used by TCEQ toxicologists to analyze the levels of certain HC species to compare them to effects screening levels (ESLs) as part of their annual toxicological evaluations for each region. These data can also be used to measure the hydrocarbon species that are considered volatile organic compound (VOC) concentrations.

## 1.1.7 Summary of Parameters Measured at Local Continuous Air Monitoring Stations

Table 1 below shows a list of all of the air monitoring stations operated in the Austin-Round Rock MSA in 2014, including the pollutant parameters measured and meteorological parameters measured. Meteorological parameters include wind speed (WS), wind direction (WD), outdoor temperature (Temp.), and solar radiation.

Monitoring Station AQS Number	Monitoring Station CAMS Number	County	Owner	Pollution Parameters Measured in 2014	Meteorological Parameters Measured in 2014
484530014	CAMS 0003	Travis	TCEQ	CO, NO <sub>X</sub> (NO and NO <sub>2</sub> ) O <sub>3</sub> , PM <sub>2.5</sub> (TEOM), SO <sub>2</sub>	WS, WD, Temp.
484530020	CAMS 0038	Travis	TCEQ	O <sub>3</sub> , PM <sub>2.5</sub> (FRM), PM <sub>2.5</sub> (TEOM), PM <sub>10</sub>	WS, WD, Temp., Solar Radiation

#### Table 1: Air Monitoring Stations in Operation in 2014

Monitoring Station AQS Number	Monitoring Station CAMS Number	County	Owner	Pollution Parameters Measured in 2014	Meteorological Parameters Measured in 2014
484530021	CAMS 0171	Travis	TCEQ	PM <sub>2.5</sub> (FRM), PM <sub>2.5</sub> (TEOM), PM <sub>10</sub> , HC	WS, WD, Temp.
484530326	CAMS 0326	Travis	TCEQ	PM <sub>2.5</sub> (TEOM)	WS, WD, Temp.
484531026	CAMS 1026	Travis	TCEQ	PM <sub>2.5</sub> (TEOM)	WS, WD, Temp.
484531068	CAMS 1068	Travis	TCEQ	NO <sub>X</sub> (NO and NO <sub>2</sub> )	WS, WD, Temp.
482090614	CAMS 0614	Hays	CAPCOG	O <sub>3</sub>	WS, WD, Temp.
480210684	CAMS 0684	Bastrop	CAPCOG	O <sub>3</sub>	WS, WD, Temp.
484910690	CAMS 0690	Williamson	CAPCOG	O <sub>3</sub>	WS, WD, Temp.
484531603	CAMS 1603	Travis	CAPCOG	O <sub>3</sub>	WS, WD, Temp.
480551604	CAMS 1604	Caldwell	CAPCOG	O <sub>3</sub>	WS, WD, Temp.
482091675	CAMS 1675	Hays	CAPCOG	O <sub>3</sub>	WS, WD, Temp.
484916602	CAMS 6602	Williamson	CAPCOG	O <sub>3</sub>	WS, WD, Temp.

# 1.2 Local Air Quality Compared to the NAAQS

As of the end of 2014, the Austin-Round Rock MSA remains in attainment of all NAAQS. **Error! Reference source not found.** shows the region's "design value," which is the statistic used to compare monitoring data to a NAAQS. As the table shows, ozone remains the pollutant that the region is closest to violating in terms of the design value compared to the level of the standard – at 92% of the NAAQS. The region's annual PM<sub>2.5</sub> levels are the next-highest, at 79% of the NAAQS.

Pollutant	Type of Standard	Averaging Time	Concentration	2012-2014 Design Value	% of NAAQS Level
СО	Primary	8-hour	9 ppm	0.4 ppm	4%
СО	Primary	1-hour	35 ppm	0.5 ppm	1%
Lead	Primary and Secondary	3 months	0.15 μg/m <sup>3</sup>	Not Monitored	n/a
NO <sub>2</sub>	Primary	1-hour	100 ppb	Less than 3 years of data	n/a
NO <sub>2</sub>	Primary and secondary	Annual	53 ppb	Less than 3 years of data	n/a
<b>O</b> <sub>3</sub>	Primary and Secondary	8-hour	0.075 ppm	0.069 ppm	92%
PM <sub>2.5</sub>	Primary	Annual	12 μg/m³	9.5 μg/m <sup>3</sup>	79%
PM <sub>2.5</sub>	Secondary	Annual	15 μg/m³	9.5 μg/m <sup>3</sup>	63%
PM <sub>2.5</sub>	Primary and Secondary	24-hour	35 μg/m³	23.3 μg/m <sup>3</sup>	67%
PM <sub>10</sub>	Primary and Secondary	24-hour	150 μg/m³	0 Expected Exceedances (4 <sup>th</sup> High = 58 μg/m <sup>3</sup> ) <sup>1</sup>	39%
SO2	Primary	1-hour	75 ppb	Less than 3 years of data	n/a
SO <sub>2</sub>	Secondary	3-hour	0.5 ppm	Less than 3 years of data	n/a

 Table 2: 2012-2014 Design Values for the Austin-Round Rock MSA Compared to All NAAQS

Due to very low ozone levels throughout the 2014 ozone season, the region's ozone design value dropped from 73 ppb in 2013 to 69 ppb in 2014. At this level, the region's ozone measurements are at 92% of the 2008 ozone NAAQS, and would be in compliance of a new ozone NAAQS if EPA set the standard at the higher end of the 65-70 ppb range proposed in November 2014. The 4<sup>th</sup> highest daily maximum 8-hour ozone averages measured at CAMS 3 and 38 were only 62 and 63 ppb, respectively, in 2014. This means that the area's 2014-2016 ozone design value could be in attainment of a 65 ppb standard if the average 4<sup>th</sup> highest daily maximum 8-hour ozone averages for 2015 and 2016 were as high as 67.5 ppb and 67 ppb at CAMS and CAMS 38, respectively. For comparison, the 4<sup>th</sup> highest daily maximum 8-hour ozone averages at CAMS 3 and 38 in 2013 were 69 ppb and 70 ppb, respectively, 7 ppb higher than the 4<sup>th</sup> highest daily maximum 8-hour ozone average for each station in 2014.

<sup>&</sup>lt;sup>1</sup> While the design value for  $PM_{10}$  is expressed in terms of expected number of exceedances, an alternative way to compare monitoring data to the  $PM_{10}$  NAAQS is to compare a monitor's fourth highest 24-hour average over a three-year period. A monitor would be exceeding the NAAQS if that fourth highest value exceeded 150 µg/m<sup>3</sup> and meeting the standard if the fourth highest value was 150 µg/m<sup>3</sup> or less. Using this type of a comparison, the peak 4<sup>th</sup> highest PM10 concentration at a monitoring station from 2012-2014 was 58 µg/m<sup>3</sup>, which translates into 39% of the NAAQS.

The region's annual  $PM_{2.5}$  levels for 2012-2014 were 79% of the annual  $PM_{2.5}$  NAAQS, and 67% of the 24hour  $PM_{2.5}$  NAAQS. Based on information provided by TCEQ in its daily air quality forecasts, elevated  $PM_{2.5}$  levels within the region can often be attributed to international pollution transport, including Central American agricultural burning and Saharan dust. The region's  $PM_{10}$  levels remain well below the  $PM_{10}$  NAAQS – the region's fourth highest 24-hour  $PM_{10}$  concentration for 2012-2014 was only 39% of the level of the  $PM_{10}$  NAAQS.

While there are two regulatory NO<sub>2</sub> monitors that collected data in 2014, these monitors do not have sufficient data for 2012-2014 in order to meet the necessary data completeness requirements for a direct comparison to the NO<sub>2</sub> NAAQS. However, based on the data collected through the end of 2014, including at the new near-road NO<sub>2</sub> monitor (CAMS 1068), local NO<sub>2</sub> levels appear to be well below both NO<sub>2</sub> NAAQS. Using the forms of the NO<sub>2</sub> NAAQS as a point of comparison, the annual mean NO<sub>2</sub> concentrations and the 98<sup>th</sup> percentile of daily maximum one-hour NO<sub>2</sub> levels at CAMS 3 in 2014 were 5 ppb and 30 ppb, respectively (9% of the annual NO<sub>2</sub> monitor located along interstate highway 35 (IH-35), started collecting data on April 16, 2014. CAMS 1068's annual average NO<sub>2</sub> concentration was 14 ppb (26% of the NAAQS) and its 98<sup>th</sup> percentile of daily peak 1-hour averages was 46 ppb (46% of the NAAQS). Both of these levels are higher than levels measured at CAMS 3, but are also well below the level of the annual and 1-hour NO<sub>2</sub> NAAQS.

Since  $SO_2$  data collection at CAMS 3 didn't begin until November 2012, there is not sufficient data in 2012 to enable a full 2012-2014 design value. In both 2013 and 2014, the values for the 99<sup>th</sup> percentile of daily peak 1-hour  $SO_2$  averages were both 5 ppb – only 7% of the level of the hourly  $SO_2$  NAAQS.

Carbon Monoxide CO data was collected at CAMS 3 through November 2014. Both the 8-hour and 1-hour concentrations were far below the level of the NAAQS: 4% of the 8-hour NAAQS and 1% of the 1-hour NAAQS, respectively.

# 1.3 Ozone and PM Design Value Trends

As Figure 1 below shows, the Austin-Round Rock MSA's ozone design value declined sharply in 2014. This was based on the very low ozone levels measured in 2014, with a fourth highest daily maximum 8-hour ozone average of only 63 ppb at CAMS 38. From 1999 to 2014, the design value trend shows a typical decrease of about 1.3 ppb each year, while the decrease between 2013 and 2014 was more than three times that. As a result of the ozone levels measured in 2014, the Austin-Round Rock MSA's design value is now low enough that it could be in compliance with the higher end of the range of values EPA is considering for the new 2015 ozone standard (65-70 ppb).

Figure 1: Ozone Design Value Trend, 1999-2014



Unlike the clear downward trend in local ozone levels, there has not been much change in  $PM_{2.5}$  levels over the past 12 years. Figure 2 below shows the  $PM_{2.5}$  design values for the region from 2003-2014, based on the 2012  $PM_{2.5}$  NAAQS.<sup>2</sup>

Figure 2: PM<sub>2.5</sub> Design Value Trend, 2003-2014



<sup>&</sup>lt;sup>2</sup> Design values for 2003-2013 are based on EPA's design value spreadsheet for PM<sub>2.5</sub>, found online at: <u>http://www.epa.gov/airtrends/pdfs/PM25\_DesignValues\_20112013\_FINAL\_08\_28\_14.xlsx</u>. In the spreadsheet, EPA notes that the Austin area's design values for 2003-2009 are not considered valid any longer based on the EPA's new rules for the 2012 PM<sub>2.5</sub> NAAQS.

# **1.4 Comparison of Number of Days with Moderate or Higher Air Pollution**

While EPA uses design values in order to assess whether an area is formally complying with a NAAQS or not, an area can be in compliance with the NAAQS but still have air pollution levels high enough to be considered "moderate" or even "unhealthy for sensitive groups" several times a year. An alternative way to characterize local air quality is to count the number of days when air pollution levels were high enough to be considered "moderate" or worse. The table below shows the ozone and particulate matter levels associated with the various Air Quality Index (AQI) levels.

AQI Level	8-Hour Ozone Concentrations (ppb)	24-Hour PM <sub>2.5</sub> Concentrations (µg/m3)
Good	0 – 59	0.0 - 12.0
Moderate	60 – 75	12.1 – 35.4
Unhealthy for Sensitive Groups	76 – 95	35.5 – 55.4
Unhealthy	96 – 115	55.5 – 150.4
Very Unhealthy	116 - 374	150.5 – 250.4
Hazardous	375 – 600	350.5 – 500

Table 3: Ozone and PM<sub>2.5</sub> AQI Values

Air pollution levels reached "moderate" levels on 107 days in 2014 – 29% overall – but there were no days when air pollution levels were high enough to be considered unhealthy for sensitive groups or worse. 24-hour PM<sub>2.5</sub> levels were considered "moderate" on 87 days in 2014 and 8-hour ozone levels were considered "moderate on 27 days, with seven days when both PM<sub>2.5</sub> and ozone levels were "moderate."

These data indicate that, while the region's 2012-2014 ozone design value is closer to the ozone NAAQS than the region's  $PM_{2.5}$  design values,  $PM_{2.5}$  concentrations more frequently reached "moderate" levels than ozone concentrations did in 2014. This is partly due to the recent revision to the  $PM_{2.5}$  AQI. Prior to December 2012, "moderate" 24-hour  $PM_{2.5}$  levels were considered 15-40 µg/m<sup>3</sup>. Of the 87 days when  $PM_{2.5}$  levels were considered "moderate" in 2014, 48% of those were 24-hour concentrations in the 12.1 – 14.9 µg/m<sup>3</sup> range that had previously been considered "good" prior to the 2012  $PM_{2.5}$  NAAQS.

Figure 3 below shows the total number of days when ozone levels reached "moderate," "unhealthy for sensitive groups", or "unhealthy" levels from 1999-2014. For the first time in this period, the Austin-Round Rock MSA measured no days when ozone levels were considered "unhealthy for sensitive groups" according to the Air Quality Index (AQI), which includes daily maximum 8-hour ozone concentrations of 76-95 ppb. 2014 also experienced the lowest number of total days when ozone levels were moderate or higher during this period.



Figure 3: Number of Days in the Austin-Round Rock MSA with Elevated Ozone Levels, 1999-2014

EPA's proposed change to the ozone NAAQS also included proposed changes to the AQI, which would affect how the number of days considered "moderate" or higher would be counted. Table 4 below shows the proposed changes.

AQI Level	2008 NAAQS (ppb)	Proposed 70 ppb Standard Level	Proposed 65 ppb Standard Level
Good	0 – 59	0 – 54	0 – 49
Moderate	60 – 75	55 - 70	50 – 65
Unhealthy for Sensitive Groups	76 – 95	71 – 85	66 – 85
Unhealthy	96 – 115	86 – 105	86 - 105
Very Unhealthy	116 - 374	105 – 374	105 – 374
Hazardous	375 – 600	375 – 600	375 – 600

Table 4: Comparison of Current Ozone AQI to EPA's Proposed Ozone AQI Changes

Using the proposed AQI levels as a reference point, CAPCOG reanalyzed the 2014 ozone levels measured within the region compared to these levels. Figure 4 below shows the number of days when ozone levels would have been considered "good," "moderate," and "unhealthy for sensitive groups" based on these proposed AQI levels.



Figure 4: Number of Days When Ozone Levels Fell Within Proposed Ozone AQI Ranges, 2014

Based on this distribution, there would have been 90 days when ozone levels were "moderate" or higher based on a potential 65 ppb standard, and 49 days when ozone levels were "moderate" or higher based on a 70 ppb standard. In total, this would mean either 157 or 122 days when either the ozone or PM<sub>2.5</sub> AQI reached "moderate" or "unhealthy for sensitive group" levels in 2014, including either 20 or 14 days when the AQI level was "moderate" or higher for both pollutants. Figure 5 below summarizes these data for the current AQI and the AQI levels associated with the proposed 70 ppb and 65 ppb proposed NAAQS.



#### Figure 5: Number of Days in 2014 when O<sub>3</sub> or PM Levels were "Moderate" or Worse Based on Current and Proposed AQI

This analysis indicates that the same particularly sensitive groups that could be affected by ozone levels in the "moderate" range may also benefit by paying attention to PM forecasts, since PM concentrations reached "moderate" or higher levels much more frequently than ozone levels do compared to the current AQI, about as frequently as the number of days when ozone would have been considered "moderate" or higher under the strictest level of the ozone NAAQS EPA has proposed, and there is not much overlap between the two sets of days.

# 1.5 Accuracy of Air Quality Forecasts in 2014

Accurate air quality forecasting is important for the regional air quality plan, both in terms of helping ensure that people can take action to reduce their exposure to high levels of air pollution when it occurs and in terms of implementing certain emission reduction measures that are tied to air quality forecasts. For example, the Texas Lehigh Cement Company implements a voluntary NO<sub>x</sub> reduction measure on predicted high ozone days and people may choose to take individual actions on predicted high ozone days to reduce their emissions on those days. Such measures would be considered "episodic" voluntary measures, according to EPA's guidance on incorporating voluntary emission reduction measures into the SIP. Measuring the accuracy of such forecasts would be important to establishing the appropriate level of emission reduction "credit" that should be assigned to voluntary emission reduction efforts tied to such forecasts.

Each weekday, TCEQ meteorologists issue air quality forecasts for PM<sub>2.5</sub> and ozone. From a public health perspective, days when air quality was forecast to be "good" was actually "moderate" or higher (a false negative) would be a problem because people who might otherwise take steps to reduce personal exposure based on an air quality forecast would not have done so on such a day. For emission reduction efforts – to some extent, days that were forecast to be "moderate" or worse but turned out to be

"good" (a false positive) could reduce the willingness of people to take action on such days, although – at levels that might be close to the dividing line between AQI levels, it's possible that such efforts could also have reduced enough emissions to change a day that would have otherwise been a "moderate" day into a "good" day or an "unhealthy for sensitive groups" day into a "moderate" day. Figure 6 below shows the number of days when: a) TCEQ forecast "good" pollution levels and the monitored levels were, in fact, "good", b) TCEQ forecast "moderate" or higher pollution levels and monitored levels were, in fact, "moderate" or higher, c) TCEQ forecast "good" pollution levels and monitored levels were "moderate" or higher, and d) TCEQ forecast "moderate" or higher levels, and monitored levels were "good."



Figure 6: Austin-Round Rock Area Air Quality Forecasts for 2014

Overall, TCEQ's forecasts were correct 81% percent of the time for PM<sub>2.5</sub> levels and 90% of the time for ozone levels, including days when TCEQ correctly projected air quality to be "good" and actual air pollution levels were in fact "good." TCEQ correctly issued a "moderate" forecast for PM<sub>2.5</sub> on 54 days in 2014, which accounts for 60% of the days when TCEQ issued a "moderate" PM<sub>2.5</sub> forecast for the region and 62% of the days when actual PM<sub>2.5</sub> concentrations measured in the region reached "moderate" levels. For ozone, TCEQ correctly issued a "moderate" ozone forecast on 18 days, making up 41% of all of TCEQ's "moderate" ozone forecasts and 67% of all days when 8-hour ozone concentrations measured in the region actually reached "moderate" levels. TCEQ issued only one Ozone Action Day alert in 2014, for August 14, 2014. Ozone levels were "moderate" on this day, but only reached a peak of 63 ppb, and this day was not the day with the highest overall ozone levels within the region.

## **1.6 Estimated Seasonal Ozone Exposure for Vegetation**

In EPA's current review of the secondary standard for ozone, it indicated that the best way to measure the impact of ozone levels on vegetation was by using a seasonal exposure index that uses a three-month average of weighted one-hour ozone concentrations from 8 am – 8 pm. CAPCOG has calculated this statistic – known as "W126" – for the nine ozone monitors that collected data in the Austin-Round Rock MSA in 2014. Table 5 shows the peak 3-month sum of the daily W126 indices. Data for CAMS 6602 is not included due to the siting issues encountered in 2014 that are described earlier in this section.

Station	Name	County	W126 Statistic (ppm-hours)
CAMS 3	Austin Northwest	Travis	5
CAMS 38	Audubon	Travis	3
CAMS 614	Dripping Springs	Hays	4
CAMS 684	McKinney Roughs	Bastrop	1
CAMS 690	Lake Georgetown	Williamson	5
CAMS 1603	Gorzycki Middle School	Travis	2
CAMS 1604	Lockhart	Caldwell	3
CAMS 1675	San Marcos Staples Rd.	Hays	3

#### Table 5: W126 Ozone Statistics for 2014 by Monitoring Station

# 2 Status of Ozone Advance Program Action Plan Emission Reduction Measures

This section provides details on the OAP Action Plan emission reduction measures that were implemented within the Austin-Round Rock MSA in 2014. These include:

- Organization-specific commitments made by city governments, county governments, regional agencies, state agencies, non-profit groups, and private sector firms;
- Additional measures implemented by participating organizations specific commitments listed in the OAP Action Plan;
- Emission reduction measures implemented on a regional basis; and
- State rules and programs applicable to the region.

## 2.1 Voluntary Local Emission Reduction Measures

This section provides an update on implementation status of a number of emission reduction measures that were committed to as part of the OAP Action Plan, other measures that may have been implemented and reported on by participating organizations above and beyond any commitments they may have made, and any new commitments that organizations are making. The commitments that were in effect during 2014 are found in sections 3.2 and 3.3 of the OAP Action Plan, and – for Transportation Emission Reduction Measures (TERMS) – in Appendix C of the OAP Action Plan. New commitments from the City of Pflugerville in 2014 were also added to the list of emission reduction measure commitments.

In May-June 2015, CAPCOG surveyed participating organizations in order to check on the status of each of the emission reduction measures each organization committed to implement. Table 6 shows the

organizations that had responded as of July 13. If CAPCOG receives any additional information later, we will either submit that information as an addendum or submit an updated version of this report.

Table 6: Status of	<b>Annual Air</b>	Quality	Reporting	for 2014
--------------------	-------------------	---------	-----------	----------

Organization	Category	Report Submitted as of 7/13/2015
Bastrop County	CAC Member	$\boxtimes$
Caldwell County	CAC Member	
Hays County	CAC Member	$\boxtimes$
Travis County	CAC Member	$\boxtimes$
Williamson County	CAC Member	$\boxtimes$
City of Austin	CAC Member	$\boxtimes$
City of Bastrop	CAC Member	
City of Cedar Park	CAC Member	$\boxtimes$
City of Elgin	CAC Member	$\boxtimes$
City of Georgetown	CAC Member	$\boxtimes$
City of Hutto	CAC Member	$\square$
City of Lockhart	CAC Member	$\boxtimes$
City of Luling	CAC Member	
City of Pflugerville	CAC Member	
City of Round Rock	CAC Member	$\boxtimes$
City of San Marcos	CAC Member	
City of Sunset Valley	CAC Member	$\boxtimes$
CAPCOG	Participating Organization	$\boxtimes$
Capital Area Metropolitan Planning Organization (CAMPO)	Participating Organization	
Capital Metropolitan Transit Agency (CapMetro)	Participating Organization	$\boxtimes$
Central Texas Regional Mobility Authority (CTRMA)	Participating Organization	
CLEAN AIR Force	Participating Organization	$\boxtimes$
Lone Star Clean Fuels Alliance (LSCFA)	Participating Organization	
Lower Colorado River Authority (LCRA)	Participating Organization	$\boxtimes$
Texas Commission on Environmental Quality (TCEQ)	Participating Organization	$\boxtimes$
Texas Department of Transportation (TxDOT) – Austin District	Participating Organization	
TxDOT – Headquarters	Participating Organization	$\boxtimes$
Texas Lehigh Cement Company	Participating Organization	$\boxtimes$
Texas Nursery and Landscaping Association	Participating Organization	$\boxtimes$

Full lists of emission reduction measures implemented are included in the appendices to this report. This section provides summaries of the data submitted.

#### 2.1.1 Summary of Implementation Status of Emission Reduction Measures by Organization

CAPCOG reviewed survey responses and tabulated the total number of each organization's emission reduction measure commitments, the number of those commitments that were implemented, the number of additional measures that were implemented beyond the organization's existing commitments, and the number of additional commitments each organization made. While the sheer number of emission reduction measures an organization implemented isn't necessarily the best indicator for the scale of the emission reductions achieved, they do provide some insight into the level of effort involved by participating organizations in 2014. "NR" indicates that the organization did not provide a report as of June 29, 2015. For certain measures that involve an organization making an option available, such as work schedule changes or transit-oriented development incentives, the organization is considered to have implemented their commitment if the option remained available, even if it was not taken advantage of during 2014. Table 7 summarizes the implementation status for each organization.

Organization	Existing Commitments Reported On	Commitments Implemented in 2014	Commitments Not Implemented in 2014	Other Measures Implemented in 2014	Measures to be Implemented in 2015	New Commitments Made for 2015- 2018	Commitments Not Reported On
Bastrop County	17	10	7	2	2	0	0
Caldwell County	0	0	0	0	0	0	9
Hays County	15	13	2	7	0	0	0
Travis County	20	20	0	9	0	0	0
Williamson County	16	16	0	3	0	0	0
City of Austin	34	34	0	0	0	0	0
City of Bastrop	0	0	0	0	0	0	23
City of Cedar Park	23	23	0	1	0	0	0
City of Elgin	12	10	2	1	0	0	0
City of Georgetown	13	1	12	0	3	1	0
City of Hutto	7	4	3	8	8	8	0
City of Lockhart	16	16	0	2	0	0	0
City of Luling	0	0	0	0	0	0	6
City of Round Rock	22	22	0	3	3	3	0
City of Pflugerville	0	0	0	0	0	0	6
City of San Marcos	0	0	0	0	0	0	14
City of Sunset Valley	15	15	0	0	0	0	0
CAPCOG	7	7	0	0	0	0	0
САМРО	11	10	1	0	0	0	0

 Table 7: Summary of Implementation Status of Emission Reduction Measures by Organization

Organization	Existing Commitments Reported On	Commitments Implemented in 2014	Commitments Not Implemented in 2014	Other Measures Implemented in 2014	Measures to be Implemented in 2015	New Commitments Made for 2015- 2018	Commitments Not Reported On
CapMetro	35	21	14	4	2	2	0
CTRMA	13	13	0	4	0	0	0
CAF	6	6	0	0	0	0	0
LCRA	8	8	0	0	0	0	0
TCEQ	14	14	0	3	1	0	0
TxDOT-Austin	15	12	3	16	15	15	0
TxDOT-HQ	4	4	0	3	0	0	0
Texas Lehigh	1	1	0	0	0	0	0
TNLA	2	2	0	0	0	0	0
TOTAL	326	282	44	66	34	29	58

#### 2.1.2 Summary of Implementation Status of Emission Reduction Measures by Category

CAPCOG also tabulated the status of emission reduction measures by emission reduction category, as show in Table 8.

 Table 8: Summary of Implementation Status of Emission Reduction Measures by Category

Emission Reduction Measure Type	Existing Commitments Reported On	Commitments Implemented in 2014	Commitments Not Implemented in 2014	Implemented in 2014	Measures to be Implemented in 2015	New Commitments Made for 2015- 2018	Commitments Not Reported On
Commute Solutions	59	48	11	14	4	4	6
Development Measures	31	27	4	8	1	1	3
Energy and Resource Conservation	25	22	3	12	7	5	7
Fleet and Fuel Efficiency Measures	73	61	12	15	14	13	17
Outreach and Awareness	64	59	5	3	0	0	11
Regulation and Enforcement	19	15	4	4	2	2	5
Sustainable Procurement and Operations	55	50	5	10	6	4	9
TOTAL	326	282	44	66	34	29	58

## 2.1.3 Details on Texas Lehigh Cement Company Voluntary NO<sub>X</sub> Reduction Program

Texas Lehigh Cement Company is a manufacturing plant in Hays County and is equipped with a selective non-catalytic reduction (SNCR) system that achieves 30-50% reductions of NO<sub>x</sub> emissions. Texas Lehigh is subject to the requirements of 30 TAC Chapter 117, Subchapter E, Division 2 –Cement Kilns. Under this rule, Texas Lehigh chose the technology option under \$117.3110 – Emission Specifications. The company installed the SNCR system in December 2008, and operates the system to comply with the established NO<sub>x</sub> emission limits.

As part of Texas Lehigh's OAP participation in the regional air quality plan, plan management increases SNCR operation to reduce the  $NO_x$  emitted between 9:00 am and 3:00 pm to about 300 pounds per hour during ozone action days and selected days when ozone is predicted to be "moderate." On predicted "moderate" days, Texas Lehigh and CAPCOG staff will consult with one another to evaluate whether implementing the measure on the following day would help reduce peak ozone within the region. The days in 2014 when Texas Lehigh implemented this measure are listed below:

- April 4;
- May 2, 3, 15, 16, 29, and 31;
- June 11 and 13;
- July 4 and 5;
- August 14, 27, and 28;
- September 24, 27, 28, 29, and 30; and
- October 24, 25, and 26.

Texas Lehigh provided hourly emissions data for these days. Figure 7 shows the average NO<sub>x</sub> emissions for each hour on days when Texas Lehigh implemented this measure. The average emissions rate from midnight to 9 am on such days was 624 pounds per hour, compared to an average rate of 324 pounds per hour from 9 am – 3 pm, a 48% reduction. This results in an overall reduction in NO<sub>x</sub> emissions on such days of approximately 0.90 tpd.



Figure 7: Average NO<sub>x</sub> Emissions per Hour at Texas Lehigh on Ozone Action Days and Selected "Moderate" Prediction Days

## 2.2 Regional Emission Reduction Measures

Regional measures include measures that are implemented or tracked at a regional level, as opposed to the voluntary measures implemented by just one organization participating in this plan. These measures are described in section 3.1 of the OAP Action Plan. This section includes updates on the Commute Solutions program and regional air quality outreach and education efforts. It also includes data on the Diesel Emission Reduction Act (DERA) grant that CAPCOG administered for the region in 2014.

## 2.2.1 Commute Solutions Program

The CAMPO Commute Solutions program serves as an informational and educational resource center for residents, employees, and visitors who travel to and within the six CAMPO counties. Commute Solutions is a voluntary trip reduction program that was created in response to federal requirements for designated Metropolitan Planning Organizations, like CAMPO, to manage congestion, improve air quality, and promote energy conservation. The program offers information and resources on transportation options such as carpools, vanpools, transit, bicycling, and walking, as well as provides information on work schedule alternatives such as flextime, compressed workweeks, and teleworking. Commute Solutions of Central Texas comprises coalition partners from regional businesses and governmental entities.

The myCommuteSolutions.com website provides encouragement, incentives, and support for commuters to use alternative modes (such as walking, cycling, ridesharing, public transit, and teleworking), alternate work hours, and other efficient transportation options. The myCommuteSolutions website is a ridematching and trip planning tool that allows registered users to

search for commuting partners, explore sustainable travel options, search single trip matching, and log their commutes for incentives and data collection. By logging their commute, users can track fuel and money saved, calories burned, and emissions avoided. A key feature of myCommuteSolutions.com is the ability to offer employers, cities, universities, colleges, and organizations a custom sub-site at no cost to the individual or employer. Employers can use the myCommuteSolutions framework to set up their own ridematching and trip-planning site. They can manage incentives, collect data, and promote the program to suit their needs. Samsung, the City of Austin, Travis County, Texas State University, NetSpend, Austin Community College, and others are using custom myCommuteSolutions sub-sites.

Table 9 provides program statistics for 2014.

Data Item	Number
Total Page Hits for CommuteSolutions.com	35,518
Number of Custom Sub-Sites Maintained in MyCommuteSolutions.com as of 12/31/2014	13
Number of Registered Users for MyCommuteSolutions.com as of 12/31/2014	3,194
Total Miles of Commuting Logged	565,431
Total Miles of Alternative Commuting Logged	464,982
Miles of Carpool Commuting Logged	178,091
Miles of Vanpool Commuting Logged	15,421
Miles of Bus Commuting Logged	127,270
Miles of Rail Commuting Logged	65,576
Miles of Bicycle Commuting Logged	54,446
Miles of Walking Commuting Logged	8,946
Miles of Telework Logged	15,232
NO <sub>x</sub> Emissions Reduced	290.7 lbs
VOC Emissions Reduced	1,224.9 lbs
Fuel Saved	17,525 gal.

## 2.2.2 Air Quality Outreach and Education

In December 2014, CAPCOG prepared an extensive report on regional air quality outreach and education activities conducted during the 2014 ozone season and data related to those activities. That report is available online at

http://www.capcog.org/documents/airquality/reports/COA\_Outreach\_and\_Education\_2014\_Final\_Rep\_ort.pdf.

## 2.2.3 DERA Grant Emission Reductions

In 2012, CAPCOG was awarded a grant from the EPA under the DERA program in order to replace and repower diesel-powered vehicles and non-road equipment within the region. In 2014, CAPCOG funded the replacement of four on-road trucks owned by the City of Austin and the electrification of 12 pieces of airport ground support equipment (GSE) owned by Southwest Airlines under this grant. Table 10 summarizes the annual emissions reductions achieved through these projects.

Project	NOX Reduced (tons)	HC Reduced (tons)
City of Austin Truck Replacement	9.9033	0.6489
ABIA GSE Electrification	9.5850	1.5432
TOTAL	19.4883	2.1921

#### Table 10: DERA Grant Emission Reductions, Lifetime Reductions (tons)

## 2.3 State Emission Reduction Measures Applicable to the Region

This section provides details and data on three key state programs that reduce ozone-forming emissions within the region:

- 1. The vehicle emissions inspection and maintenance (I-M) program in Travis and Williamson Counties;
- 2. The Drive a Clean Machine (DACM) program in Travis and Williamson Counties; and
- 3. The Texas Emission Reduction Plan (TERP) Grant Programs, applicable to all five counties.

# 2.3.1 A full list of state rules and their citations in the Texas Administrative Code (TAC) is available in Appendix C.Vehicle Emissions Inspection and Maintenance Program Data

Since September 2005, all gasoline-powered vehicles 2-24 years old in Travis and Williamson Counties are required to pass an annual emissions test. Vehicles with model years 1996 and newer are required to pass an on-board diagnostic (OBD) test, and vehicles with model years 1995 and older are required to pass a two-speed idle (TSI) test. Waivers are available for the following situations:

- 1. A minimum expenditure waiver if the vehicle owner has spent at least \$600 on repairs;
- 2. A low-income waiver;
- 3. A "low mileage" waiver (less than 5,000 miles in a year); and
- 4. A "parts availability" waiver if the parts needed for a repair are not available.

Fewer than 200 waivers a year are issued in Travis and Williamson Counties each year.

In 2014, a total of 985,584 emission tests were performed, an increase of 34,941 tests from 2013, which equates to a 3.7% increase in the number of total tests performed. Table 11 below shows the summary statistics for these tests.

Statistic	<b>Total Emission Tests</b>	<b>OBD</b> Tests	TSI Tests	Gas Cap Tests
Total Tests	985,584	949,016	36,568	985,587
Initial Tests	900,475	870,028	30,447	900,477
Initial Test Failures	53,515	43,068	2,659	9,045
Initial Test Failure %	5.9%	5.0%	8.7%	1.0%
Initial Retests	76,071	71,216	4,855	76,072
Initial Retest Failures	7,009	5,997	795	332
Initial Retest Failure %	9.2%	8.4%	16.4%	0.4%
Other Retests (if Initial Retest Failed)	9,038	7,772	1,266	9,038

Table 11: Emissions Inspection and Maintenance Tests in Travis and Williamson Counties, 2014

Statistic	<b>Total Emission Tests</b>	<b>OBD</b> Tests	TSI Tests	Gas Cap Tests
<b>Other Retest Failures</b>	2,659	2,075	552	75
Other Retest Failure %	29.4%	26.7%	43.6%	0.8%

The data for 2014 show a lower initial failure rate than the previous year, from 6.2% to 5.9%, continuing a trend from 2012-2013 that resulted in a decrease from 6.6% to 6.2%.





The I-M program remains one of the most local significant emission reduction measures. While its relative impact will increase somewhat due to higher emission reductions from OBD testing compared to TSI testing, the absolute magnitude will decrease as the on-road fleet gets cleaner and cleaner each year. Table 12 below shows the percentage of NO<sub>X</sub> and VOC emissions reductions in 2012 and 2018 from the three vehicle types for which EPA's MOVES2014 models I-M program emissions reduction benefits for. While the local I-M program also applies to heavy-duty gasoline-powered vehicles, it is not possible to model those emission reduction benefits in the current version of MOVES.

Vehicle Type	NOX 2012	NOX 2018	VOC 2012	VOC 2018
Passenger Car	-11.4%	-13.1%	-12.8%	-13.5%
Passenger Truck	-11.1%	-11.2%	-11.7%	-13.4%
Light Commercial Truck	-8.5%	-8.5%	-10.0%	-11.5%

Table 12: Modeled NO<sub>x</sub> and VOC Reductions from the I-M Program by Vehicle Type

Recent on-road emissions inventory modeling for the region shows that the program was achieving over 3 tons per day of NO<sub>x</sub> emissions and over 2 tons per day of VOC emissions in 2012.



Figure 9: Estimated Emission Reductions from I-M Program, 2012, 2015, and 2018 (tons per day)<sup>3</sup>

## 2.3.2 Drive a Clean Machine Program

The Drive a Clean Machine (DACM) program provides funding to help moderate-income and low-income families in Travis and Williamson Counties reduce emissions from light-duty vehicles. The program has also been operated under other names, including "AirCheck Texas" and the "Low-Income Repair and Replacement Assistance Program" (LIRAP). A local surcharge on all vehicle inspections in Travis and Williamson Counties is used to finance vouchers that can be used to:

- Repair a vehicle that has failed an emissions test;
- Replace a light-duty vehicle that has failed an emissions test; and

• Replace light-duty vehicles with a model year 10 years old or older with a newer, cleaner vehicle. The program achieves emission reductions by improving compliance rates for the vehicle emissions inspection and maintenance program and by accelerating fleet turnover. Table 13 below provides details of the program for 2014.

<sup>&</sup>lt;sup>3</sup> 2012 and 2018 emissions estimates are based emission on summertime Monday-Thursday activity data used in MOVES2014 non-link-based inventories created by the Texas Transportation Institute (TTI) in December 2014, which are available here: <u>ftp://amdaftp.tceq.texas.gov/pub/Mobile\_El/Statewide/mvs/</u>. The 2015 emissions estimates are based on MOVES2010b link-based emissions inventories created by TTI for CAMPO in January 2013 based on summertime Monday-Friday activity data. Both estimates use default compliance factors for the I-M program.

Data	Travis County	Williamson County	Combined
Applications for Repair Vouchers	572	NR	NR
Repair Vouchers Issued	381	NR	NR
% of Repair Applications Accepted	67%	NR	NR
Value of Repair Vouchers Issued	\$228,600.00	NR	NR
Repair Vouchers Redeemed	359	72	431
% of Repair Vouchers Redeemed	94%	NR	NR
Value of Repair Vouchers Redeemed	\$228,333.10	\$31,642.35	\$259,975.45
Applications for Replacement Vouchers	270	NR	NR
Replacement Vouchers Issued	185	NR	NR
% of Replacement Applications Accepted	69%	NR	NR
Value of Replacement Vouchers Issued	\$551,100.00	NR	NR
Replacement Vouchers Redeemed	149	85	234
% of Replacement Vouchers Redeemed	81%	NR	NR
Value of Replacement Vouchers Redeemed	\$551,100.00	\$179,000	\$730,100
Total Applications	842	212	1,054
Total Vouchers Issued	566	153	721
Acceptance Rate	67%	72%	68%
Vouchers Redeemed	508	157	665
Redeemed / Applications	60%	74%	63%

#### Table 13: Drive a Clean Machine Data for 2014

## 2.3.3 Texas Emission Reduction Plan (TERP) Grants

The TERP program provides funding for voluntary emission reduction incentive grants. Among the programs that the Austin-Round Rock MSA has received funding for are:

- Emission Reduction Incentive Grant (ERIG) Program;
- Rebate Grant Program;
- Texas Clean Fleet Program (TCCP);
- Texas Natural Gas Vehicle Grants Program (TNGVGP);
- Light-Duty Purchase or Lease Incentive (LDPLI) Program; and
- The Clean Transportation Triangle (CTT) Program.

For full descriptions of these programs, please visit <u>http://www.tceq.state.tx.us/airquality/terp</u>. Table 14 below shows the funding for each TERP program through the end of 2013, as well as the new funding under contract in 2014 where activities primarily occurred within the Austin-Round Rock MSA. At the end of 2014, TCEQ opened up a new round of ERIG grants, expecting to award approximately \$60 million statewide, but selections were not made until spring 2015. A significantly larger portion of this funding was awarded to projects in the Austin area (over \$7 million) than had occurred in previous years. Information on those grants will be included in the annual report covering 2015.

Program	Funding Provided Through 2013	New Funding Under Contract in 2014
ERIG & Rebate	\$53,391,864.42	\$0.00
CFFP	\$13,702,014.15	\$0.00
TNGVGP	\$0.00	\$0.00
LDPLI	\$0.00	\$372,500.00
СТТ	\$0.00	\$800,000.00
Combined	\$67,093,878.57	\$1,172,500.00

Tahlo 14	· TFRD	Funding for	r Austin-Round	Rock MSA	Area Proi	octs 2002	through	2013 an	d Now i	n 2014
Table 14		i unung io	Austin-Nound	NOCK INISA			unougn	2013 011		11 2014

TCEQ calculates the estimated  $NO_x$  emission reduction benefits from the ERIG, Rebate, and CFFP programs. Figure 10 shows the combined emission reductions from these two programs from the program's inception in December 2002 through the end of 2014. For the 2014 ozone season, TERP programs were achieving approximately 2.47 tpd of  $NO_x$  reductions, which is down somewhat from the 2.62 tpd of  $NO_x$  reductions over the course of the 2013 ozone season.





# 3 Other Data Relevant to Local Air Quality Planning

This section provides various data for the region that are useful for understanding and potentially quantifying emission reduction measures implemented by participants in the regional air quality plan.

## 3.1 Population Data

The Austin-Round Rock MSA is the fourth largest MSA in the state of Texas and the 35<sup>th</sup> largest MSA in the country. It is one of the fastest growing MSA's in the country, adding 57,496 people between 2013 and 2014, a 3.05% increase. By comparison, the combined growth rate for all metro areas in the country from 2013-2014 was 0.88%. The region ranked 11<sup>th</sup> in terms of total population growth between 2013-2014 nationwide and 3<sup>rd</sup> in terms of % change, and the #1 and #2 metro areas both have populations of less than 500,000.

Table 15 and Table 16 show the most recent population data for the cities and counties that participated in the Ozone Advance Program Action Plan in 2014.

County	2013 Population	2014 Population	Change 2013-2014	% Change 2013-2014
Bastrop	76,099	78,069	1,970	2.59%
Caldwell	39,248	39,810	562	1.43%
Hays	176,483	185,025	8,542	4.84%
Travis	1,122,748	1,151,145	28,397	2.53%
Williamson	471,225	489,250	18,025	3.83%
TOTAL	1,885,803	1,943,299	57,496	3.05%

Table 15: CAC County Population Data, 2013-2014<sup>4</sup>

#### Table 16: CAC City Population Data, 2013-2014<sup>5</sup>

City	County	2013	2014	Change	% Change
Austin	Travis	887,124	912,791	25,667	2.89%
Bastrop	Bastrop	7,558	7,856	298	3.94%
Cedar Park	Williamson	61,292	63,574	2,282	3.72%
Elgin	Bastrop	8,429	8,622	193	2.29%
Georgetown	Williamson	54,934	59,102	4,168	7.59%
Hutto	Williamson	19,737	21,170	1,433	7.26%
Lockhart	Caldwell	13,063	13,232	169	1.29%
Luling	Caldwell	5,650	5,732	82	1.45%
Pflugerville	Travis	53,812	54,644	832	1.55%
Round Rock	Williamson	109,725	112,744	3,019	2.75%
San Marcos	Hays	54,567	58,892	4,325	7.93%
Sunset Valley	Travis	687	697	10	1.46%
COMBINED	n/a	1,276,578	1,319,056	42,478	3.33%

 <sup>&</sup>lt;sup>4</sup> U.S. Census Bureau. Annual Estimates of the Resident Population for Counties: Texas: April 1, 2010 to July 1, 2014. <u>http://factfinder.census.gov/bkmk/table/1.0/en/PEP/2014/PEPANNRES/0400000US48.05000</u>. Accessed July 12, 2015.

<sup>&</sup>lt;sup>5</sup> U.S. Census Bureau. Annual Estimates of the Resident Population for Incorporated Places: Texas: April 1, 2010 to July 1, 2014. <u>http://factfinder.census.gov/bkmk/table/1.0/en/PEP/2014/PEPANNRES/0400000US48.16200</u>. Accessed July 12, 2015.

# 3.2 Operational Data for OAP Action Plan Participating Organizations

This section provides data reported by some of the OAP Action Plan participating organizations on their operations in 2014 that can be useful for quantifying the emissions each organization is generating both directly and indirectly, and for quantifying the organizations' emission reduction measures. "NR" indicates that the organization did not report the information in 2014.

## 3.2.1 Employees & Commuting Data

One of the key areas in which all organizations can reduce emissions is in encouraging employees to reduce commute-related emissions, either by using an alternative mode of commuting or through work schedule changes. This section provides employee and commute-related data from organizations that provided such data.

Organization	Employees
Bastrop County	416
Caldwell County	NR
Hays County	NR
Travis County	5,100
Williamson County	1624
City of Austin	11,995
City of Bastrop	NR
City of Cedar Park	457
City of Elgin	73
City of Georgetown	592
City of Hutto	NR
City of Lockhart	140
City of Luling	NR
City of Pflugerville	NR
City of Round Rock	878
City of San Marcos	NR
City of Sunset Valley	30
City of Taylor	NR
CAPCOG	67
САМРО	17
CapMetro	NR
CTRMA	20
LCRA	NR
TCEQ	1,912
TxDOT-Austin	521
TxDOT-HQ	2,581
CLEAN AIR Force	1
Lone Star Clean Fuels Alliance	1
Texas Lehigh	NR
TOTAL REPORTED	26,188

Table 17: Employees, 2014

One way to reduce commute-related emissions is to allow employees to work flexible schedules that either allow the employees to avoid commuting during times when traffic congestion is at its worst or to work more hours per day in order to avoid one or more weekday commutes to the office, such as working 8 or 9 days Monday-Friday over two weeks, rather than the normal 10. The table below shows the percentages of employees who were reported to have a "normal" Monday-Friday, 8am-5pm schedule, the percentages who were reported to have a flexible schedule Monday-Friday, and the percentages who worked "compressed work weeks."

Organization	% M-F, 8am-5pm	% Flex Sched. M-F	% Compressed 9 of 10	% Compressed 8 of 10
City of Cedar Park	67.4%	0%	0%	32.6%
City of Elgin	78%	0%	22%	0%
City of Lockhart	75%	NR	NR	NR
<b>Travis County</b>	36%	64%	0%	1%
CAPCOG	41%	54%	0%	5%
CAMPO	50%	50%	0%	0%
CTRMA	90%	10%	0%	0%
TxDOT Austin District	7%	53%	0.2%	40%

Table 18: Employee Work Schedule Data

Another way to reduce emissions from employee commuting is to encourage employees to use commuting alternatives other than driving to work alone. Alternative modes that can reduce emissions include carpools, vanpools, mass transit, motorcycles, biking, walking, or working from home. The table below shows the data reported on commuting modes and average length of commute for 2014.

Org.	Avg. Distance (mi)	Drove Alone	Carpool or Vanpool	Mass Transit	Taxicab	Motorcycle	Biking	Walking	Work from Home	Other Means
City of Cedar Park	24	99.78%	0%	0%	0%	0%	0.22%	0%	0%	0%
City of Elgin	10	100%	0%	0%	0%	0%	0%	0%	0%	0%
City of Lockhart	32	70%	1%	NR	NR	1%	1%	1%	NR	NR
Travis County	25	79%	1%	6%	0%	0.5%	2%	2%	4%	0%
CAPCOG	NR	NR	NR	NR	NR	NR	NR	NR	2%	NR
CAMPO	9.7	51%	0%	25%	0%	0%	20%	0%	4%	0%
CTRMA	15	100%	0%	0%	0%	0%	0%	0%	0%	0%
TCEQ	22.5	NR	2.6%	NR	NR	NR	NR	NR	2.9%	0%
TxDOT Austin District	21	94.4%	3.3%	0.2%	NA	0.9%	0.1%	0.2%	0%	NA
TxDOT HQ	22.4	89.7%	6.3%	1.2%	0%	0.6%	0.3%	0.3%	0.3%	1.2%

Table 19: Avg. Commuting Distance and % of Employees Commuting by Mode

One way to encourage employees to reduce emissions is to subsidize transit passes for employees. Both CAMPO and Travis County reported data on the number of transit passes issued and used. These data are shown in the table below.

#### Table 20: Subsidized Transit Passes for Employees

Organization	Subsidized Transit Passes Issued	Subsidized Transit Passes Used	Amount Spent on Transit Passes	
Travis County	1000	405	\$54,070	
CAMPO	9	6	NR	
CTRMA	0	0	0	

#### 3.2.2 Parking

Certain emission measures implemented under the OAP Action Plan relate to parking management. Participating organizations can reduce emissions associated with commuting by encouraging the use of vanpools or carpools and by encouraging the use of cleaner vehicles, including providing preferred parking spaces. Parking cash-out programs are another type of emission reduction measure that involved the quantity of parking organizations provide to employees. Parking management practices such as provision of shaded parking can also reduce evaporative emissions from parked cars and reduce the engine load required to cool a vehicle when it starts.

#### Table 21: Parking Data

Organization	Parking Spaces	% Equipped with Charging Stations	% Reserved for Carpools or Vanpools	% Covered or Shaded
Travis County	4,300	0%	0%	40%
City of Elgin	40	0%	0%	0%
TCEQ	~2,000	0%	0.5%	25%

#### 3.2.3 Data on Gas, Electricity, and Water Consumption

Each organization's natural gas, electricity, and water consumption contributes to local emissions, and conservation efforts can help reduce those emissions. Table 22 shows the data that was reported for selected organizations for 2014.

Organization	Natural Gas (CF)	Electricity (kWh)	Water (MGal)
Travis County	42,574,400	34,222,031	33.369
Williamson County	230,648	18,714,595	NR
City of Austin	1,382,417	446,473,612	NR
City of Cedar Park	31,929	25,238,881	47.1
City of Elgin	4,195	15,585,430	2.8
City of Georgetown	NR	28,594,826	NR
City of Lockhart 5,300		1,860,00	22
City of Round Rock	NR	43,397,005	NR

#### Table 22: Organizational Data on Consumption of Natural Gas, Electricity, and Water

#### 3.2.4 Fleet and Fuel Consumption Data

One of the ways participating organizations can most directly reduce emissions is through fleet operations. This section provides data on fleet operations for several participating organizations.

Table 23: Fuel Consumption

Organization	Unspecified (gal)	Diesel (gal)	Gasoline (gal)	E85 (gal)	LPG (gal)	CNG (gge)
Travis County	n/a	243,914	707,466	0	0	0

Organization	Unspecified (gal)	Diesel (gal)	Gasoline (gal)	E85 (gal)	LPG (gal)	CNG (gge)
City of Austin	n/a	2,540,000	1,710,000	633,370	154,760	304,774
City of Cedar Park	n/a	28,112	134,187	0	9,262	0
City of Elgin	n/a	6,380	26,008	0	0	0
City of Georgetown	n/a	91,730	113,095	0	4,442	0
City of Lockhart	n/a	16,275	46,040	0	320	1,811
City of Round Rock	n/a	83,836	275,327			
TCEQ	233,676	NR	NR	NR	NR	NR
TxDOT Austin District	n/a	227,773	180,948	382	27,299	NR

#### Table 24: Fuel Dispensed

Organization	Gasoline Dispensed (gallons)				
Travis County	707,466				
City of Cedar Park	134,187				
City of Elgin	0				

#### Table 25: Fuel Consumption

Organization	% of Diesel Used for On-Road Vehicles	% of Diesel Used for Non-Road Equipment	% of Diesel Used for Stationary Sources	% of Gasoline Used for On-Road Vehicles	% of Gasoline Used for Non-Road Equipment	% of LPG Used for On- Road Vehicles	% of LPG Used for Non-Road Vehicles	% of Electricity used for On-Road Vehicles
City of Cedar Park	50%	46%	4%	85%	15%	100	0%	NR
City of Georgetown	NR	NR	NR	NR	NR	76%	24%	NR
City of Lockhart	75%	23%	2%	80%	20%	NR	NR	NR

#### Table 26: Fleet Data

Organization	# Vehicles Purchased	# Alt. Fueled Vehicles Purchased	# Tier 2, Bin 4 or Better Vehicles Purchased	# Pieces of Non-Road Equipment Purchased	# Pieces of Alt. Fueled Non-Road Equipment Purchased
Travis County	94	0	54	25	0
City of Cedar Park	24	0	24	5	0
City of Elgin	2	0	0	0	0
City of Georgetown	40	3	NR	9	NR
City of Lockhart	3	0	3	1	0
City of Round Rock	12	0	12	20	1
TCEQ	20	18	2	0	0
#### **3.2.5 Backup Generators**

Although backup generators are rarely used, they tend to be very old and have very high NO<sub>x</sub> emissions rates, and it is possible to reschedule regular engine testing that may be scheduled to occur on a predicted high ozone day. The table below provides some data on the number of generators several organizations own and the average number of hours per year the generators are run, primarily for testing.

#### Table 27: Generators

Organization	Number of Generators	iber of Total Hours Used		Testing Time
Travis County	6	428	71	NR
City of Cedar Park	23	469.8	20	Mon. 7:00 am
City of Elgin	6	NR	NR	NR
City of Lockhart	4	NR	NR NR	
City of Round Rock	Round Rock 23 600		26	Mon. 8-8:30 am
CTRMA	21	336	16	NR
TxDOT Austin District	9	36	4	NR

#### 3.2.6 Local Renewable Energy Generated

Locally installed solar panels can reduce the need to generate electricity at fossil-fueled power plants. The table below provides data on the amount of local solar-powered electricity generated by Travis County and Round Rock.

Table 28: Renewable Energy

Organization	Solar Power Energy Generated (kWh)
Travis County	0
City of Round Rock	156,797

#### 3.2.7 Road Construction and Maintenance

Non-road equipment makes up a significant portion of the NO<sub>x</sub> emission within the region, and road construction and maintenance operations can generate substantial NO<sub>x</sub> emissions depending on the scale of the projects. Eastern Research Group (ERG) recently developed tools that enable certain operational data on road construction and maintenance to be used to calculate non-road emissions. Table 29 below shows the data that was submitted by several organizations for 2014.

Organization	New or Rebuilt Roads (lane- miles)	Repair or Resurfacing (lane-miles)	Turn Lanes (lane-miles)	Bridgework (\$)	Other (\$)
<b>Travis County</b>	5.5	120	0.5	\$215,000	NR
City of Cedar Park	4.39	8	(incl. in new)	(incl. in "other")	\$454,730
City of Elgin	0.79	3	0	\$0	\$0
City of Lockhart	42	22	0	0	0

#### Table 29: Road Construction and Maintenance Data

Paving unpaved roads can reduce the emissions from vehicles driving on those roads – both by decreasing the engine load needed to drive on the road and by reducing fouling of the catalyst as a result of dust on the roadway. The table below shows data on the amount of unpaved roads that were paved by local jurisdictions in 2014.

#### Table 30: Extent of Roads Maintained & Paved in 2014

Organization	Centerline Miles Maintained	Lane-Miles Maintained	Unpaved Centerline Miles Maintained in 2014	Unpaved Lane- Miles Maintained in 2014	
<b>Travis County</b>	1,400	3,261	0	0	
City of Cedar Park	NR	989.42	0	0	
City of Elgin	NR	68.92	NR	1.4	
City of Lockhart	180	NR	NR	NR	

Material substitution in road maintenance activities is one way to reduce VOC emissions. The table below provides data on striping materials and asphalt.

Table 31: Road Striping Material & Asphalt Data

Organization	Road Striping Material Applied (gallons)	Low-VOC Road Striping Material Consumed (gallons)	Thermal Plastic Striping Material Consumed (pounds)	Asphalt Consumed (tons)	Low-VOC Asphalt Consumed (tons)
Travis County	11,000	11,000	NR	NR	59,580
City of Elgin	45	NR	NR	NR	NR
City of Lockhart	22	NR	NR	2,500	NR
City of Round Rock	100	NR	20,000	NR	NR

#### 3.2.8 Other Operational Data

This section provides other data submitted by participating organizations that can be used to quantify emission reductions.

#### Table 32: City of Round Rock Demand Response Bus Service Data

Data	Quantity
Demand Response Passengers	15,253
Demand Response Bus Service Trips	15,008
Demand Response # Subsidized by Area Agency on Aging	5,321

#### Table 33: Direct Deposit Data

Organization	% of Employees who Receive Direct Deposit
Travis County	90%
Williamson County	98.34%
City of Cedar Park	90.01%
City of Elgin	100%
City of Lockhart	80%
CAPCOG	100%
CAMPO	87.5%
<b>TxDOT Austin District</b>	99.5%

#### Table 34: Landscaping Data

Organization	Acres Landscaped through Contracts
Travis County	114
Williamson County	98
City of Cedar Park	149
City of Elgin	0

#### Table 35: Tree Planting and Maintenance Data

Organization	Trees Planted	Trees Maintained
Travis County	13	132
Williamson County	6	906
City of Elgin	0	40
City of Lockhart	32	0
City of Round Rock	165	1,554

## 3.3 Regional Electricity Data

This section provides 2014 data on emissions from electric generating units (EGUs) located within the region, electricity consumption data for Austin Energy, and Austin Energy's energy efficiency and renewable energy programs.

#### 3.3.1 2014 Emissions Data for Electric Generating Units

During the official 2014 ozone season for Central Texas (March 1, 2014 – October 31, 2014), Electric Generating Units (EGUs) located in the Austin-Round Rock MSA that report to EPA's Clean Air Markets Database (CAMD) emitted an estimated 874 tons (3.57 tons per day) of NO<sub>x</sub> and generated an estimated 7,057,356 megawatt-hours (MW-hrs) of electricity, for an average emissions rate of 0.248 pounds of NO<sub>x</sub> per MW-hr of electricity generated. On a heat-input basis, the average rate for power plants in the MSA was 0.030 lbs of NO<sub>x</sub> per million British thermal units (MMBtu). Thermal efficiencies for units ranged averaged 41%, from a low of 19% (output/input) to a high of 49%.

As the data in Table 36 show, EGUs in the Austin-Round Rock MSA are well-controlled relative to the EGUs Dallas-Fort Worth ozone nonattainment area, the Houston-Galveston-Brazoria ozone nonattainment area, the San Antonio-New Braunfels MSA, and the El Paso MSA.

Area	Thermal Efficiency	NO <sub>x</sub> Emissions Rate (Ibs/MMBtu input)	NO <sub>x</sub> Emissions Rate (lbs/MW-hr output)	
Austin-Round Rock MSA	41%	0.030	0.248	
Dallas-Fort Worth Nonattainment Area	40%	0.082	0.207	
Houston-Galveston Brazoria Nonattainment Area	34%	0.101	0.299	
San Antonio-New Braunfels MSA	36%	0.258	0.722	
El Paso MSA	33%	0.389	1.186	

Table 36: Comparison of Local Power Plant NOX Emissions Rates and Efficiencies to Other Areas in Texas

On the six days in 2014 used to establish the fourth highest peak 8-hour ozone averages for 2014 at CAMS 3 and CAMS 38, emissions from EGUs ranged from 1.69 tpd to 9.841 tpd.

Facility Name	Unit ID	5/4	5/16	5/17	8/12	9/8	10/24
<b>Bastrop Clean Energy Center</b>	CTG-1A	0.438	0.528	0.428	0.697	0.566	0.000
<b>Bastrop Clean Energy Center</b>	CTG-1B	0.409	0.535	0.455	0.704	0.655	0.000
Decker Creek	1	0.000	0.000	0.000	2.758	0.000	0.000
Decker Creek	2	0.692	0.000	0.000	1.177	1.473	0.528
Decker Creek	GT-1A	0.000	0.000	0.080	0.000	0.000	0.058
Decker Creek	GT-1B	0.000	0.000	0.080	0.001	0.000	0.058
Decker Creek	GT-2A	0.000	0.000	0.090	0.000	0.000	0.072
Decker Creek	GT-2B	0.000	0.000	0.090	0.000	0.000	0.072

Table 37: NO<sub>x</sub> Emissions from Local EGUs on Selected High-Ozone Days, 2014 (tons per day)<sup>6</sup>

<sup>&</sup>lt;sup>6</sup> Note that emissions from Decker Creek

Facility Name	Unit ID	5/4	5/16	5/17	8/12	9/8	10/24
Decker Creek	GT-3A	0.000	0.000	0.088	0.000	0.000	0.063
Decker Creek	GT-3B	0.000	0.000	0.087	0.000	0.000	0.063
Decker Creek	GT-4A	0.000	0.000	0.000	0.000	0.000	0.059
Decker Creek	GT-4B	0.000	0.000	0.075	0.000	0.000	0.058
Hays Energy Facility	STK1	0.203	0.211	0.213	0.218	0.000	0.000
Hays Energy Facility	STK2	0.000	0.000	0.000	0.171	0.206	0.000
Hays Energy Facility	STK3	0.000	0.000	0.000	0.201	0.000	0.000
Hays Energy Facility	STK4	0.000	0.000	0.000	0.192	0.154	0.172
Lost Pines 1	1	0.303	0.000	0.000	0.332	0.314	0.321
Lost Pines 1	2	0.322	0.353	0.360	0.346	0.328	0.332
Sand Hill Energy Center	SH1	0.000	0.023	0.013	0.025	0.028	0.014
Sand Hill Energy Center	SH2	0.000	0.005	0.014	0.029	0.029	0.000
Sand Hill Energy Center	SH3	0.014	0.010	0.023	0.027	0.031	0.015
Sand Hill Energy Center	SH4	0.014	0.009	0.014	0.024	0.029	0.011
Sand Hill Energy Center	SH5	0.000	0.000	0.174	0.254	0.268	0.256
Sand Hill Energy Center	SH6	0.010	0.006	0.012	0.024	0.025	0.000
Sand Hill Energy Center	SH7	0.000	0.007	0.014	0.040	0.031	0.000
Sim Gideon	1	0.000	0.000	0.000	0.000	0.000	0.000
Sim Gideon	2	0.000	0.000	0.000	0.000	0.000	0.000
Sim Gideon	3	0.000	0.000	0.000	2.618	0.000	0.000
TOTAL	n/a	2.405	1.687	2.310	9.838	4.137	2.152

# 3.3.2 Austin Energy Electricity Sales

Austin Energy's total electricity sales for 2014 totaled 12,572,414,292 kWh – represented a 2.14% increase from 2013. The largest share of this total supplied commercial customers (35.78%), followed by residential customers (34.19%), then by industrial customers (22.63%) and government customers (6.99%). A small percentage (0.41%) was used for public streets and highways.<sup>7</sup>

<sup>&</sup>lt;sup>7</sup> Draft Austin Energy Performance Report for 2014. Provided by Ravi Joseph.



Figure 11: Austin Energy Electricity Sales by Customer Type, 2014 (kWh)

#### 3.3.3 Energy Efficiency Peak Demand Savings

Peak demand is the highest point of energy use on any given day and typically occurs between the hours of 4 and 6 p.m. Peak energy usage days are usually also high ozone days, so reducing emissions on such days can be particularly useful, especially since a large share of local EGU emissions comes from peaker units. Overall, Austin Energy's peak demand increased in 2014 compared to 2013, although it was still well below the demand in 2011 and 2011. Figure 12 below shows peak demand for Austin Energy's system from FY 2010 – FY 2014.



Figure 12: Peak Austin Energy System Demand, FY 2010-FY 2014 (MW)

Austin Energy's energy efficiency programs have helped reduce peak demand, however, and have thereby helped reduce the emissions that might have otherwise occurred on such days.

Table 38: Reductions in Austin Energy Peak Demand by Customer Type, FY	( 2010-2014 (MW)
--	------------------

Peak Demand Reduction in MW	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Residential	14.5	14.9	12.2	11.9	15.5
Commercial	20.5	24.5	27	27.7	31.8
Demand Response	6.2	6.9	8.4	17.7	19.6
Total	41.2	46.3	47.6	57.4	67.0

#### 3.3.4 Energy Efficiency Avoided Emissions

Due to the nature of the electricity grid, it is not possible to clearly identify where emission reductions might occur due to energy efficiency or renewable energy generation in any one area. The table below shows Austin Energy's estimate of the amount of statewide NOX and VOC tons reduced through its local energy efficiency programs in 2014.

Table 39: Austin Energy Estimate of Avoided NOX and VOC Emissions through Energy Efficiency Programs for 2014 (tons)

Customer Type	NO <sub>x</sub> Avoided (tons)	ons) VOC Avoided (tons)				
Residential	11.4	0.4				
Commercial	47.5	1.7				
TOTAL	58.8	2.1				

#### 3.3.5 Solar Rebate Program

Local solar installations may have more of a potential to displace local fossil fuel electricity generation than wind generation installed in west Texas or the Gulf may be able to achieve. Austin Energy has a comprehensive Solar Rebate Program. In FY 2014, residential customers were provided \$1.50 per watt installed — reduced to \$1.25 per watt in December and again to \$1.10 per watt in June — with annual rebate amounts limited to \$15,000 and maximum rebates set at \$50,000 for any individual customer. As of November 2009, residents must complete the Austin Energy Home Performance with ENERGY STAR program to qualify for a solar rebate.

The commercial rebate program pays a fixed dollar per kWh performance-based incentive to the customer over a 10-year period passed on the kWh of solar energy produced by the system. The initial PBI for systems implemented during FY 2014, was 10 cents/kWh, and reduced to 9 cents/kWh in June.

Since the Solar Rebate Program began in 2004, Austin Energy has issued more than \$43 million in rebates to residential customers and \$7 million in rebates to commercial customers totaling 20.2 MW-AC at the end of FY 2014. In addition to the solar rebate program, Austin Energy also owns a 30 MW solar power plant in Webberville.

Program	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	
Residential (Capacity-Based Incentive)	793.26	1,352.65	1,913.26	3,503.00	3,777.00	
Commercial (Capacity-Based Incentive)	106.28	n/a	n/a	n/a	n/a	
Commercial (Performance-Based Incentive)	18.50	157.90	89.91	925.00	3,831.00	
Solar Water Heating	26.65	30.88	60.45	18.20	1.95	
Municipal	178.00	14.00	139.00	1,018.00	0.00	
Schools	8.62	2.77	38.81	0.00	0.00	
Combined	1,131.31	1,558.20	2,241.43	5,464.20	7,609.95	

Table 40: Solar Rebate Installations under Austin Energy Solar Rebate Program, FY 2010-FY 2014 (kW)

# 3.4 Emissions and Activity Data for Surrounding Counties

Previous modeling analyses have shown that the Austin-Round Rock area's emissions are only contributing about 10-15% to the peak ozone concentrations measured within the region, and that emissions from areas outside of the MSA can have a significant impact on peak ozone levels within the region. Keeping track of these emissions is important to understanding the relative role of local emission reductions in the context of changes in emissions in the surrounding area.

## 3.4.1 Activity in the Eagle Ford Shale Oil and Gas Play

In 2013, a modeling analysis that the Alamo Area COG performed for CAPCOG showed impacts from these sources to be contributing an average of 0.7 ppb to peak 8-hour ozone averages CAMS 38 and an average of 0.8 ppb to peak 8-hour ozone averages at CAMS 3 in 2012.<sup>8</sup> These numbers were projected to grow to 0.9 ppb at CAMS 38 and 1.0 ppb at CAMS 3 by 2018 under a "moderate" growth scenario,

<sup>&</sup>lt;sup>8</sup> <u>http://www.capcog.org/documents/airquality/reports/2013/AACOG\_2012\_and\_2018\_Modeling\_Report-</u> <u>Body\_Only.pdf</u>.

and 1.1 ppb at CAMS 38 and 1.2 ppb at CAMS 3 under a "high" growth scenario. A large amount of production occurs just upwind of the MSA, as the map below shows.



Figure 13: Wells Permitted and Completed in the Eagle Ford Shale Play, July 1, 2015<sup>9</sup>

Oil production continued to grow in the region 2014, up 41% compared to 2013 levels. And despite the decrease in oil prices lately, production for the first four months of 2015 nearly matched the production level for all of 2014.<sup>10</sup>

<sup>&</sup>lt;sup>9</sup> http://www.rrc.state.tx.us/media/29335/eaglefordshaleplay2015-07-lg.jpg

<sup>&</sup>lt;sup>10</sup> http://www.rrc.state.tx.us/media/7078/eaglefordproduction oil perday.pdf





Growth in natural gas<sup>11</sup> and condensate<sup>12</sup> production also increased significantly between 2013 and 2014, but at about half the rate of oil production growth – 26% and 18%, respectively. Drilling permits increased from 4,416 issued in 2013 to 5,613 issued in 2014, a 27% increase. The lower price of oil is likely to lead to a reduction in wells drilled in 2015, however.

Overall, production and drilling in 2014 exceeded the levels AACOG had used for its "aggressive" growth strategy.<sup>13</sup>

Table 41: 2014 Oil an	d Gas Production	n in Eagle Ford Shale	Compared to AAC	<b>OG Projections</b>
-----------------------	------------------	-----------------------	-----------------	-----------------------

Activity	Low Growth Forecast	Moderate Growth Forecast	Aggressive Growth Forecast	Actual
Oil Production (MMBbl)	299	328	363	377
Gas Production (BCF)	1,125	1,260	1,418	1,821
Condensate Production (MMBbl)	64	74	85	101

Given the impact that emissions from the Eagle Ford oil and gas activities were having already as of 2012 and the continued growth in this sector, CAPCOG remains concerned about the potential of the growth in emissions from this region to undermine local efforts to reduce ozone levels by reducing  $NO_x$  and VOC emissions from within the region. Compared to the threshold EPA uses for screening air quality impacts

<sup>&</sup>lt;sup>11</sup> <u>http://www.rrc.state.tx.us/media/7079/eagleford\_totalnaturalgas\_perday.pdf</u>

<sup>&</sup>lt;sup>12</sup> http://www.rrc.state.tx.us/media/7077/eaglefordproduction condensate perday.pdf

<sup>&</sup>lt;sup>13</sup> http://www.aacog.com/documentcenter/view/19069, see table 8-14.

for interstate transport emission reduction obligations (1% of the NAAQS), the oil and gas emissions from this region would be considered having a "significant" impact on peak ozone values in the region and could be large enough to make a difference in the region's designation status for EPA's proposed ozone standards.

#### 3.4.2 Point Source Emissions Data from Surrounding Counties

Data from point sources within the Austin-Round Rock MSA and surrounding counties continues (Bell, Blanco, Burnet, Comal, Fayette, Gonzales, Guadalupe, Lee, and Milam Counties) to show reductions in both NO<sub>x</sub> and VOC emissions. TCEQ released the 2013 emissions inventory data in early 2015. These data showed larger NOX and VOC emission reductions from point sources immediately adjacent to the MSA from 2011 to 2013 relative to the emission reductions form point sources within the region, but the percentage reduction in NOX emissions from within the MSA was a bit more than double the percentage reduction in NOX emissions from the adjacent counties.

Region	2011	2012	2013	Change 2011-2013	% Change, 2011-2013
Austin-Round Rock MSA	5,696	5,490	5,160	-536	-9.4%
Adjacent Counties	14,502	12,977	13,890	-612	-4.2%

 Table 42: NO<sub>X</sub> Emissions from Point Sources in the Austin-Round Rock MSA and Adjacent Counties (tons per year)

Table 43: VOC Emissions from Point Sources in the Austin-Round Rock MSA and Adjacent Counties (tons per year)

Region	2011	2012	2013	Change 2011-2013	% Change, 2011-2013
Austin-Round Rock MSA	742	723	678	-64	-8.6%
Adjacent Counties	1,593	1,519	1,410	-184	-11.5%

# 4 Air Quality Planning Activities Conducted in 2014

This section describes general air quality planning activities and research projects conducted in 2014.

#### 4.1 Clean Air Coalition

The Clean Air Coalition (CAC) consists of elected officials from city and county governments in the Austin-Round Rock MSA that participate in the regional air quality planning efforts. The table below shows the jurisdictions that were members of the CAC in 2014 and their representative on the CAC.

Organization	Representative Title	Name	CAC Position
Bastrop County	Commissioner	William Pina	First Vice-Chair
Caldwell County	Judge	Tom Bonn	Member
Hays County	Commissioner	Ray Whisenant	Member
Travis County	Judge	Sam Biscoe	Chair
Williamson County	Commissioner	Ron Morrison	Second Vice-Chair
City of Austin	Council Member	Chris Riley	Member

#### Table 44: 2014 CAC Members

#### Austin-Round Rock Metropolitan Statistical Area Annual Air Quality Report for 2014

Organization	Representative Title	Name	CAC Position			
City of Bastrop	Mayor	Ken Kesselus	Member			
City of Cedar Park	Council Member	Stephen Thomas	Member			
City of Elgin	Council Member	Chris Cannon	Member			
City of Georgetown	Council Member	Rachael Jonrowe	Member			
City of Hutto	Mayor	Debbie Holland	Member			
City of Lockhart	Mayor	Lew White	Member			
City of Luling	Mayor	Mike Hendricks	Member			
City of Pflugerville	Mayor	Jeff Coleman	Member			
City of Round Rock	Mayor	Alan McGraw	Member			
City of San Marcos	Mayor	Daniel Guerrero	Member			

Several members' terms as elected officials ended at the end of 2014, including:

- Travis County Judge and CAC Chair Sam Biscoe;
- Caldwell County Judge Tom Bonn; and
- City of Austin Council Member Chris Riley.

#### 4.1.1 New CAC Members

The City of Pflugerville, which is the region's 6<sup>th</sup> largest city (population: 54,644 as of 2014) joined the Clean Air Coalition at the March 26, 2014, meeting. In the resolution adopted by the City of Pflugerville on January 14, 2014, the city committed to implement the following measures:

- Business evaluation of fleet usage;
- Apply for Texas Emission Reduction Plan (TERP) and/or Diesel Emission Reduction Act (DERA) funding when available to retrofit, repower or replace older diesel vehicles and equipment owned and operated by the jurisdiction;
- Regularly plan for Transportation Emission Reduction Measures (TERMS) within the community and report progress annually;
- Implement an Ozone Action Day Program;
- Participate in regional measures; and
- Implement energy efficiency, renewable energy, and resource conservation policies that will result in reduced energy consumption;
- Annually track and report to CAPCOG:
  - Vehicle and equipment usage;
  - Electricity and gas usage;
  - Contracted construction and landscaping work; and
  - Details on performance of locally adopted measures.

#### 4.1.2 CAC Meetings

The Clean Air Coalition held four meetings during 2014:

- March 26, 2014;
- June 25, 2014;
- September 10, 2014; and
- December 10, 2014.

#### 4.1.3 Clean Air Coalition Advisory Committee

The Clean Air Coalition Advisory Committee (CACAC) consists of staff members from organizations participating in the regional air quality plan, and is co-chaired by CAPCOG Air Quality Program Manager Andrew Hoekzema and City of Austin Air Quality Program Manger Pharr Andrews. The CACAC held meetings on the following dates:

- January 8, 2014;
- February 6, 2014;
- March 6, 2014;
- April 3, 2014;
- May 1, 2014;
- June 5, 2014;
- July 10, 2014;
- August 7, 2014;
- September 4, 2014;
- October 2, 2014;
- November 6, 2014; and
- December 4, 2014.

# 4.2 Outreach and Education Plan and CACAC Outreach and Education Subcommittee

The CACAC developed a new outreach and education plan in early 2014. This plan can be found online at <a href="http://www.capcog.org/documents/airquality/Ozone\_Advance/Outreach\_and\_Education\_Plan.pdf">http://www.capcog.org/documents/airquality/Ozone\_Advance/Outreach\_and\_Education\_Plan.pdf</a>.

As a result of this effort, the CACAC established a new outreach and education subcommittee, which met on the following dates:

- April 14, 2014;
- May 19, 2014;
- June 16, 2014;
- July 21, 2014;
- August 25, 2014;
- September 26, 2014;
- October 22, 2014;
- November 20, 2014; and
- December 18, 2014.

## 4.3 CLEAN AIR Force

Founded in 1993, the CLEAN AIR Force of Central Texas (CAF) is a 501(c)(3) organization of business, government, environmental, and community leaders united in the common goal of finding workable solutions for improving air quality in Central Texas. CAF conducts and coordinates public awareness and education campaigns and implements voluntary programs to reduce ozone-forming emissions.

During the 2014 Ozone Season (April 1 – October 31), the CLEAN AIR Force offered a free Ozone Action Day email notification service and alerted participants of one Ozone Action Day, when unhealthy levels of ozone were expected for the following day. Ozone Action Day alerts are also available via a hotline number, 512-343-SMOG (7664), for those that do not have Internet access or do not wish to share their email address. The alerts, available in both English and Spanish, caution citizens with lung disease, children, and the elderly to avoid prolonged exposure and minimize exertion outdoors. The email alerts also encourage Central Texans to reduce their driving, avoid idling and postpone other polluting activities until late in the day when ozone is less likely to form. The emails provide direct contact information for citizens having questions or concerns regarding the alerts. Alerts are also issued via the CLEAN AIR Force Facebook page, Twitter feed and website. Ozone Season updates were presented at CAF Technical Advisory Committee meetings, CAF Board meetings and Executive Committee meetings during Ozone Season. To register for these alerts, citizens can visit <u>www.cleanairforce.org</u> or call 1-866-916-4AIR (4247).

To kick-off the 2014 Ozone Season, on April 8 the CLEAN AIR Force held a press conference at Round Rock City Hall with Board Member and Round Rock Mayor Alan McGraw, CLEAN AIR Force Board Chair Tim Jones of Samsung Austin Semiconductor, and Andrew Hoekzema of CAPCOG as speakers. This public outreach event reminded citizens of simple things they can do to improve air quality in Central Texas.

### 4.3.1 Clean Air Partners Program

The Clean Air Partners Program (CAPP) is a voluntary program of the CLEAN AIR Force of Central Texas that encourages businesses and organizations to voluntarily reduce their ozone-forming emissions in Central Texas by at least 10% over a three-year period. With approximately 40 Partners participating, the program aims to reduce at least 10,000 commuters from Central Texas roads through efforts such as carpooling/vanpooling, transit, teleworking, flexible schedules, and car sharing. Partners are able to customize additional strategies to achieve ozone reductions, such as the use of green power sources, water and energy conservation, low-emission landscaping methods, clean fleet and fuel strategies, and other proactive measures that lead to cleaner air. The program includes the participation of over 100,000 employees in Central Texas. A current list of Partners can be found on the program website at <u>www.cleanairpartnerstx.org</u>.

Clean Air Partners report their emission-reducing business activities each year via a user-friendly online tool that calculates their emission reductions. The 2013 Partner data reported in 2014 amounted to the reduction of 92,856 pounds of ozone-forming emissions reduced by Partners. Although the overall total was less than in years past, the total pounds of emissions per employee was reduced an additional 6.8%. Partners were publicly thanked by the CLEAN AIR Force and the community for their clean air efforts in a large color ad in the Austin American-Statesman on November 5.

The CAPP held their third Partner Networking/Recruiting Happy Hour on November 6, 2014 at Abel's on the Lake. This was a great opportunity for current Partners to meet potential new Partners and tell them more about the program and relay ways that their companies reduce ozone emissions.

In 2014 the CAPP published two newsletters, one in the spring and one in the fall, reminding Partners to encourage alternative commutes for their employees, conduct vampire energy audits, notifying them of available TERP and DERA grant funding and encouraging cleaner fuels for fleets.

This year the Clean Air Partners Program was selected as a finalist for TCEQ's Texas Environmental Excellence Award in the Civic/Community category, and won the Austin Chamber's Greater Austin Business Award in the Environmental Responsibility and Sustainability category.

## 4.3.2 Clean School Bus Program

The Central Texas Clean School Bus Program (CSBP) is managed by the CLEAN AIR Force of Central Texas and was established to help Central Texas school districts reduce children's exposure to harmful pollutants from school buses. The primary goal of the Clean School Bus Program is to raise funds acquired through the solicitation of donations, gifts, and bequests in order to:

- Replace older, polluting school buses with new, cleaner technology buses;
- Retrofit older buses with new, cleaner emissions controls; and
- Reduce school bus vehicle idling and encourage the use of cleaner fuels.

Overall the program has worked with 32 Central Texas school districts to retrofit/replace older polluting school buses. Last year the program continued to educate parents about the health risks of vehicles idling in pick-up lines at schools through materials developed in collaboration with the Environmental Defense Fund and the American Lung Association. Materials are available on the Clean School Bus website (www.cleanschoolbus.net) in both English and Spanish. This year the program worked with Carpenter Hill Elementary in Hays County Independent School District to implement a no idling policy.

#### 4.3.3 CAF Board of Directors

The CLEAN AIR Force Board of Directors consists of 21 members united in the common goal of finding workable solutions for improving air quality in Central Texas. The CAF Board represents environmental, governmental, corporate, academic, and community interests in air quality in the Austin-Round Rock metropolitan statistical area ("Central Texas"). The Board was led by Tim Jones of Samsung Austin Semiconductor, Vice Chair Rick Perkins of Chemical Logic, and Secretary/Treasurer Brett Davis of Zephyr Environmental Corp. and met to discuss air quality issues and policies.

- CAF Board Meetings:
  - o June 4, 2014;
  - September 17, 2014; and
  - o December 17, 2014.
- CAF Executive Committee Meetings:
  - o January 15, 2014;
  - February 5, 2014;
  - March 5, 2014;
  - April 2, 2014;
  - o June 4, 2014;
  - o July 2, 2014;
  - August 13, 2014;
  - o September 17, 2014;
  - November 5, 2014; and
  - December 17, 2014.

#### 4.3.4 CAF Technical Advisory Committee

The CLEAN AIR Force Technical Advisory Committee (TAC) is a committee that provides businesses, governments and citizens the opportunity to stay abreast of the latest technical and policy related air quality developments. The TAC is chaired by CLEAN AIR Force Treasurer Brett Davis of Zephyr Environmental Corp. and monthly meetings are open to the public and available via teleconference. Meeting notices are posted on the CLEAN AIR Force website (www.cleanairforce.org).

TAC topics in 2014 included ways to improve the Clean Air Partners Program and the CLEAN AIR Force's Nonattainment Impacts Study.

CAF TAC Meetings were held on the following dates:

- January 23, 2014;
- March 20, 2014;
- April 24, 2014;
- June 12, 2014;
- July 30, 2014;
- August 28, 2014; and
- September 25, 2014.

#### 4.3.5 Other CAF Activities

- Ozone Action Day Alerts Given to the Public
  - August 13, 2014 Ozone Action Day Announced for the Following Day
- CAPP Activities
  - May 7, 2014 CAPP Receives TCEQ's Texas Environmental Excellence Award
  - July 1, 2014 2013 CAPP Reporting Due
  - August 27, 2014 CAPP Receives Greater Austin Chamber Business Award
  - $\circ$  November 5, 2014 CAPP Thank You Ad in the Austin American-Statesman
  - November 6, 2014 CAPP Networking and Recruiting Event
- Public Outreach Events and Activities
  - January 17, 2014 Presentation to St. Ignatious Church and School
  - March 27, 2014 20th Anniversary Celebration and Fundraiser Event
  - April 8, 2014 Ozone Season Kick-Off Event
  - April 22, 2014 Austin Community College Earth Day Event
  - April 26, 2014 Austin's Earth Day Event at Mueller Development Center
  - October 9, 2014 Freescale's Health and Lifestyle Expo
  - October 18, 2014 Hutto Olde Tyme Days
  - October 20 24, 2014 Mobility Week
  - o October 31, 2014 Commute All-Star Commuter Celebration
- Media Hits
  - o March 24, 2014 Ozone Season Starts Next Week, Austin EcoNetwork online newsletter
  - April 3, 2014 Ozone Season Is Here, Austin EcoNetwork online newsletter
  - o April 7, 2014 Sign Up for Ozone Action Day Alerts, Austin EcoNetwork online newsletter
  - August 5, 2014 Ozone Season Update, KUT radio interview
  - August 13, 2014 Ozone Action Day Declared and Season Update, KUT radio interview
  - August 13, 2014 Ozone Action Day Declared, KXAN news online
  - August 14, 2014 Today is an Ozone Action Day, KUT

## 4.4 Technical Research

CAPCOG completed the following air quality technical research projects in 2014:

- Conducted a review of the regional ozone monitoring network;
- Collected ozone and meteorological data at seven continuous air monitoring stations within the MSA to supplement the two regulatory ozone monitoring stations operated by TCEQ;
- Developed updated non-road emissions estimates for several key construction sectors; and
- Performed a photochemical modeling analysis of the impact of major events held at the Circuit of the Americas.

Reports associated with these projects can be found at <u>http://www.capcog.org/divisions/regional-</u><u>services/aq-reports</u>. Data collected at CAPCOG's monitoring stations can be retrieved from TCEQ's website. The daily maximum 8-hour ozone averages can be found at: <u>https://www.tceq.texas.gov/cgi-bin/compliance/monops/8hr\_monthly.pl</u>.

TCEQ also completed a number of projects that included new data relevant for emissions analysis for the Austin-Round Rock area in 2014. These included:

- A 2014 Summer Fuel Field Study<sup>14</sup>; and
- Non-Link-Based MOVES2014 On-Road Emissions Inventories for 2006, 2012, and 2018<sup>15</sup>.

The 2014 Summer Fuel Study's results are notable for the Austin-Round Rock MSA because they again showed that sulfur levels in the local gasoline supply appear to be the highest in the state. Whereas the average sulfur content for the state was at 28.07 ppm, the sulfur levels in the Austin area samples were 41.90 ppm. Similarly, in the 2011 fuel study, the Austin area's gasoline sulfur levels were 42.6 ppm, while they were 26.43 ppm statewide<sup>16</sup>. While the cause for this difference is not known, one possible explanation could be the fact that the region only has one fuel supplier (Flint Hills Resources) and the pipeline used to supply bulk terminals may be used for both aviation fuel (which does not need to meet the 30 ppm refinery gate standard) and on-road gasoline. If both fuels are using the same pipeline, it is possible that sulfur from the aviation fuel might be making its way into the on-road gasoline, causing higher sulfur levels in the on-road gasoline than would otherwise be the case.

<sup>&</sup>lt;sup>14</sup> <u>https://www.tceq.texas.gov/assets/public/implementation/air/am/contracts/reports/mob/5821199776FY1420-</u> 20140815-ergi-summer 2014 fuels.pdf

<sup>&</sup>lt;sup>15</sup> <u>ftp://amdaftp.tceq.texas.gov/pub/Mobile\_EI/Statewide/mvs/</u>

<sup>&</sup>lt;sup>16</sup> <u>https://www.tceq.texas.gov/assets/public/implementation/air/am/contracts/reports/mob/5821199776FY1103-</u> 20110831-ergi-summer 2011 fuels.pdf

County	Year	Day Type	Pollutant	MOVES2010b Link-Based (tpd)	MOVES2014 Non-Link- Based (tpd	Difference (tpd)	Difference (%)
Bastrop	2012	M-R	NO <sub>X</sub>	3.62	3.29	-0.33	-9.12%
Bastrop	2012	M-R	VOC	1.78	1.30	-0.48	-26.97%
Caldwell	2012	M-R	NO <sub>X</sub>	2.67	1.47	-1.2	-44.94%
Caldwell	2012	M-R	VOC	1.36	0.59	-0.77	-56.62%
Hays	2012	M-R	NO <sub>X</sub>	7.21	7.02	-0.19	-2.64%
Hays	2012	M-R	VOC	3.38	2.65	-0.73	-21.60%
Travis	2012	M-R	NO <sub>x</sub>	30.46	29.84	-0.62	-2.04%
Travis	2012	M-R	VOC	15.56	13.23	-2.33	-14.97%
Williamson	2012	M-R	NOx	11.31	11.88	0.57	5.04%
Williamson	2012	M-R	VOC	5.82	5.36	-0.46	-7.90%
MSA Total	2012	M-R	NO <sub>X</sub>	IO <sub>x</sub> 55.27 5		-1.77	-3.20%
MSA Total	2012	M-R	VOC	27.90	23.13	-4.77	-17.10%

Table 45: Comparison of Recent On-Road Emissions Estimates for the Austin-Round Rock MSA

# 4.5 Update of Austin Energy Resource, Generation, and Climate Protection Plan Update

In December 2014, Austin Energy completed an update to its *2020 Resource, Generation, and Climate Protection Plan*. Milestones for this process are listed below:<sup>17</sup>

- April 2014:
  - o Austin City Council appoints the 2014 Austin Generation Resource Planning Task Force;
  - Austin City Council passes Resolution No. 20140410-024, which seeks to accelerate reduction of greenhouse gas emissions beyond the 2007 Austin Climate Protection Plan standards; and set a goal of reaching net zero community-wide greenhouse gas emissions by 2050 or sooner if feasible.
- July 9, 2014: Task Force approves recommendations for updating the Plan.
- August 2014: Austin City Council approves Resolution No. 20140828-157 and Resolution No. 20140828-158, which placed several Task Force recommendations into policy, subject to affordability metrics.
- October 9, 2014: Austin Energy presents results of the planning effort to Council, recommending expanded renewable generation and replacement of the Decker Creek Power Station's steam units with a highly efficient combined cycle gas turbine unit by 2018.
- December 11, 2014: Austin Energy publishes plan update.

The 2025 Generation Plan involves the replacement of Decker's two old steam-powered boilers with a combined capacity of 726 MW with 500 MW in new, gas-fired combined cycle turbines capacity by the end of 2018 and increase the amount of renewable energy to 55% of customer demand.

<sup>&</sup>lt;sup>17</sup> http://austinenergy.com/wps/wcm/connect/461827d4-e46e-4ba8-acf5-

<sup>&</sup>lt;u>e8b0716261de/aeResourceGenerationClimateProtectionPlan2025.pdf?MOD=AJPERES</u>

Based on the 2014 emissions from LCRA's new 540 MW combined cycle T.C. Ferguson power plant in Llano County, which would be expected to be very similar to any replacement for Decker, this replacement would reduce emissions from 0.722 tpd (average daily emissions from 3/1/2014 – 10/31/2014 for units 1 and 2) to approximately 0.104 tpd (average daily emissions from TC Ferguson from 3/1/2014 – 10/31/2014), a 0.618 tpd reduction.

Austin Energy has issued a request for proposals to evaluate the costs and benefits of different alternatives for power generation including the proposed 500 MW combined cycle plant Decker replacement option.

# 5 Looking Forward

This section provides an outlook for 2015 and beyond.

# 5.1 Air Quality Plan Update

Based on the information provided by CAC members and other participating organizations for this report and based on where EPA decides to set the new ozone NAAQS later this year, CAPCOG will work on developing an update to the region's OAP Action Plan by the end of 2015 to reflect these and any other developments that may have occurred by that time.

# 5.2 New Near-Nonattainment Grant

In the recently completed 84<sup>th</sup> Texas Legislative session, the state of Texas reauthorized the nearnonattainment grant that has provided local air quality planning funding for CAPCOG's air quality program. Funding will increase from about \$700,000 for the 2014-2015 biennium to over \$1.2 million for the 2016-2017 biennium. This increase in funding will provide the regional air quality program with sufficient resources to continue to:

- operate all of its air quality monitoring stations in 2016 and 2017;
- complete new emissions inventory research;
- complete new photochemical modeling analyses; and

• conduct additional work to implement new emission reductions within the region. These activities will help ongoing air quality planning activities, help ensure that existing emission reduction commitments are achieving the maximum possible emission reductions ahead of the end of the 2016 ozone season, and thereby help put the region in the best possible position to stay in attainment of all NAAQS.

# 5.3 CLEAN AIR Force Projects for 2015

CLEAN AIR Force initiated the 7<sup>th</sup> High School Public Service Announcement (PSA) Air Quality Contest aimed at educating and engaging the youth of Central Texas in air quality related issues. Time Warner Cable was the presenting sponsor for the 2014-2015 PSA Contest and the CLEAN AIR Force, in partnership with Samsung Austin Semiconductor, held the contest with students from all high schools in the five-county region. High School students were asked to create a 30-second PSA incorporating air quality information and tips on simple ways citizens can reduce ground-level ozone and air pollution. The winning first place entry was announced in March of 2015 and received a 32GB Samsung Galaxy Tab, and the second place winner received a 16GB Samsung Galaxy Tab, courtesy of Samsung Austin Semiconductor. The winning PSA aired on Time Warner Cable News Austin in April and May of 2015 and posted on the CAF website and You Tube channel. The winner was also be recognized in a proclamation by the Mayor of the City of Austin. All past winning PSAs can be viewed on the <u>CAF You Tube channel</u> and <u>Facebook page</u>.

CLEAN AIR Force and CAPCOG are also working on updating the emissions factors used in the Clean Air Partners Reporting Tool and evaluating other possible changes to improve the value of the data collected by each organization. Among other things, CAF and CAPCOG are developing data that would enable consistency between the CAPP reporting data and emissions factors from EPA's MOVES2014 model, the Texas NONROAD model, and the latest factors for area sources and electricity generating units.

# 5.4 Technical Research Projects Planned for 2015

CAPCOG is planning on completing a number of air quality research projects in 2015. These include:

- 1. Collecting ozone and meteorological measurements at eight ozone monitoring stations in the region;
- 2. Development of updated non-road agricultural equipment emissions inventories for 2012 and 2018;
- 3. Refinement of local point source emissions inputs used for photochemical modeling data;
- 4. Development of updated link-based on-road emissions estimates for 2012 and 2018 using MOVES2014 and CAMPO's new travel demand model data for 2020 and 2040;
- 5. Updating the region's ozone conceptual model, covering monitoring data from 2006-2014;
- 6. Analyzing available of air quality survey data;
- 7. Analyzing of the potential costs to the region of an ozone nonattainment designation;
- 8. Analyzing the emission reduction benefits from the I-M program;
- 9. Modeling of the ozone reduction impacts of the I-M program;
- 10. Modeling of the ozone reduction impacts of Texas Lehigh's NO<sub>x</sub> reduction program;
- 11. Conducting a secondary analysis of other photochemical modeling data applicable to the region; and
- 12. Conducting a new regional air quality survey.

# Conclusion

The Austin-Round Rock MSA experienced one of the best years on record for air quality in 2014. Dating back to the 1970s when the Texas Air Control Board began collecting ozone data in the region, ozone levels in the region have never been as low as they were in 2014. Based on the region's 2012-2014 ozone design value, the region is in compliance with the 2008 ozone NAAQS, and would be in compliance with a new ozone NAAQS set at the higher end of the range proposed by EPA. With continued improvement in air quality, there is a chance that the region could avoid a nonattainment designation in 2017 for a standard set as low as 65 ppb. While the steep reduction in the Austin-Round Rock area's ozone levels between 2013 and 2014 were likely due overwhelmingly to the differences in meteorology, as was seen across the state, continuing reductions in local ozone-forming emissions due to voluntary local efforts and regional, state, and federal programs also contributed to improvements in

local air quality and put the region within striking distance of again getting through a round of ozone designations while remaining in attainment.

The focus of regional air quality planning efforts has been and remains ground-level ozone due to the region's ozone levels relative to the ozone NAAQS. But while the ozone design value is closer to the ozone NAAQS than the region's PM design values are to the PM NAAQS, the area actually experienced significantly more days with "moderate" PM levels than with "moderate" ozone levels. Interestingly, a majority of the monetized health improvements that the EPA estimates would be associated with reducing ozone levels below 75 ppb are actually co-benefits from PM reductions, 2014 monitoring data may suggest that the region could benefit from incorporating PM into its existing planning efforts for ozone under the OAP Action Plan. Moving forward, CAPCOG will open discussions with the CACAC and the CAC on whether it might be appropriate for the region to consider such an approach, including whether participating in EPA's PM Advance Program may be beneficial for regional air quality efforts. For other pollutants, the region's air quality remains well below the level of the NAAQS.

2014 also marks the first full year for the region under the 2013 OAP Action plan, and the momentum from the effort to develop that plan carried forward into 2014 with the development of a new air quality regional outreach and education plan. The region's air quality outreach and education efforts are now much better coordinated, with clearly defined goals and objectives. These efforts will remain a focus moving forward, especially ahead of the 2016 ozone season in order to put the region in the best possible position to avoid a nonattainment designation for the new ozone standard.

This report provides a way to hold the participants in the OAP Action Plan accountable for implementation of commitments and performance of the plan – to each other, to the TCEQ, to the EPA, and to the public at large. The numerous emission reduction measures enumerated in this report are helping reduce ozone levels and maintain the region's status as being in attainment for all NAAQS. The region's efforts were recognized in 2014 by the EPA in when it awarded the CAC a Clean Air Excellence Award for Community Engagement and by the TCEQ when it named the CAF as a finalist for the Texas Environmental Excellence Award in the Civic/Community Category. As this report and these awards highlights, the region remains committed to reducing air pollution and improving the quality of life for all Central Texans.

# Appendix A: Complete List of Emission Reduction Measures Reported

This section provides a complete list of the emission reduction measures reported by participating organizations, except for TERMS, which are reported in Appendix B. The legend for the tables is the following:

- C = Commitment
- 14 = Implemented in 2014
- 15 = Plans to implement in 2015
- N = New commitment for 2015-2018. In some cases, an organization may have already been implementing these measures, but had not made a commitment to implement them as part of the OAP Action Plan.
- 0 = No report on Commitment

# **CAC Members**

This section provides details on information provided by participating organizations other than CAC members.

 Table 46: Status of Emission Reduction Measures by CAC Members

Measure	Bastrop County	<b>Caldwell County</b>	Hays County	Travis County	Williamson County	City of Austin	City of Bastrop	City of Cedar Park	City of Elgin	City of Georgetown	City of Hutto	City of Lockhart	City of Luling	City of Round Rock	City of Pflugerville	City of San Marcos	City of Sunset Valley
Alternative Commute Infrastructure				C, 14			0										
Commute Solutions Programs, May Include:																	
*Compressed Work Week	C, 14		14	14	14	C, 14								C, 14		0	C, 14
*Flexible Work Schedule	C, 14		14	14		C, 14	0							C, 14		0	C, 14
*Carpool or Alternative Transportation Program, May Include Incentive						C, 14											
*Transit Pass Subsidized by Employer				C, 14		C, 14											
*Teleworking (Full Time)						C, 14											
*Teleworking (Part Time)	C, 14			C, 14		C, 14								C, 14			
Implement Internal Employer Commute Reduction Program	С				14* *	C, 14	0				C, 14						

Measure	Bastrop County	Caldwell County	Hays County	Travis County	Williamson County	City of Austin	City of Bastrop	City of Cedar Park	City of Elgin	City of Georgetown	City of Hutto	City of Lockhart	City of Luling	City of Round Rock	City of Pflugerville	City of San Marcos	City of Sunset Valley
Encourage Private Sector Commuter Trip Reduction Programs	С					C, 14	0				С						
Incentivize Alternative Commuting by Employees				C, 14		C, 14											
Access Management							0				15, N	C, 14		C, 14			
Expedited Permitting for Mixed Use, Transit-Oriented or In-Fill Development							0		С		14						
Transit-Oriented Development									C*		14						
Tree Planting	C, 14		C, 14	C, 14	C, 14	C, 14	0	C, 14	C, 14	15	14	C, 14		C, 14			C, 14
Tree Maintenance Programs	С		14	14	14	C, 14		C, 14		С							
Development Policies to Improve Energy and Resource Efficiency in New Buildings			14			C, 14		C, 14			С						
Codes and Ordinances That Encourage or Require a More Pedestrian-Friendly Environment											C, 14						
Resource Conservation			C, 14	C, 14	C, 14	C, 14								C, 14	0	0	
Energy Efficiency Programs			C, 14			С, 14	0	C, 14	С	C, 15			0		0	0	C, 14

Measure	Bastrop County	Caldwell County	Hays County	Travis County	Williamson County	City of Austin	City of Bastrop	City of Cedar Park	City of Elgin	City of Georgetown	City of Hutto	City of Lockhart	City of Luling	City of Round Rock	City of Pflugerville	City of San Marcos	City of Sunset Valley
Renewable Energy Programs						C, 14				N					0		
Electric Vehicle Programs						C, 14											
Water Conservation Programs			14					C, 14		C, 15	14			14, 15, N			
Resource Recovery and Recycling Programs			14	14				14		C, 14	14	14					
Alternative Fuel Vehicles					C, 14			C, 14		С	15, N					0	C, 14
Business Evaluation of Fleet Usage, Including Operations and Right-Sizing			C, 14	14	C, 14	C, 14		C, 14						C, 14	0	0	
Fueling of Vehicles in the Evening		0	C, 14	C, 14	C, 14		0	C, 14	C, 14		15, N	C, 14		C, 14			C, 14
Low Emission Vehicles		0		C, 14	C, 14			C, 14			15, N	C, 14		C, 14			
Texas Low-Emission Diesel (TxLED) Equivalent for Fleets						C, 14		C, 14		С	15, N			C, 14		0	
Vehicle Maintenance by Manufacturer Specifications		0	14	C, 14	C, 14		0	C, 14	C, 14	С	14			C, 14		0	
Prioritize Purchasing of Low- Emission Light Duty Vehicles				14	***	С, 14	0					14					

Measure	Bastrop County	Caldwell County	Hays County	Travis County	Williamson County	City of Austin	City of Bastrop	City of Cedar Park	City of Elgin	City of Georgetown	City of Hutto	City of Lockhart	City of Luling	City of Round Rock	City of Pflugerville	City of San Marcos	City of Sunset Valley
Prioritize Purchasing of Alternative-Fueled Vehicles and Equipment					***	C, 14					15, N						
Prioritize Purchasing of Hybrid Vehicles and Equipment					***	C, 14					15, N						
Increase Fleet Fuel Efficiency				14	***	C, 14		C, 14			15, N						
Increase Substitution of Alternative Fuels for Conventional Fuels					***	C, 14											
Idling Limits for Fleet Vehicles and Equipment			C, 14		***	C, 14	0	C, 14		C, 15	С	C, 14	0	C, 14			C, 14
Retrofit/Repower/Replace Vehicles and Equipment through TERP/DERA Funding					***	C, 14		C, 14							0	0	
Employee Training on Alternative Fuels and Fuel Efficiency					***	C, 14		C, 14									
Vapor Recovery on Pumps		0	С				0										
Ozone Action Day Program, Includes:															0		
*Employee Education Program	С	0	C, 14	C, 14	C, 14	C, 14	0	C, 14	C, 14		C, 14	C, 14		C, 14		0	
*Public Education	C, 14	0	C, 14	C, 14	C, 14	C, 14	0	C, 14	C, 14			C, 14		C, 14			
*Ozone Action Day Notification Program		0	C, 14	C, 14	C, 14	C, 14	0	C, 14	C, 14			C, 14		C, 14		0	

Measure	Bastrop County	Caldwell County	Hays County	Travis County	Williamson County	City of Austin	City of Bastrop	City of Cedar Park	City of Elgin	City of Georgetown	City of Hutto	City of Lockhart	City of Luling	City of Round Rock	City of Pflugerville	City of San Marcos	City of Sunset Valley
*Ozone Action Day Response Program		0	C, 14	C, 14	C, 14	C, 14	0	C, 14						C, 14			
Programs to Improve Awareness of and Compliance With Air Quality Rules				14		C, 14		C, 14		С							
Open Burning Restrictions	С						0	C, 14	C, 14			C, 14	0	14, 15, N			C, 14
Idling Enforcement-Enforce State Rule			C, 14	C, 14	C, 14	C, 14	0			С				14, 15, N			C, 14
Idling Enforcement: Local Ordinance	C, 14			14		C, 14			C, 14	С	14	C, 14	0	C, 14		0	
Special Event Emission Reduction Policies	С					C, 14											
Contractor Provisions for High Ozone Days																	C, 14
Direct Deposit	C, 14	0	C, 14	C, 14	C, 14		0	C, 14	14	С	C, 14	C, 14	0	C, 14		0	C, 14
Drive-Through Facilities on Ozone Action Days												C, 14					C, 14
e-Government and/or Available Locations	С		C, 14	C, 14	C, 14		0	C, 14	C, 14	С			0	C, 14		0	C, 14
Landscaping Voluntary Start at Noon on High Ozone Days Education Program				C, 14								C, 14					C, 14

Measure	Bastrop County	Caldwell County	Hays County	Travis County	Williamson County	City of Austin	City of Bastrop	City of Cedar Park	City of Elgin	City of Georgetown	City of Hutto	City of Lockhart	City of Luling	City of Round Rock	City of Pflugerville	City of San Marcos	City of Sunset Valley
Low VOC Asphalt	14, 15			C, 14	C, 14		0					C, 14		C, 14			
Low VOC Roadway Striping Material	14, 15		С	C, 14	C, 14		0					C, 14		C, 14			C, 14
Shaded Parking				C, 14							14	C, 14		C, 14			
Clean Landscaping Contracting	C, 14																
Clean Construction Contracting	C, 14																
Local Sourcing of Materials	C, 14																

\*On the books, no investors yet

\*\*Experimentation in 2014, not full-fledged yet

\*\*\*Departmental goal

## **Other Participating Organizations**

This section provides details on information provided by participating organizations other than CAC members.

 Table 47: Status of Emission Reduction Measures by Other Participating Organizations

Measure	CAPCOG	CAMPO	CapMetro	CTRMA	CAF	LCRA	TCEQ	TxDOT-Austin	Тхрот-но	Texas Lehigh	TNLA
Alternative Commute Infrastructure			С						C, 14		
Commute Solutions Programs, May Include:									C, 14		
*Compressed Work Week	C, 14	С	С			C, 14	C, 14	C, 14			
*Flexible Work Schedule	C, 14	C, 14	С	C, 14		C, 14	C, 14	C, 14			
*Carpool or Alternative Transportation Program, May Include Incentive		C, 14	С	C, 14		C, 14	C, 14	14, 15, N	14		
*Transit Pass Subsidized by Employer		C, 14	С								
*Teleworking (Full Time)			С			C, 14					
*Teleworking (Part Time)		C, 14	С			C, 14	C, 14	14, 15, N	14		
Implement Internal Employer Commute Reduction Program			C, 14					14, 15, N	C, 14		
Encourage Private Sector Commuter Trip Reduction Programs			C, 14		C, 14				C, 14		
Incentivize Alternative Commuting by Employees			14					14, 15, N	14		
Access Management			С					C, 14	C, 14		
Expedited Permitting for Mixed Use, Transit-Oriented or In- Fill Development									C, 14		
Transit-Oriented Development	C, 14	С	С			C, 14	C, 14	C, 14			

Measure	CAPCOG	CAMPO	CapMetro	CTRMA	CAF	LCRA	TCEQ	TxDOT-Austin	Тхрот-но	Texas Lehigh	TNLA
Tree Planting	C, 14	C, 14	С	C, 14		C, 14	C, 14	C, 14			
Tree Maintenance Programs		C, 14	С	C, 14		C, 14	C, 14	14, 15, N	14		
Development Policies to Improve Energy and Resource Efficiency in New Buildings		C, 14	С								
Codes and Ordinances That Encourage or Require a More Pedestrian-Friendly Environment			С			C, 14					
Resource Conservation			C, 14	C, 14							
Energy Efficiency Programs											
Renewable Energy Programs			C, 14								
Electric Vehicle Programs			C, 14	C, 14		C, 14					
Water Conservation Programs			C, 14	14							
Resource Recovery and Recycling Programs			C, 14								
Alternative Fuel Vehicles		C, 14	IN	C, 14			C, 14				
Business Evaluation of Fleet Usage, Including Operations and Right-Sizing			C, 14		C, 14			C, 14			
Fueling of Vehicles in the Evening			15, N					C, 14			
Low Emission Vehicles			15, N								
Texas Low-Emission Diesel (TxLED) Equivalent for Fleets			C, 14								
Vehicle Maintenance by Manufacturer Specifications			C, 14	14			14, 15	14, 15, N			
Prioritize Purchasing of Low-Emission Light Duty Vehicles		C, 14	IN	C, 14			C, 14				
Prioritize Purchasing of Alternative-Fueled Vehicles and Equipment			C, 14		C, 14			C, 14			
Prioritize Purchasing of Hybrid Vehicles and Equipment			15, N					C, 14			

Measure	CAPCOG	CAMPO	CapMetro	CTRMA	CAF	LCRA	TCEQ	TxDOT-Austin	Тхрот-но	Texas Lehigh	TNLA
Increase Fleet Fuel Efficiency			15, N								
Increase Substitution of Alternative Fuels for Conventional Fuels			C, 14								
Idling Limits for Fleet Vehicles and Equipment			C, 14	14			14, 15	14, 15, N			
Retrofit/Repower/Replace Vehicles and Equipment through TERP/DERA Funding		C, 14	IN	C, 14			C, 14				
Employee Training on Alternative Fuels and Fuel Efficiency			C, 14		C, 14			C, 14			
Vapor Recovery on Pumps			15, N					C, 14			
Ozone Action Day Program, Includes:											
*Employee Education Program	C, 14	C, 14	C, 14	C, 14			C, 14	C, 14			C, 14
*Public Education	C, 14	C, 14	C, 14	C, 14	C, 14		C, 14	14			C, 14
*Ozone Action Day Notification Program	C, 14	C, 14	С	C, 14	C, 14		C, 14	C, 14			
*Ozone Action Day Response Program	C, 14		С		C, 14		14	С		C, 14	
Programs to Improve Awareness of and Compliance With Air Quality Rules			C, 14		C, 14						
Open Burning Restrictions											
Idling Enforcement-Enforce State Rule											
Idling Enforcement: Local Ordinance											
Special Event Emission Reduction Policies											
Contractor Provisions for High Ozone Days											
Direct Deposit	C, 14	C, 14	C, 14	C, 14			C, 14	14, 15, N			
Drive-Through Facilities on Ozone Action Days											
e-Government and/or Available Locations		C, 14	C, 14				C, 14				

Measure	CAPCOG	CAMPO	CapMetro	CTRMA	CAF	LCRA	TCEQ	TxDOT-Austin	Тхрот-но	Texas Lehigh	TNLA
Landscaping Voluntary Start at Noon on High Ozone Days Education Program											
Low VOC Asphalt				C, 14				14, 15, N			
Low VOC Roadway Striping Material				C, 14							
Shaded Parking			C, 14				C, 14	14, 15, N			
Clean Landscaping Contracting				14				С			
Clean Construction Contracting				14				C, 14			
Local Sourcing of Materials								14, 15, N			

# **Appendix B: TERMS**

This appendix provides updates on TERMS based on information submitted by organizations participating in the OAP Action Plan. The first section provides details on TERMS described in the OAP Action Plan, and the second section provides details on additional TERMS reported by CAC members and participating organizations beyond what was detailed in the OAP Action Plan.

# **Existing TERMS Commitments**

 Table 48: Status of Existing TERMS Commitments

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
Travis County	Gilbert Road	5' bike lane and 6' sidewalk constructed with new 2-lane collector road between FM 969 and Westall Street	2014	Bicycle / Pedestrian	Construction will begin in Dec. 2016
Travis County	Hunters Bend Road Sidewalk	New 6' sidewalk between Austin's Colony Boulevard and Red Tails Dr.	2014	Bicycle / Pedestrian	Complete
Travis County	Tuscany Way South	5' bike lanes and 6' sidewalks constructed with new 4-lane divided arterial between US 290 E and Springdale Road	2015	Bicycle / Pedestrian	Complete

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
Travis County	Wells Branch Parkway	5' bike lanes and 6' sidewalks constructed with new 4-lane divided arterial between Immanuel Road and Cameron Road	2016	Bicycle / Pedestrian	5% complete
Travis County	Lost Creek Blvd. Sidewalk	New 6' sidewalks from Quaker Ridge Drive to Barton Creek	2014	Bicycle / Pedestrian	No Status Update
Travis County	US 290 at Circle Drive	Align intersection of Spring Valley and Circle Drive at US 290 W, add right turn lanes on Spring Valley Road and Circle Drive	2014	Operational Improvements	Complete
Travis County	Flint Rock Road	Add wide outer shoulder to accommodate bicycles with widening of existing travel lanes	2016	Bicycle / Pedestrian	Will begin in 2017

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
Travis County	Bee Creek Road	5' bike lanes and 6' sidewalks constructed with widening to 4-lane divided arterial from SH 71 to Highland Blvd.	2014	Bicycle / Pedestrian	Complete
Travis County	El Rey Blvd. sidewalk	New 6' sidewalk from US 290 to Espanola Trail	2014	Bicycle / Pedestrian	80% Complete
Travis County	Slaughter Lane	5' bike lanes and 6' sidewalks on new 4- lane divided arterial from Old Lockhart Rd. to Vertex Blvd	2014	Bicycle / Pedestrian	Complete
Travis County	Slaughter Lane	5' bike lane and 6' sidewalk on new 2-lane arterial from Vertex Blvd. to Thaxton Road	2015	Bicycle / Pedestrian	Design is 95% complete. Completion expected by 5/2017
Travis County	Cameron Road	5' bike lanes and 6' sidewalks with widening to 4-lane divided arterial from Howard Lane to SH 130	2017	Bicycle / Pedestrian	30% design complete.

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
Travis County	Braker Lane	5' bike lanes and 6' sidewalks on new 4- lane divided arterial from FM 973 to Taylor Lane	2016	Bicycle / Pedestrian	40% complete
Travis County	Frate Barker Road	5' bike lanes and 6' sidewalks with widening to 4-lane arterial from Brodie Lane to Manchaca Road	2016	Bicycle / Pedestrian	5% Complete
Travis County	Howard Lane	5' bike lanes and 6' sidewalks on new 4- lane divided arterial from Cameron Road to SH 130	2016	Bicycle / Pedestrian	80% Complete
Travis County	Parmer Lane	5' bike lanes and 6' sidewalks on new 4- lane divided arterial from Austin-Manor Railroad to SH 130	2016	Bicycle / Pedestrian	60% Complete
City of Round Rock	Traffic signals	Red Bud @ Mickey Mantle	2014-2018	Operational Improvements	Construction
City of Round Rock	Traffic signals	Gattis @ Rusk Road	2014-2018	Operational Improvements	Planning
Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
-----------------------	-------------------------------	---	------------------------	-----------------------------	----------
City of Round Rock	Traffic signals	Hidden Valley @ Sunrise	2014-2018	Operational Improvements	Design
City of Round Rock	Traffic signals	University @ Tera Vista Club	2014-2018	Operational Improvements	Complete
City of Round Rock	Traffic signals	University @ Eagles Nest	2014-2018	Operational Improvements	Complete
City of Round Rock	Traffic signals	University @ Sandy Brook	2014-2018	Operational Improvements	Complete
City of Round Rock	Traffic signals	Mays @ Mays Crossing	2014-2018	Operational Improvements	Design
City of Round Rock	Traffic signals	Greenlawn @ Pflugerville Parkway	2014-2018	Operational Improvements	Complete
City of Round Rock	Traffic signals	A.W. Grimes @ Creek Ridge	2014-2018	Operational Improvements	Complete
City of Round Rock	RM 620 Safety Improvements	Grade separation of the UPRR RR with related safety and access improvements. Includes sidewalks and bicycle facilities. From Deepwood Drive to IH 35	2018	Operational Improvements	Design
City of Round Rock	Right turn lanes	Red Bud @ Forest Creek, NB to EB	2014-2016	Operational Improvements	Complete
City of Round Rock	Right turn lanes	Red Bud @ Forest Creek, SB to WB	2014-2016	Operational Improvements	Complete

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
City of Round Rock	Right turn lanes	Red Bud @ Gattis, SB to WB	2014-2016	Operational Improvements	Complete
City of Round Rock	Right turn lanes	University @ Sunrise, EB to SB	2014-2016	Operational Improvements	Complete
City of Round Rock	Right turn lanes	Old Settlers Boulevard @ A.W. Grimes, EB to SB	2014-2016	Operational Improvements	Complete
City of Round Rock	Right turn lanes	S. Mays Street @ Gattis School Road	2014-2016	Operational Improvements	Complete
City of Round Rock	Left turn lanes	Gattis School Road @ Rusk Road	2014	Operational Improvements	Complete
City of Round Rock	Left turn lanes	Greenlawn @ Gattis School Road	2014	Operational Improvements	Complete
City of Round Rock	Signal Timing	Louis Henna corridor	2014-2015	Operational Improvements	Complete
City of Round Rock	Signal Timing	Gattis School Road corridor	2014-2015	Operational Improvements	Complete
City of Round Rock	Signal Timing	University corridor	2014-2015	Operational Improvements	Complete
City of Round Rock	Signal Timing	Old Settlers Boulevard corridor	2014-2015	Operational Improvements	Complete
City of Round Rock	Old Settlers Boulevard turn lanes	Provide right and left turn lanes, between Chisholm Trail Road and Mays Street on FM 3406	2014	Operational Improvements	Complete

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
City of Round Rock	Kenney Fort Boulevard	Joe DiMaggio to Forest Creek Boulevard, six lane divided arterial on a new location. Provides a grade separated crossing of the UPRR and US 79. Includes bicycle and pedestrian facilities.	2014	Bicycle / Pedestrian	Complete
City of Round Rock	IH 35 Ramp reversals	FM 3406 to US 79, relocate ramps to urban "X" type configuration	2016	Operational Improvements	Construction
City of Round Rock	Reverse commute bus route	Implement a reverse commute bus route between Tech Ridge and Sears Teleserve	2014	Transit	Complete
City of Round Rock	Advanced Traffic Management System	Implement ITS infrastructure in phases across the City to better manage incidents and improve traffic flow	2015-2016	Operational Improvements	Complete
City of Round Rock	Sidewalk Gap Program	Old Settlers Boulevard	2014	Bicycle / Pedestrian	Complete
City of Round Rock	Sidewalk Gap Program	Sunrise Road	2014	Bicycle / Pedestrian	Complete
City of Round Rock	Sidewalk Gap Program	US 79	2014	Bicycle / Pedestrian	Complete

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
City of Round Rock	Sidewalk Gap Program	Donnell Drive	2014	Bicycle / Pedestrian	Complete
City of Round Rock	Sidewalk Gap Program	Joe DiMaggio	2014	Bicycle / Pedestrian	Complete
City of Round Rock	Chisholm Trail Road	Widen existing 2 lane rural road to a 4 lane divided arterial, with curb and gutter and sidewalks. Between FM 3406 and Sam Bass Road	2014	Bicycle / Pedestrian	Complete
City of Round Rock	Downtown Improvements	Improve streetscapes by rebuilding the roadways to include 10- 20 foot wide sidewalks along all downtown streets.	2014-2017	Bicycle / Pedestrian	Under Construction
Bastrop County	Signals along US 290	Elgin	2014	Operational Improvements	Complete
Bastrop County	US 290E	Upgrade to 4-lane MAD	Various - 2018	Operational Improvements	Under Construction
Bastrop County	FM 1704	Upgrade w/ shoulders (to facilitate crash management)	2015	Operational Improvements	Complete
Bastrop County	SH 71 @ Loop 150	Signal Improvements	2018	Operational Improvements	Under Construction

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
Bastrop County	FM 1100	Add sidewalks	2014	Bicycle / Pedestrian	Complete
City of Austin	Northern Walnut Creek	Preliminary Engineering and partial construction for a 10' wide concrete pathway with trail heads and amenities at strategic points along trail	2014	Bicycle / Pedestrian	Ongoing
City of Austin	North Lamar Sidewalks	Build components of ADA compliant sidewalks on North Lamar Blvd from US 183 to Parmer Ln	2014-2018	Bicycle / Pedestrian	Ongoing
City of Austin	Sabine Street Promenade	Construction of sidewalks, bike lanes, and pedestrian amenities to implement a Sabine Street Promenade between 4th and 7th Streets	2017	Bicycle / Pedestrian	Not Started
City of Austin	Bike Share/Safety Program	First phase of bike share system paired with bicycle safety enforcement program	2013-2014	Bicycle / Pedestrian	Ongoing

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
City of Austin	MoPac Bicycle and Pedestrian Bridge Phase 1	Construct Phase 1 of Mopac Bicycle and Pedestrian Bridge of Loop 360	2015	Bicycle / Pedestrian	Pending
City of Austin	North Acres Park Bike Trail	Construct a shared use path	2014	Bicycle / Pedestrian	Ongoing
City of Austin	New Bicycle Lanes	Install approximately 20 miles of new bicycle lanes per year. Locations to be determined through coordination with routine street maintenance	2014-2018	Bicycle / Pedestrian	Ongoing
City of Austin	New Sidewalk	Install new sidewalk citywide consistent with the Sidewalk Master Plan funded with 2012 ADA Sidewalk Bonds	2014-2018	Bicycle / Pedestrian	Ongoing

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
City of Austin	Travel Time Monitoring Program	Phase I - Deploying travel time data collection equipment along key arterial streets and continuously collect travel time data. Travel times will be used to: (1) influence travel behavior by disseminating traveler information on dynamic message signs and the web; (2) improve traffic flow.	2013-2014	Operational Improvements	Ongoing
City of Austin	Bicycle Signal and Detection Grant	Purchase and install bicycle signals and bicycle detection equipment. Project enhances bicycle environment and safety at signalized intersections which is intended to increase bicycle usage.	2013-2014	Bicycle / Pedestrian	Ongoing

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
City of Austin	Advanced Intersection Detection for Adaptive Signal Control	Adaptive signal control enables signals to automatically adjust timings to better respond to unexpected changes in traffic conditions (e.g., a freeway incident that diverts traffic to the frontage road signals). Additional detection is needed to implement adaptive signal control. This project deploys detection at signals along I-35 frontage roads and other roadways.	2014-2016	Bicycle / Pedestrian	Ongoing

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
City of Austin	Advanced Bicycle Detection via Mobile App	This Pilot Project improves bicycle detection at signalized intersections. A cyclist starts a smart phone application (app) prior to beginning their trip. The app communicates with the City's signal system which detects the cyclist at one of the project signals and then turns the signal green to facilitate their crossing. Improved detection enhances the cycling environment and is intended to increase bicycle usage.	2014-2015	Bicycle / Pedestrian	Ongoing

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
City of Austin	Pedestrian Enhancement Program (Arterial Operations)	Deploy traffic signals, pedestrian hybrid beacons, pedestrian countdown timers, enhanced pedestrian push buttons and accessible pedestrian signals. These enhancements improve pedestrian mobility which is intended to increase walking as a transportation choice.	2013-2016	Bicycle / Pedestrian	Ongoing
Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
ТхDOT	US 290: 372 ft west of Joe Tanner Ln to 585 ft east of Joe Tanner Ln	Innovative intersection improvement	2014	Operational Improvements	Complete
ТхDOT	US 290: 800 ft east of Joe Tanner Ln to 372 ft west of Joe Tanner Ln	Innovative intersection improvement	2014	Operational Improvements	Complete

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
TxDOT	SH 21 at intersection of RM 150	Construct left turn lane on SH 21 NB	2014	Operational Improvements	Complete
TxDOT	Hays County: various locations	Statewide curb ramp program	2014	Bicycle/Pedestrian	Complete
TxDOT	Travis County: various locations	Statewide curb ramp program	2014	Bicycle/Pedestrian	Complete
TxDOT	Downtown Austin Transp Mgt Assoc	Various Locations in MPO area	2013-2014	Other	Ongoing
TxDOT	Manchaca Rd from Frate Barker Ln to Brodie Ln	Upgrade existing 2 lane to 4 Ln arterial: Includes sidewalks	2015	Bicycle/Pedestrian	Not letting until 2021
TxDOT	Various Locations	Bike share/Bike Safety Program	2015	Bicycle/Pedestrian	Complete
TxDOT	Brushy Creek Regional Trail: from 2500' E of Arterial A to AW Grimes	Construction Trail	2015	Bicycle/Pedestrian	Complete
TxDOT	RM 1431: on Bagdad Rd from Kettering DR	Widen, add LTLS, sidewalks and lighting	2015	Bicycle/Pedestrian	Complete
TxDOT	Safe Routes to School: Various locations in Smithville	Ped path, sidewalks, and school zone signs	2014	Bicycle/Pedestrian	Complete

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
TxDOT	Safe Routes to School: Various locations in Smithville	Ped path, sidewalks, and school zone signs	2015	Bicycle/Pedestrian	Complete
TxDOT	US 183: Pecan St to FM 20	reconstruct to 5 lane urban section, including sidewalks	2015	Bicycle/Pedestrian	5% Complete
TxDOT	US 183: FM 20 to .274 miles south of MLK/Industrial Blvd	reconstruct to 5 lane urban section, including sidewalks	2015	Bicycle/Pedestrian	5% Complete
TxDOT	SH 80: Long St to Clarewood Dr	Intersection Improvements	2014	Operational Improvements	Complete
TxDOT	Loop 82: IH 35 NB frontage rd to .40 miles west of NBFR	Intersection Improvements	2014	Operational Improvements	Complete

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
TxDOT	CS: IH 35 NB frontage rd to .12 miles east of IH 35 NBFR	Intersection Improvements	2014	Operational Improvements	Complete
TxDOT	FM 685: US 79 to SH 130	Reconstruct to 4 lane divided roadway with bridge structure, including sidewalks	2015	Bicycle/Pedestrian	30% Complete
TxDOT	RM 1431: FM 734 to CR 175	Widen to 6 lane urban roadway/add sidewalks	2015	Bicycle/Pedestrian	30% Complete
TxDOT	Loop 1: north of Loop 360 to north of US 290	add bicycle bridge	2015	Operational Improvements	50% Complete
CTRMA	Loop 1 Managed Lanes (phase 1)	Construction of 1 northbound and 1 southbound managed lane from .1 mile north of FM 734 to Cesar Chavez Interchange. Also, construct Intelligent Transportation System (ITS) consisting of DMS's , closed circuit cameras (CCTV), and radar vehicle sensing devices.	2015	Operational Improvements	Time frame extended from 2015 to 2015-2016

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
CTRMA	HERO	Extend IH 35 corridor Highway Emergency Response Operator program for three additional years	2014-2016	Operational Improvements	Ongoing
CTRMA	Manor Expressway	Construct 5 miles of a 10-foot shared use path. Also, construct Intelligent Transportation System (ITS) consisting of 2 dynamic message signs (DMS), 8 closed circuit cameras (CCTV), and 32 radar vehicle sensing devices.	2014	Bicycle / Pedestrian	Complete
СМТА	MetroRapid Lanes	MetroRapid dedicated lane on Guadalupe and Lavaca Streets in downtown Austin	2014	Transit	Implemented, continue to explore additional
СМТА	MetroBike Shelters	Design and install six MetroBike shelters for protected storage at Metro facilities	2014	Bicycle/Pedestrian	Installed 7 , exploring additional opportunities

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
СМТА	Capital Metro Rails with Trails	Construct enhanced Rails with Trails on Capital Metro's right of way where feasible. The initial trail will connect the Crestview and Highland stations and provide access to the nearby neighborhoods	2014-2018	Bicycle/Pedestrian	Completed Crestview trail. Continuing to develop additional opportunities and coordinate access with local govts in region
СМТА	Intelligent Transportation System (ITS)	ITS will be a feature of MetroRapid	2013-2015	Transit	Implemented, continue to improve
СМТА	Kramer Station	Develop Kramer Station as a TOD	2014-2018	Transit	On-going
СМТА	Transit Facility	Construct an Intermodal Transit Facility in downtown Austin	2016	Transit	On-going

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
СМТА	Bus Acquisition	Purchase lower emission vehicles to replace older, higher- emission vehicles	2014-2108	Transit	Initial procurement, on-going
СМТА	Plaza Saltillo TOD	Enhance TOD features with construction of double tracked rail at the southern edge of the CMTA Plaza Saltillo property	2014-2017	Transit	On-going
СМТА	Downtown Austin Transportation Management Association	Support the Downtown Austin Transportation Management Association (DATMA) in its development and implementation of an Individualized Marketing campaign	2014-2018	Other	On-going
СМТА	Environmental and Sustainability Management System (ESMS)	Implement an ISO 14001 certified ESMS at CMTA facilities to improve environmental and sustainability performance through measures such as idling and emission	2015	Transit	Partially implemented, on- going

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
СМТА	Project Connect	Integrated planning process to increase multi-modal, transportation options throughout the Central Texas region	2014-2018	Other	On-going
СМТА	North Corridor	Integrated planning process to increase multi-modal transportation options in the in the north portion of the Capital Metro region	2014-2018	Other	On-going
СМТА	Commute Solutions	Enhanced planning and programming to encourage the increased use of transit and alternative transportation methods among Capital Metro staff, contractors and the community.	2014-2018	Other	On-going

# **New TERMS**

The following table lists new TERMS reported by participating organizations.

Table 49: New TERMS Reported

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
Bastrop County	New interchange	Build overpass at SH 95 and SH 71	let 2015	Operational improvement	New
Travis County / COA	Slaughter Lane- Goodnight	New 2 lane road w/sidewalk & bike lane from Bluff Springs Rd to 4500' East	Complete	New Road	New
City of Round Rock	Traffic signal	Red Bud Ln @ Forest Ridge Dr	2015 – 2017	Operational Improvement	New
City of Round Rock	Traffic signal	Red Bud Ln @ Old Settler's Blvd	2015	Operational Improvement	New
City of Round Rock / TxDOT	FM 3406 West	Addition of center turn lane	2015	Operational Improvement	New
City of Round Rock	Right turn lane addition	Red Bud Ln @ Gattis School Rd - NB to EB	2015 – 2017	Operational Improvement	New

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
City of Round Rock	Right turn lane addition	Mays St @ Gattis School Rd - WB to NB	2015 – 2017	Operational Improvement	New
City of Round Rock	Sidewalk Gap Program	Extend sidewalks to connect to existing sidewalks on Somerset Dr	2015 – 2017	Bicycle / Pedestrian Project	New
City of Round Rock	Sidewalk Gap Program	Extend sidewalks to connect to existing sidewalks on Mays St	2015 – 2017	Bicycle / Pedestrian Project	New
City of Round Rock	Sidewalk Gap Program	Extend sidewalks to connect to existing sidewalks on Greenlawn Blvd	2015 – 2017	Bicycle / Pedestrian Project	New
City of Round Rock	Sidewalk Gap Program	Extend sidewalks to connect to existing sidewalks on Greenhill Subdivision	2015 – 2017	Bicycle / Pedestrian Project	New
City of Round Rock	Creek Bend Blvd Extension	The extension of Creek Bend Blvd will include pedestrian amenities, including a 10' path across the bridge	2015 – 2017	Bicycle / Pedestrian Project	New
City of Round Rock	University Blvd Widening	The widening of University Blvd will include pedestrian amenities	2015 – 2017	Bicycle / Pedestrian Project	New

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
City of Round Rock	Kenney Fort Blvd Segment 4	The construction of this segment will include pedestrian amenities, which will connect pedestrians to Old Settler's Park	2015 – 2017	Bicycle / Pedestrian Project	New
TxDOT	Downtown Austin Transp Mgt Assoc	Various Locations in MPO area	2016	Other	Ongoing
TxDOT	US 183: Pecan St to FM 20	reconstruct to 5 lane urban section, including sidewalks	2015	Bicycle / Pedestrian	5% Complete
TxDOT	US 183: FM 20 to .274 miles south of MLK/Industrial Blvd	reconstruct to 5 lane urban section, including sidewalks	2015	Bicycle / Pedestrian	5% Complete
TxDOT	FM 685: US 79 to SH 130	Reconstruct to 4 lane divided roadway with bridge structure, including sidewalks	2015	Bicycle / Pedestrian	30% Complete
TxDOT	RM 1431: FM 734 to CR 175	Widen to 6 lane urban roadway/add sidewalks	2015	Bicycle / Pedestrian	30% Complete
TxDOT	Loop 1: north of Loop 360 to north of US 290	Add bicycle bridge	2015	Operational Improvements	50% Complete
TxDOT	Bastrop, Caldwell, and Lee Counties: various locations	Statewide curb ramp program	2016	Bicycle / Pedestrian	New

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
TxDOT	FM 969 from Tannehill to FM 3177	Overlay and re-striping to include Bike Lanes	2016	Bicycle / Pedestrian	New
TxDOT	FM 969 from Airport to Tannehill	Overlay and re-striping to include Bike Lanes	2016	Bicycle / Pedestrian	New
ТхDOT	IH 35 from Stassney to William Cannon	Mainlane, auxiliary lane, ramp, and bike / ped improvements	2015	Operational Improvements	New
ТхDOT	IH 35 from Woodward to Woodland	Mainlane, auxiliary lane, ramp, and bike / ped improvements	2015	Operational Improvements	New
ТхDOT	IH 35 from RM 1431 to SH 45N	Mainlane, auxiliary lane, ramp, and bike / ped improvements	2015	Operational Improvements	New

## Austin-Round Rock Metropolitan Statistical Area Annual Air Quality Report for 2014

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
CTRMA	Bergstrom Express	Three new toll lanes and three improved non-tolled general purpose lanes in each direction, New bicycle lanes, sidewalks, and shared use paths for pedestrians and cyclists and Landscaping and aesthetics improvements along the corridor. Also, construct Intelligent Transportation System (ITS) consisting of DMS's and closed circuit cameras (CCTV).	2020	Operational Improvements	New

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
CTRMA	SH 45SW	SH 45SW is an innovative four-lane toll road to be constructed between MoPac and FM 1626 that will feature extensive water quality protection measures, bicycle and pedestrian accommodations and Green Mobility Challenge and Context Sensitive Solutions initiatives. Also, construct Intelligent Transportation System (ITS) consisting of DMS's and closed circuit cameras (CCTV).	2018	Operational Improvements	New
CTRMA	SH 71 Express Project	The project will include two new toll lane overpasses at FM 973 and SH 130. Also, construct Intelligent Transportation System (ITS) consisting of DMS's and closed circuit cameras (CCTV).	2016	Operational Improvements	New

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
СМТА	Service Plan 2025	Re-envisioning CMTA's service delivery to enhance efficiency, improve access, and increase ridership	Begin planning, public involvement, and outreach 2016; begin implementation 2017	Transit	New
СМТА	Sustainable Fleet Initiative	Research options for alternative clean fuels such as electric and pilot new technologies as funding allows	2016 – 2019	Transit	New
CMTA / Car2go	Car sharing partnerships	Explore ways to deliver multi-modal transportation options by partnering with car sharing providers	2016	Transit	New
CMTA / Austin B- Cycle	Bike sharing partnerships	Explore ways to deliver multi-modal transportation options by partnering with bike sharing providers	2016	Bicycle / Pedestrian	New
City of Elgin	Downtown sidewalks	New sidewalk in downtown district	2016	Bicycle / Pedestrian	New

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
City of Elgin	Shenandoah trail	New trail in existing park connecting park and neighborhoods to ACC campus	2015	Bicycle / Pedestrian	New
City of Cedar Park	US 183 at intersection of Walton Way	add dual left turn lanes, NB to WB	completed	Operational Improvements	New
City of Cedar Park	FM 734 at Ranch Trails and Colonial Parkway	extend left turn lanes for safety	completed	Operational Improvements	New
City of Cedar Park	RM 1431 and FM 734 intersection	upgrade to a continuous flow intersection with pedestrian crossings and sidewalks	2016	Operational Improvements, Bicycle/Pedestrian	New
City of Cedar Park	Cypress Creek and Lakeline intersection	add dual left turn lanes, WB to SB and EB to NB; extend right turn lanes	2016	Operational Improvements	New
City of Cedar Park	Buttercup Creek west of US 183	remedy sidewalk gap	2016	Bicycle/Pedestrian	New
City of Cedar Park	El Salido north of Cypress Creek	remedy sidewalk gap	2016	Bicycle/Pedestrian	New
City of Cedar Park	Enchanted Rock and Alamo Plaza	add pedestrian ramps	2016	Bicycle/Pedestrian	New
City of Cedar Park	S Lakeline and Shenandoah	signal timing	2015	Operational Improvements	New

Sponsor	Project Name	Project Description	Year of Implementation	Project Categorization	Status
City of Cedar Park	S Lakeline and Old Mill	signal timing	completed	Operational Improvements	New
City of Cedar Park	S Lakeline and Little Elm Trl	signal timing	completed	Operational Improvements	New
City of Cedar Park	US 183 and Cypress Creek	signal timing	completed	Operational Improvements	New
City of Cedar Park	RM 1431 from Toro Grande to Anderson Mill	signal timing	2015	Operational Improvements	New
City of Cedar Park	FM 734 from Brushy Creek to FM 1431	signal timing	2015	Operational Improvements	New
City of Cedar Park	Bell Blvd from Avery Ranch to New Hope	signal timing	2015	Operational Improvements	New

# Appendix C: State Rules and Programs Applicable to the Region

There are a number of state-adopted regulations and programs to reduce NO<sub>x</sub> and VOC emissions that apply to the Austin-Round Rock MSA. This section provides details on some of the key state programs applicable to the region. Table 50 shows which measures apply to each county in the region.

Table 50: State Emission Reduction Measures Applicable to the Austin-Round Rock MSA

Measure	Citation		Caldwell	Hays	Travis	Williamson	Statewide
Vehicle Emissions I/M Program	Ch. 114, Subchapter C, Div. 3				$\square$	$\boxtimes$	
TERP-Emission Reduction Incentive Grant	Ch. 114, Subchapter K, Div. 3	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	
<b>TERP-Texas Clean Fleet Program</b>	Ch. 114, Subchapter K, Div. 5	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	
TERP-N.G. Grant Program	Ch. 114, Subchapter K, Div. 7	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	
TERP-Texas Clean Transportation Triangle	n/a	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	
LIRAP	Ch. 114, Subchapter C, Div. 3, Sec. 86				$\boxtimes$	$\boxtimes$	
Low-Reid Vapor Pressure (RVP) Gasoline	Ch. 114, Subchapter H, Div. 1	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	
TxLED	Ch. 114, Subchapter H, Div. 2	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	
Large Spark-Ignition Non-Road Engines	Ch. 114, Subchapter I, Div. 3	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$
Locally Enforced Idling Restrictions	Ch. 114, Subchapter J, Div. 2	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	
East Texas EGU	Ch. 117, Subchapter E, Div. 1	$\boxtimes$			$\square$		
Cement Kilns	Ch. 117, Subchapter E, Div. 2			$\boxtimes$			
Water Heaters, Small Boilers, and Process Heaters	Ch. 117, Subchapter E, Div. 3	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\mathbb{X}$	$\boxtimes$
Nitric Acid Manufacturing	Ch. 117, Subchapter F, Div. 3	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\square$
Storage Tank VOC Rules	Ch. 115, Subchapter B, Div. 1				$\boxtimes$		
Vent Gas VOC Control	Ch. 115, Subchapter B, Div. 2				$\boxtimes$		
Water Separation VOC Control	Ch. 115, Subchapter B, Div. 3				$\square$		
Controls on Loading and Unloading VOC	Ch. 115, Subchapter C, Div. 1				$\boxtimes$		
Stage I Vapor Recovery	Ch. 115, Subchapter C, Div. 2	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\square$	$\square$	
Degreasing Rules	Ch. 115, Subchapter E, Div. 1	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	
Cutback Asphalt Rules	Ch. 115, Subchapter F, Div. 1	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\square$	$\boxtimes$	
Automotive Windshield Washer Fluid	Ch. 115, Subchapter G, Div. 1	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$

# CAPCOG Air Quality Outreach and Education Report 2014

# December 30, 2014

The Capital Area Council of Governments (CAPCOG) is submitting this *Air Quality Outreach and Education Report* to the City of Austin's (COA's) Air Quality program under Task 3 of the scope of work agreed to under an interlocal agreement between CAPCOG and COA that was executed on February 13, 2014. This report documents all work performed to date under this agreement, and includes the data, analysis, reports, and all other material obtained or generated using COA funds. This report also includes additional information on outreach and education activities reported by other entities that were coordinated under the *Austin-Round Rock Metropolitan Statistical Area Ozone Advance Program Outreach and Education Plan* developed under this interlocal agreement and submitted to COA in March 2014.

# Summary of Activities Completed with City of Austin Funds

CAPCOG has used the funding provided by COA to complete the following activities:

- Task 1: Develop an Outreach and Education Work Plan for Central Texas: \$4,777.75;
- Task 2a: Radio Advertising May 26, 2014 June 29, 2014: \$16,002.50; and
- Task 2b: Radio Advertising August 25 September 28, 2014: \$59,219.75.

# **Detailed Cost Break-Down**

The following table provides a detailed breakdown of the expenses for each activity by the object of expense.

<b>Object of Expense</b>	Task 1	Task 2a	Ads 8/25 – 9/28	TOTAL	
Salary	\$3,520.27	\$0.00	\$0.00	\$3,520.27	
Fringe	\$860.58	\$0.00	\$0.00	\$860.58	
Advertising	\$0.00	\$14,730.00	\$54,425.00	\$69,155.00	
Accounting Services	\$19.94	\$26.37	\$183.25	\$229.56	
Personnel Services	\$4.91	\$0.00	\$0.00	\$4.91	
Indirect Costs	\$372.05	\$1,246.13	\$4,611.50	\$372.05	
TOTAL	\$4,777.75	\$16,002.50	\$59,219.75	\$80,000.00	

Table 1: Expenses by Activity and Object

## **Development of Outreach and Education Plan**

The first task in the scope of work was to develop a Regional Air Quality Outreach and Education Work Plan. From January through March 2014, CAPCOG staff led meetings of a subcommittee of the Clean Air Coalition Advisory Committee (CACAC) in order to seek input from key participants in the Ozone Advance Program Action Plan. CAPCOG completed this plan at the end of March and submitted it to the COA as a deliverable.

As required by the scope of work in the interlocal agreement, the work plan accomplished the following:

- 1. Defined specific objectives for outreach and education efforts within the region (Section 2);
- 2. Defined air quality outreach and education strategies that should be implemented within the region to advance the goals of the Ozone Advance Program (OAP) Action Plan (Section 3);
- Evaluated existing air quality outreach and education efforts; identified opportunities to leverage existing resources currently being used for such activities, and opportunities to reduce duplication of efforts (Section 4);
- 4. Identified specific methods for measuring the impact of any strategies that will be implemented (Section 6);
- Specified which entities will be responsible for implementing components of the plan (Section 7); and
- 6. Included a timeline for completion of all activities identified in the work plan (Section 5).

This *Outreach and Education Plan* is now the blueprint the region is using to guide air quality-related outreach activities. As a result of the planning process that went into the development of this plan, coordination among entities that are involved in outreach and education related to air quality has improved dramatically. This plan has enabled and guided the following activities in 2014:

- coordinated radio advertising;
- coordinated production of print materials donated by Travis County;
- coordinated event staffing;
- targeted presentations; and
- targeted one-on-one meetings.

## **Review of Goals**

The plan identifies four general goals:

- 1. Persuade the general public to reduce emissions;
- 2. Persuade organizations to reduce emissions;
- 3. Protect sensitive populations from exposure to ozone pollution; and
- 4. Sustaining and expanding region-wide engagement in air quality activities.

## **Priorities for 2014**

All of the various activities identified in the plan and implemented by regional partners are supposed to relate back to one or more of the four general goals listed above. The plan sets some specific priorities for 2014 as well. The plan identifies a number of priorities for 2014, which were explicitly endorsed by the Central Texas Clean Air Coalition at its March 26, 2014. A review of these priorities and how the various activities undertaken in 2014 related to these priorities is discussed below.

## **Improve Coordination**

One of the key priorities for 2014 was to improve coordination among the various entities that actively participate in regional air quality-related outreach efforts. Each specific objective described under this overall heading are shown in bullets below, each of which are followed by a discussion of how activities in 2014 did or did not advance those priorities.

• Establish a standing Outreach and Education subcommittee of the CAC Advisory Committee in order to improve coordination among partners involved in outreach and education activities.

A permanent Outreach and Education Subcommittee was formed out of the planning committee that was assembled to advise CAPCOG on the development of the *Outreach and Education Plan*. The Outreach and Education Subcommittee has met once in each of the nine months since March.

- 1. April 14, 2014;
- 2. May 19, 2014;
- 3. June 16, 2014;
- 4. July 21, 2014;
- 5. August 25, 2014;
- 6. September 26, 2014;
- 7. October 22, 2014;
- 8. November 20, 2014; and
- 9. December 18, 2014.

Regular participants included staff members from CAPCOG, COA, Travis County, the Capital Area Metropolitan Planning Organization (CAMPO), CLEAN AIR Force, and Lone Star Clean Fuels Alliance (LSCFA). For most of the year, the responsibility for hosting and chairing these meetings rotated among the various participants. Starting in December, CAPCOG's part-time Air Quality Program Specialist Fred Blood will permanently take over this responsibility.

## • Develop a master list of events and outreach and education activities for the year.

While there were some initial efforts to develop a master list of events and outreach and education activities for the year through Google Maps, some technical issues with the program seemed to limit its utility. The meetings themselves served as a useful tool to identify and staff events. A renewed effort

will be undertaken for 2015 to provide a more useful way for participants to share and review upcoming events.

#### • Develop and implement a consistent, unifying regional branding strategy.

The subcommittee did function well as a means to maintain consistency in branding and messaging. Much of this work had already been accomplished through the actual plan itself, though. Radio advertising, promotional items, and other materials used the tagline "be air aware," which had been developed in the planning process for the *Outreach and Education Plan*. The participants regularly consulted with each other on important messaging and collaborated on developing written materials when they were produced by one of the participants. This provided consistency and should have helped to amplify the messages each organization promoted.

#### • Develop a targeted list of organizations to reach out to for 2014.

Extensive and detailed lists of organizations were developed as part of the planning process for the *Outreach and Education Plan*, but aside from those lists, no additional effort was undertaken to develop lists.

## • Review existing electronic and audio/visual content.

There was no comprehensive review of electronic or audiovisual content in 2014.

## • Develop content for new printed and audio/visual materials.

The new radio advertising constituted new audio materials, but no new printed or visual materials were produced. In most cases, existing print materials or visual materials were repurposed for use in 2014.

# • Identify opportunities for new funding or in-kind contributions for air quality education and outreach.

The first round of radio advertising purchased by CAPCOG from Emmis Communications was able to receive a 1 for 1 match, resulting in an additional 120 ads that were run in May and June. COA was also able to receive 27 spots free from KUT/KUTX along with the 250 ads purchased for the ozone season. Time Warner Cable continues to donate air time and production services to air the Public Service

Announcements (PSAs) from the High School PSA contest sponsored by CLEAN AIR Force. Finally, Travis County agreed to donate printing services up to 500 pieces per month as part of this regional effort.

## • Identify each organization's specific commitments for 2014.

Specific commitments changed throughout the season. In many cases, existing commitments were already underway by the end of March (such as radio advertising), while others arose through the course of the year and were discussed through the Outreach and Education Subcommittee.

## **Printed Materials**

During the development of the outreach and education plan, participants in that effort identified a need to have printed material available for events and other outreach activities. This was described as follows:

• Procure high-quality printed material that can be used by regional air quality partners as part of their in-person outreach efforts – both for the general public and for targeted audiences.

Travis County owns a print shop and has made it available to print up to 500 pieces per month. In lieu of developing new material from scratch, the CACAC outreach and education committee reviewed materials already available from EPA, TxDOT, and TCEQ. The group decided upon the "Air Quality Guide for Ozone" from the AirNow.gov site, which describes ozone impacts on health and how to interpret the Air Quality Index (AQI).<sup>1</sup> The following two pages show the front and back of these pieces. Approximately 2,000 of these pieces had been printed by the end of November.

<sup>&</sup>lt;sup>1</sup> <u>http://www.epa.gov/airnow/ozone/air-quality-guide-0308.pdf</u>

Air Quality Index	Protect Your Health
Good (0-50)	No health impacts are expected when air quality is in this range
Moderate (51-100)	Unusually sensitive people should consider limiting prolonged outdoor exertion.
Unhealthy for Sensitive Groups (101-150)	<ul> <li>The following groups should limit prolonged outdoor exertion:</li> <li>People with lung disease, such as asthma</li> <li>Children and older adults</li> <li>People who are active outdoors</li> </ul>
Unhealthy (151-200)	<ul> <li>The following groups should avoid prolonged outdoor exertion</li> <li>People with lung disease, such as asthma</li> <li>Children and older adults</li> <li>People who are active outdoors</li> <li>Everyone else should limit prolonged outdoor exertion.</li> </ul>
Very Unhealthy (201-300)	<ul> <li>The following groups should avoid all outdoor exertion:</li> <li>People with lung disease, such as asthma</li> <li>Children and older adults</li> <li>People who are active outdoors</li> </ul>

- Ozone in the air we breathe can harm our health—particularly on hot, sunny days when ozone can reach unhealthy levels.
- · Even relatively low levels of ozone can cause health effects.
- People with lung disease, children, older adults, and people who are active outdoors may be particularly sensitive to ozone.
- Ozone exposure may also increase the risk of premature death from heart or lung disease.
- This fact sheet tells you how you can find out when air quality is unhealthy and take simple steps to protect your health.

#### What is ozone?

Ozone is a colorless gas found in the air we breathe. Ozone can be good or bad depending on where it occurs:

- Ozone occurs naturally in the Earth's upper atmosphere (the stratosphere), where it shields the Earth from the sun's ultraviolet rays.
- At ground-level, ozone is an air pollutant that can harm human health.

#### Where does ground-level ozone come from?

Ground-level ozone is formed when two types of pollutants react in the presence of sunlight. These pollutants are known as volatile organic compounds (VOCs) and oxides of nitrogen. They are found in emissions from:

- Vehicles such as automobiles, trucks, buses, aircraft, and locomotives
- Construction equipment
- · Lawn and garden equipment
- Sources that combust fuel, such as large industries and utilities
- Small industries such as gas stations and print shops
- · Consumer products, including some paints and cleaners

#### Does my area have high ozone levels?

- Ozone is particularly likely to reach unhealthy levels on hot sunny days in urban environments. It is a major part of urban smog.
- Ozone can also be transported long distances by wind.
   For this reason, even rural areas can experience high ozone levels.
- The Airnow Web site at airnow.gov provides daily air quality reports for many areas. These reports use the Air Quality Index (or AQI) (shown on the first page) to tell you how clean or polluted the air is.

## Keep the Air Cleaner

- Conserve energy—at home, at work, everywhere. Turn off lights you are not using.
- Car pool or use public transportation. When air quality is healthy, bike or walk instead of driving.
- Combine errands to reduce vehicle trips.
- Limit engine idling.
- When refueling: Stop when the pump shuts off. Putting more fuel in is bad for the environment and can damage your vehicle. Avoid spilling fuel. Always tighten your gas cap securely.



Office of Air Quality and Radiation (6301A) EPA456-F-08-001 www.airnow.gov March, 2008  Enviroflash, a free service, can alert you via email when your local air quality is a concern. Sign up at www.enviroflash.info.

#### How does ozone affect health?

#### Ozone can:

- · Make it more difficult to breathe deeply and vigorously.
- Cause shortness of breath and pain when taking a deep breath.
- Cause coughing and sore or scratchy throat.
- Inflame and damage the lung lining.
- Make the lungs more susceptible to infection.
- Aggravate lung diseases such as asthma, emphysema, and chronic bronchitis.
- Increase the frequency of asthma attacks.
- Continue to damage the lungs even when the symptoms have disappeared.

These effects may lead to increased school absences, visits to doctors and emergency rooms, and hospital admissions. Research also indicates that ozone exposure may increase the risk of premature death from heart or lung disease.

#### Who is sensitive to ozone?

Some people are more sensitive to ozone than others. Sensitive groups include children; people with lung disease, such as asthma, emphysema, or chronic bronchitis; and older adults. Even healthy adults who are active outdoors can experience ozone's harmful effects.

#### What is an Air Quality Action Day for Ozone?

Your State or local air quality agency may declare an Air Quality Action Day for Ozone when ozone levels are forecast to reach unhealthy levels. On ozone action days, you can take simple steps (see below) to reduce the pollution that results in ground-level ozone.

- Keep your car, boat, and other engines tuned up.
- · Inflate your car's tires to the recommended pressure.
- Use environmentally safe paints and cleaning products whenever possible.
- Follow manufacturers' recommendations to use and properly seal cleaners, paints, and other chemicals so smogforming chemicals can't evaporate.

#### On Air Quality Action Days, you should also:

- Refuel cars and trucks after dusk, when emissions are less likely to produce ozone.
- Delay using gasoline-powered lawn and garden equipment until air quality is healthy again.
- Delay using household, workshop, and garden chemicals until air quality is healthy again.

#### For more information, visit www.airnow.gov

## Earned Media

One of the priorities for 2014 was to:

• Initiate a coordinated earned media campaign, including a press toolkit and other resources, in order to increase press coverage of ozone issues.

While the regional efforts did garner some coverage in 2014, there was not as coordinated of an effort on the press front or as sustained coverage as had been hoped. Part of this may be due to the very low number of ozone action days in 2014 (only 1), but improvements in earned media will be one of the priorities continued on into 2015. A toolkit was researched, but had not yet been assembled by the end of 2014.

Date	News Org.	Medium	Activity
3/19/14	KXAN	τv	"Even as population explodes, local air quality improves" http://kxan.com/2014/03/19/even-as-population-explodes- local-air-quality-improves/
3/26/14	Community Impact – Southwest Austin	Print	"Coalition wins EPA award for area smog reduction" <u>http://impactnews.com/austin-metro/southwest-</u> <u>austin/coalition-wins-epa-award-for-area-smog-reduction/</u>
4/8/14	CLEAN AIR Force	Print	Ozone Season Kick-Off Press Release
4/28/14	KXAN	τv	"Summer-like heat kicks off ozone pollution season early" http://kxan.com/2014/04/28/hot-sunshine-is-kicking-off- ozone-pollution-season-early/
4/29/14	KXAN	Blog	"A Closer Look at Ozone Action Days" http://blogs.kxan.com/2014/04/29/a-closer-look-at-ozone- action-days/
4/30/14	Community Impact – Round Rock, Pflugerville, Hutto	Print	"Coalition wins EPA award for local region ozone-reduction programs" <u>http://impactnews.com/austin-metro/round-rock-</u> <u>pflugerville-hutto/coalition-wins-epa-award-for-local-region-</u> <u>ozone-reduction-pr/</u>
5/7/14	Community Impact – Georgetown	Print	"Local coalition wins EPA award for regional ozone reduction programs" <u>http://impactnews.com/austin-metro/georgetown/local-</u> <u>coalition-wins-epa-award-for-regional-ozone-reduction-/</u>
5/14/14	Community Impact – Leander and Cedar Park	Print	"Coalition wins EPA ward for local region ozone-reduction programs" <u>http://impactnews.com/austin-metro/leander-cedar-</u> park/coalition-wins-epa-award-for-local-region-ozone- <u>reduction-pr 1/</u>

#### Table 2: Regional Air Quality Press Coverage, 2014

Date	News Org.	Medium	Activity
6/27/14	Austin Chronicle	Print	"Getting off the Road – Rail will help, roads will help – but so will your decision not to drive today" <u>http://www.austinchronicle.com/news/2014-06-27/getting-off-the-road/</u>
8/13/14	KXAN	τv	"Go [extra] Green! It's Ozone Action Day" http://kxan.com/2014/08/13/ozone-action-day-declared-for- thursday/
8/13/14	KXAN	Twitter	"An Ozone Action Day has been declared for Thursday!! More to come on @KXAN_News at 6, 9, and 10 with Jim Spencer" <u>https://twitter.com/KXAN_Weather/status/49962655470898</u> <u>3811</u>
9/24/14	Community Impact	Print	"Austin seeks increase of solar energy usage" http://impactnews.com/austin-metro/central-austin/austin- seeks-increase-of-solar-energy-usage/
10/6/2014	CLEAN AIR Force	Print	High School Public Service Announcement (PSA) Air Quality Contest Announcement Press Release
10/15/14	Community Impact	Print	"Partnership aims to promote cars of tomorrow today" <u>http://impactnews.com/austin-metro/san-marcos-buda-</u> kyle/partnership-aims-to-promote-cars-of-tomorrow-today/
11/26/14	Austin- American Statesman	Print	"How Austin could be affected by EPA's proposed air emissions standards" <u>http://www.mystatesman.com/news/news/how-austin-</u> <u>could-be-affected-by-epas-proposed-air-/njGgz/</u>

# **Electronic Media**

One of the objectives of the plan was to:

• Maximize the utility of existing electronic resources used for ozone outreach.

Not as much activity was undertaken to revamp electronic resources, although, new CAPCOG webpages were specifically set up to work in conjunction with the radio advertising purchases.

The following table shows the webpage hits on CAPCOG's air quality-related pages during the official ozone season. These data were obtained from Google Analytics. "Page views" refers to any view of a given page, including multiple views for a given page, while "unique page views" refers the number of visits to a page, not counting multiple views. The "bounce rate" refers to the percentage of initial page views that resulted in a user leaving the site without viewing any more CAPCOG pages, while the "exit rate" refers to the percentage of page views for which a page was the last one viewed before a user left the CAPCOG site.
Page	Page Views	Unique Page Views	Avg. Time on Page (seconds)	Bounce Rate	% Exit
/air-quality/	1,393	962	98.08	48.46%	30.80%
/clean-air-coalition	494	346	137.43	54.50%	37.85%
/ozone-advance/	343	233	199.63	53.17%	49.56%
/aq-reports	259	104	141.63	50.00%	28.19%
/air-quality	240	162	83.04	42.19%	25.83%
/drive-clean-help-buying-a- cleaner-vehicle	231	200	495.80	53.85%	75.76%
/ozone-watch-warning	133	126	420.63	92.06%	93.98%
/ozone-101	130	120	126.31	81.18%	65.38%
/cacac	128	95	88.58	41.03%	25.78%
/aq-status	111	95	179.56	77.78%	43.24%
/aq-initiatives	92	76	196.64	69.23%	51.09%
/ozone-monitoring	68	49	238.88	72.73%	50.00%
/emissions	51	36	135.67	40.00%	23.53%
/ozone-standards	51	46	57.70	89.74%	80.39%
/monitoring	46	37	172.15	60.00%	26.09%
/emissions-inventory1	32	30	69.30	71.43%	68.75%
/aq-alerts/	28	23	190.27	66.67%	60.71%
/drive-clean-help-buying-a- cleaner-vehicle/	13	11	139.50	100.00%	84.62%
/clean-air-coalition/	12	7	338.70	50.00%	16.67%
/aq-initiatives/	6	6	1239.00	100.00%	83.33%
/cacac/	4	3	588.00	0.00%	0.00%
/ozone-advance	4	3	24.00	66.67%	75.00%
/air-quality-news/	3	3	15.50	100.00%	33.33%
/emissions-inventory1/	3	3	18.00	0.00%	33.33%
/ aq-initiatives	2	1	16.00	0.00%	50.00%
/aq-reports/	2	2	674.00	0.00%	50.00%
/naaqs	2	2	0.00	100.00%	100.00%
/regional-solid-waste- management-planning/	2	2	11.00	0.00%	50.00%
/air-alerts/	1	1	33.00	0.00%	0.00%
/emissions/	1	1	13.00	0.00%	0.00%
/monitoring/	1	1	13.00	0.00%	0.00%
/Ozone_AdvanceCalendar/	1	1	0.00	0.00%	100.00%

#### Table 3: CAPCOG Air Quality Web Page Statistics, March 1, 2014 – October 31, 2014

Page	Page Views	Unique Page Views	Avg. Time on Page (seconds)	Bounce Rate	% Exit
/ozone-101/	1	1	27.00	0.00%	0.00%
/ozone-standards/	1	1	21.00	0.00%	0.00%
/ozone-watch-warning/	1	1	26.00	0.00%	0.00%
TOTAL	3,890	2,790	160.62	54.75%	41.16%

## **Events**

Priorities for staffing events identified in the Outreach and Education Plan included the following:

• Identify and strategically schedule opportunities to reach the general public through community events and other opportunities to present to various groups.

The following table represents a compilation of the events staffed by organizations participating in the Outreach and Education Plan in 2014. The table includes data on the number of hours and labor-hours went into these events, as well as the number of people contacted at these events. One of the successes for this year was much more comprehensive coverage of important community events in Bastrop, Caldwell, and Williamson Counties. There was also a lot of success in collecting data that will be useful in planning for event staffing in the future.

Note that this list does not necessarily include all events that could have an air quality benefit, such as Austin Energy outreach to promote energy efficiency or CapMetro outreach to promote the use of mass transit, but rather the events that were specifically reported to CAPCOG from participants in the Outreach and Education Subcommittee.

#### Table 4: Outreach and Education Events Staffed in 2014 with Quantitative Data

Date	Event	County	Time	Hours	People Reached	Personnel	Labor Hours	Persons Reached Per Hour	Persons Reached Per Labor Hour
3/29/14	Zilker Botanical Garden	Travis	9:30 am – 5:30 pm	8	110	Cari Buetow, Pharr Andrews, Mary Priddy, Lydia Jarjoura	8	13.8	13.8
3/30/14	Zilker Botanical Garden	Travis	9:30 am – 5:30 pm	8	110	Cari Buetow, Pharr Andrews, Mary Priddy, Lydia Jarjoura	8	13.8	13.8
4/22/14	Samsung Earth Day	Travis	10:30 am – 1:30 pm	3	60	Cari Buetow, Julie Mazur	3	20.0	20.0
4/22/14	Thinkery Earth Day	Travis	10:00 am – 1:00 pm	3	50	Pharr Andrews	3	16.7	16.7
4/26/14	ALA Fight for Air Climb	Travis	7:00 am – 12:00 pm	5	75	Cari Buetow	5	15.0	15.0
5/12/14	Dell CIO People Rally	Williamson	10:00 am – 1:00 pm	3	107	Cari Buetow	3	35.7	35.7
6/5/14	Dell World Environment Day	Williamson	10:30 am – 1:30 pm	3	81	Cari Buetow, Julie Mazur	6	27.0	13.5
6/12/2014	Governor's Small Business Forum and Showcase	Travis	1:00 pm – 7:00 pm	6	16	Tom Gleason	6	2.7	2.7

Date	Event	County	Time	Hours	People Reached	Personnel	Labor Hours	Persons Reached Per Hour	Persons Reached Per Labor Hour
6/19/14	City of Austin Employee Safety Association Conference	Travis	7: 00 am – 3:00 pm	8	284	Shana Norton, Cari Buetow, Pharr Andrews, Lily Zintak	16	35.5	17.8
6/26/14	Luling Watermelon Thump	Caldwell	5:00 pm – 9:00 pm	4	60	Julie Meyer	4	15.0	15.0
6/28/14	Luling Watermelon Thump	Caldwell	10:00 am – 4:00 pm	6	107	Cari Buteow, Andrew Hoekzema	6	17.8	17.8
6/29/14	Luling Watermelon Thump	Caldwell	1:30 pm – 4:00 pm	2.5	30	Andrew Hoekzema	2.5	12.0	12.0
7/4/14	Round Rock Frontier Days Celebration	Williamson	11:00 am – 3:15 pm	3.25	30	Andrew Hoekzema	3.25	9.2	9.2
7/15/14	Sustainable Food Center Farmer's Market – East	Travis	2:30 pm – 7:00 pm	4.5	46	Cari Buetow, Lily Zintak	5.5	10.2	8.4
7/23/14	Sustainable Food Center Farmer's Market – Triangle	Travis	2:30 pm – 7:00 pm	4.5	45	Lily Zintak, Cari Buetow	6.5	10.0	6.9
7/29/14	Sustainable Food Center Farmer's Market – East	Travis	2:30 pm – 7:00 pm	4.5	34	Lily Zintak, Pharr Andrews	6.5	7.6	5.2

Date	Event	County	Time	Hours	People Reached	Personnel	Labor Hours	Persons Reached Per Hour	Persons Reached Per Labor Hour
8/7/14	APD VIN Etching Event	Travis	10:00 am – 1:00 pm	3	31	Lily Zintak	3	10.3	10.3
9/20/14	Electric Vehicle Picnic – LSCFA	Travis	10:00 am – 2:00 pm	4	54	Linda Daubert Julie Mazur?	8	13.5	6.8
9/25/14	City of Austin Getting Connected: Small Business Event	Travis	1:30 pm – 6:30 pm	5	15	Cari Buetow?	5	3.0	3.0
10/4/14	National Night Out Kickoff Party	Travis	10:00 am – 2:00 pm	4	274	Julie Mazur, Cari Buetow	8	68.5	34.3
10/13/14	Pearson Earth Awareness Fair	Travis	11:00 am – 2:00 pm	3	110	Julie Mazur, Cari Buetow	6	36.7	18.3
10/17/14	Austin Transportation Department Mobility Week	Travis	11:30 am – 1:00 pm	2.5	21	Cari Buetow, Adrian Lipscomb	5	8.4	4.2
10/18/14	Hutto Old Tyme	Williamson	8:00 am – 5:00 pm	9	86	Linda Daubert, Sarah Holland, Pharr Andrews	9	9.6	9.6
10/20/14	Austin Transportation Department Mobility Week	Travis	11:30 am – 1:00 pm	2.5	8	Pharr Andrews, Marissa Monrow	5	3.2	1.6

Date	Event	County	Time	Hours	People Reached	Personnel	Labor Hours	Persons Reached Per Hour	Persons Reached Per Labor Hour
10/21/14	Austin Community College Mobility Week	Travis	10:00 am – 1:00 pm	3	22	Pharr Andrews, Julie Mazur	6	7.3	3.7
10/22/14	LDR Spine Health and Wellness Fair	Travis	11:00 am – 2:00 pm	3	66	Julie Mazur, Cari Buetow	3	22.0	22.0
10/25/14	Elgin Hogeye Festival	Bastrop	8:00 am – 3:15 pm	7.25	110	Linda Daubert, Andrew Hoekzema	7.25	15.2	15.2
10/31/14	Commute Solutions All-Star Commuter Celebration	Travis	11:00 am – 1:00 pm	2	39	Cari Buetow, Pharr Andrews	4	19.5	9.8
*November 14, 2014	TxDOT and CTRMA Bergstrom Expressway Open House	Travis	4:00 pm – 7:00 pm	3	21	Julie Mazur	3	7.0	7.0
TOTAL	n/a	n/a	n/a	127.5	2,102.0	n/a	164.5	16.5	12.8

\*occurred after the end of ozone season.

Using data from the Texas Workforce Commission's TRACER Data Link<sup>2</sup> from the Quarterly Census of Employment and Wages, local government employees in NAICS Code 921 (Executive, legislative, and general government) received an average weekly wage of \$934, or \$23.35 per hour in the 2<sup>nd</sup> quarter. This translates into approximately \$3,841 in salary expenses for time spent to staff these events, or about \$1.83 per contact made.

The table below shows a comparison of the distribution of the Austin-Round Rock Metropolitan Statistical Area's (MSA's) population by County compared to the distribution of event contacts by county, based on the location of the event.

County	Population July 1, 2013 <sup>3</sup>	County % of MSA Population	Persons Contacted	County % of Total Contacts
Bastrop	75,825	4%	110	5%
Caldwell	39,232	2%	197	9%
Hays	176,026	9%	0	0%
Travis	1,120,954	60%	1,491	71%
Williamson	471,014	25%	304	14%
Total	1,883,051	100%	2,102	100%

Table 5: Comparison	of Population	bv	County to Contacts at Events by County	
rubic bi companioon	or r opulation	~ 7	county to contacts at Erents by county	

As this table shows, one major gap in coverage was Hays County, and coverage in Williamson County was not as extensive as its population would warrant. CAPCOG will work with regional partners to get more events staffed in these jurisdictions in 2015.

The following activities were also reported for 2014, for which either data were not collected or the event did not fit into another category

Date	Organization	Event	Other Details
1/17/2014	CLEAN AIR Force	Meeting with St. Ignatious Church and School	n/a
4/8/2014	CLEAN AIR Force	Ozone Season Kick-Off Event & Round Rock City Hall	n/a
4/22/2014	CLEAN AIR Force	Austin Community College's Greener Choices Earth Day Festival at Riverside Campus	n/a
4/26/2014	CLEAN AIR Force	Austin's Earth Day Festival at Mueller Development	n/a

#### Table 6: Other Activities, 2014

<sup>&</sup>lt;sup>2</sup> <u>http://www.tracer2.com/?PAGEID=67&SUBID=120</u>

<sup>&</sup>lt;sup>3</sup> http://factfinder2.census.gov/bkmk/table/1.0/en/PEP/2013/PEPSR6H/0400000US48.05000?slice=Year~est72013

Date	Organization	Event	Other Details
9/10/2014	City of Austin	Austin Police Department National Night Out Bag Stuffing	500 Air Quality Index Flyers and 1,000 Commute Solutions Bookmarks Stuffed into Bags; 2 hours of labor
10/9/2014	CLEAN AIR Force	Freescale's Health & Lifestyle Expo	n/a

## **Presentations and One-on-One Meetings**

Presentations and strategic one-on-one meetings continued to be a major focus of regional outreach efforts. The table below shows the presentations and meetings conducted in 2014.

Table 7: Presentations and One-on-One Meetings, 2014

Date	Audience	Location	County	Attendance	Persons Giving Presentation
1/27/2014	Girl Scout Troop	Buda	Hays	10	Cari Buetow
3/5/2014	City of Austin Environmental Board	Austin	Travis	15	Cari Buetow and Pharr Andrews
3/26/2014	Texas Nursery and Landscaping Association (TNLA)	Webinar	Statewide	22	Cari Buetow and Stacy Neef
4/1/2014	Kyle City Council Meeting	Kyle	Hays	28	Bill Gill
4/21/2014	Toastmasters Meeting	Austin	Travis	14	Cari Buetow
6/19/2014	Austin Independent School District (AISD) Operations Staff Meeting	Austin	Travis	5	Andrew Hoekzema and Julie Meyer
8/4/2014	City of Austin Council Transportation Planning Committee	Austin	Travis	12	Andrew Hoekzema and Pharr Andrews
8/12/2014	Code Compliance Safety Meeting	Austin	Travis	70	Cari Buetow and Mary Pridy
8/14/2014	TNLA Expo	San Antonio	Statewide	6	Cari Buetow, TCEQ, NPS, Clean Cities
8/26/2014	Code Compliance Safety Meeting	Austin	Travis	20	Cari Buetow
9/12/2014	CoA Environmental Board AQ Committee Meeting	Austin	Travis	4	Andrew Hoekzema
10/2/2014	Meeting with Austin White Lime	Austin	Travis	1	Andrew Hoekzema and Sarah Holland
10/14/2014	CoA Environmental Board AQ Committee Meeting	Austin	Travis	4	Andrew Hoekzema
11/24/2014	Meeting with Austin White Lime	Austin	Travis	2	Andrew Hoekzema, Linda Daubert, and Fred Blood

These presentations and meetings reached approximately 213 people, many of whom were in strategically important positions such that they could influence a significant amount of emissions-related activity.

Specific objectives are described below in bullets, with discussion following each bullet.

• Schedule at least one air quality presentation annually at each City Council and County Commissioner's Court for jurisdictions participating in the CAC.

This did not occur in 2014. Since many presentations were made in late 2013, this did not become a very significant priority for participants. Later in the ozone season, discussion turned to conducting a coordinated set of presentations early in 2015 in conjunction with the release of the EPA's Ozone Standard Proposal. Those presentations are currently being planned.

- Schedule meetings with leaders of strategically important to recruit for participation in the OAP Action Plan, particularly:
  - School districts;
  - Universities and colleges;
  - Health care institutions;
  - Business and trade organizations that aren't currently participating in the CLEAN AIR Force's Clean Air Partners Program; and
  - Government entities not currently participating in the regional air quality plan.

The presentation to the Kyle City Council on April 1, the meeting with the AISD Operations Staff on June 19, and the meetings with Austin White Lime on October 2 and November 24 were the activities that were most directly consistent with the objectives identified in the plan. The presentation to the City of Austin's Transportation Planning Committee and the Environmental Board's Air Quality Committee were also directly related to the objectives in the plan, and should be particularly important in ensuring continued focus on this issue at the City of Austin as it transitions into its new 10-1 Council system that will see 9 new elected officials taking office in January, with only 1 staying on from the current council.

In addition to the meeting with AISD, CAPCOG had initially scheduled a meeting with Leander ISD staff, but the meeting was cancelled and was not subsequently rescheduled.

While the meetings and presentations with the City of Kyle, AISD, and Austin White Lime represented the largest city, school district, and the largest point source operator not participating in the regional air quality plan, there were not as many meetings as had been hoped, and no meetings occurred with universities/colleges or health care institutions. Coordinating such presentations will take on a renewed focus for 2015.

## **Radio Advertising**

One of the key focuses for 2014 was radio advertising. The plan specifically called for the following:

• Purchase cost-effective radio advertising targeted at commuters.

Targeting of commuters was achieved by purchasing "drive time" advertising occurring Monday – Friday, 6 am – 10 am and 3 pm – 7 pm.

The table below summarizes all of the air quality related-advertising purchased (including spots donated as part of a purchase) in 2014.

Organization	Station	Start Date	End Date	Spots	Cost
CAPCOG	KBPA-FM	5/25/2014	6/29/2014	60	
CAPCOG	KLBJ-AM	5/25/2014	6/29/2014	60	¢14 720 00
CAPCOG	KLZT-FM	5/25/2014	6/29/2014	60	\$14,730.00
CAPCOG	KROX-FM	5/25/2014	6/29/2014	60	
CAPCOG	KKMJ-FM	8/25/2014	9/26/2014	75	\$2,250.00
CAPCOG	KLBJ-AM	8/25/2014	9/26/2014	50	\$7,500.00
CAPCOG	KPEZ-FM	8/25/2014	9/26/2014	130	\$8,125.00
CAPCOG	KBPA-FM	8/25/2014	9/26/2014	75	\$14,325.00
CAPCOG	KLZT-FM	8/25/2014	9/26/2014	50	\$6,750.00
CAPCOG	KASE-FM	8/25/2014	9/26/2014	70	\$14,875.00
City of Austin	KLBJ-AM	5/26/2014	10/30/2014	115	
City of Austin	KGSR-FM	5/26/2014	10/30/2014	100	\$15,105.00
City of Austin	KLZT-FM	5/26/2014	10/30/2014	100	
City of Austin	KUT-FM	4/21/2014	10/19/2014	137	έ <u>σε 000 00</u>
City of Austin	KUTX-FM	4/21/2014	10/19/2014	137	\$23,000.00
САМРО	KUT-FM	3/24/2014	10/26/2014	101	\$16 1 <i>1</i> 2 60
САМРО	KUTX-FM	3/24/2014	10/26/2014	73	Ş10,143.09
Travis County	KLZT HD2-FM	6/16/2013	7/13/2014	42	\$1,600.00
<b>Travis County</b>	KLZT-FM	6/16/2013	7/13/2014	42	\$2,400.00
Travis County	KBPA-FM	6/16/2013	7/13/2014	62	\$4,950.00
TOTAL	ALL	3/24/2014	10/30/2014	1,599	\$133,753.69

#### **CAPCOG Radio Advertising**

Using funding provided through CAPCOG's interlocal agreement with City of Austin, CAPCOG purchased radio advertising in two rounds: 1) May 26 – June 29, and 2) August 25 – September 26.

## May/June Radio Ad Buy

The first round of radio advertising occurred on four radio stations owned by Emmis Communications encouraging residents of Central Texas to sign up for air quality alerts. The advertising was procured under a competitive process involving a request for quotes from radio companies in the region. Stations were asked to submit quotes and data that would indicate the extent of the audience that could be reached with this campaign. Some of the goals of the campaign were to:

- 1. reach parents, who would be more likely to be sensitive to the need to stay informed about air pollution;
- 2. reach audiences for which language may be a barrier to receiving air quality messages; and
- 3. reach audiences in the suburban counties in the MSA roughly in proportion to those counties' share of the region's population.

Companies that submitted quotes were asked to submit data that would indicate to what extent advertisements on their stations would achieve these goals. CAPCOG also asked stations to indicate to what extent they could offer free matches for the drive-time ads purchased. The budget for this campaign was \$15,000. The package of radio advertising that was ultimately selected cost \$14,730.00, with an additional \$1,272.50 in CAPCOG internal charges for completing the purchase, bringing the total cost associated with this purchase up to \$16,002.50.

A total of 240 thirty-second radio spots were run during this period on four stations, including one Spanish-language station (KLTZ). Half of the ads ran during "drive time" (6 am – 10 am and 3 pm – 7 pm, Monday - Friday), and half of which occurred periodically throughout the week between 6 am – midnight as part of Emmis's "Insight Matching," whereby Emmis contributed free air time to run the ads as a match to drive-time advertising purchased by CAPCOG. The schedule for the advertising campaign is shown below.

Station	Monday-Friday 6 am – 10 am	Monday-Friday 3 pm – 7 pm	Monday-Sunday 6 am – 12 am	Total Spots
KROX-FM	12	18	30	60
KBPA-FM	12	18	30	60
KLZT-FM	12	18	30	60
KLBJ-AM	12	18	30	60
TOTAL	48	72	120	240

#### Table 8: Radio Advertising Spots, May 26-June 29, 2014

Since the actual purchase was for the drive-time ads, the cost per ad for that portion was \$134.32 per spot. With the match, however, the cost per ad was half of that - \$67.68 per spot.

The script for these ads was developed by CAPCOG in consultation with members of the Outreach and Education Subcommittee. The focus of this script was to promote the "Be Air Aware" message, encouraging listeners to sign up for air quality forecasts. It read as follows:

HEADING OUTSIDE? IT'S OZONE SEASON IN CENTRAL TEXAS, AND SMOG LEVELS CAN BE UNHEALTHY FOR KIDS, PETS, SENIORS, AND PEOPLE WITH ASTHMA. EVEN THOUGH YOU CAN'T SEE IT, SMOG CAN IRRITATE YOUR LUNGS AND MAKE IT HARD TO BREATHE. WHEN CHECKING THE WEATHER, BE SURE TO CHECK THE AIR QUALITY FORECAST, TOO. IF OZONE'S HIGH, BE CAREFUL OUTSIDE. SIGN UP FOR AIR QUALITY ALERTS AT CAPCOG DOT ORG SLASH AIR QUALITY. THAT'S C-A-P-C-O-G DOT O-R-G SLASH AIR QUALITY. BE AIR AWARE TO HELP PROTECT YOUR FAMILY. A MESSAGE FROM THE CENTRAL TEXAS CLEAN AIR COALITION.

For KLZT, the Spanish-language station, Emmis translated this message into Spanish for that audience.

CAPCOG also created a dedicated page with a prominent link featured at the URL referenced in the radio ad that would help individuals wishing to sign up for air quality alerts through TCEQ or EPA to do so.

Some of the key metrics used in measuring outcomes from a radio advertising campaign are:

- Average Quarter-Hour (AQH) Persons: the average number of persons listening to a particular station for at least five minutes during a 15-minute period;
- Net reach: the number of different persons reached in a given schedule;
- Gross Impressions (GIs): the sum of the Average Quarter-Hour Persons audience for all spots in a given schedule; and
- Frequency: the average number of times a person is exposed to a radio spot schedule (GIs divided by Net Reach).

This first advertising campaign is estimated to have achieved a net reach of 758,300 in the Austin-Round Rock MSA (759,300 total, including 1,000 outside of the MSA). The average audience member listening to these stations during the advertising campaign would have heard these ads an average of 2.2 times (the average frequency). The campaign made a total of 1,678,200 gross impressions in the MSA (1,681,800 total), at an average cost of \$9.54 per 1,000 GIs, a measure known as "cost per thousand." This schedule achieved 6,993 GIs within the MSA per ad run. The table below shows the net reach, frequency, and GIs for this first campaign, including for targeted sub-groups.

Sub-Group	Net Reach	Frequency	Gross Impressions
Bastrop County	31,900	2.1	68,400
Caldwell County	11,200	1.6	18,000
Hays County	71,700	2.2	158,400
Travis County	463,400	2.2	1,040,700
Williamson County	180,100	2.2	392,700
Hispanic <sup>4</sup>	133,200	2.4	315,000
Parents with Children < 18 y/o	298,600	2.3	682,800
MSA Total	758,300	2.2	1,678,200

Table 9: May/June CAPCOG Radio Advertising Outcomes by Targeted Sub-Group

<sup>&</sup>lt;sup>4</sup> "Hispanic," as used by the ratings agency that provides these data, refers to anyone who self-identifies as "Hispanic" <u>AND</u> speaks Spanish.

During this advertising campaign, CAPCOG posted prominent link on its main air quality page that would take a visitor to various options for signing up for air quality alerts, enabling analysis of whether listeners to the radio ads visited the website and signed up for the alerts.

## August/September Radio Ad Buy

CAPCOG's second radio advertising campaign ran from August 25-September 28. This time period was selected because it is typically when the region sees its highest ozone levels, and also because – with school starting again – parents of children were thought to perhaps be more receptive to air quality messages during that time.

CAPCOG conducted a competitive procurement designed to reach the maximum number of people possible at least three times during this period, given the budget available. Radio companies were asked to submit quotes for drive-time (6 am – 10 am and 3 pm – 7 pm, Monday-Friday) advertising on each station they owned for schedules that would achieve a target frequency of at least 3.0 (meaning the average listener would hear the ads 3.0 times over the course of the entire campaign). This frequency is often thought to be the level of exposure to advertising necessary to have the desired impact<sup>5</sup>.

Once quotes were compiled, CAPCOG then analyzed the data and selected the combination of stations that would result in maximum cost-effectiveness for the campaign, measured in dollars per person, based on the AQH persons during these drive-time periods.

The cost for this advertising buy was \$53,825.00. An additional \$600 was spent in order to obtain permission to use the radio ads copyright-free on CAPCOG's website and distribute the file to regional partners. Accounting charges and indirect charges brought the total for this purchase up to \$59,219.75.

A total of 450 thirty-second radio spots were run during this period on six stations, including one Spanish-language station (KLTZ). The number of spots run on each station is listed below.

Station	Monday-Friday 6 am – 10 am	Monday-Friday 3 pm – 7 pm	Total Spots
KKMJ FM	25	50	75
KLBJ AM	25	25	50
KPEZ FM	65	65	130
KBPA FM	40	35	75
KLZT FM	25	25	50
KASE FM	35	35	70
TOTAL	215	235	450

 Table 10: Radio Advertising Spots, August 25-September 28, 2014

Counting the associated CAPCOG charges, these ads cost \$131.60 per spot.

<sup>&</sup>lt;sup>5</sup> <u>http://avenueright.com/entries/71/optimum-scheduling-for-radio-advertising-frequency-is-key</u>

The first ad was a "Back to School" message that targeted parents of school-aged children, encouraging them to take steps to reduce their emissions. These ads ran from August 25 – September 9. The ads were translated into Spanish for KLTZ.

FOR CENTRAL TEXAS, BACK-TO-SCHOOL ALSO MEANS BACK-TO-AIR POLLUTION. INCREASED TRAFFIC AND HEAT LEAD TO SOME OF THE WORST AIR POLLUTION RIGHT AS SCHOOL STARTS AGAIN. AIR POLLUTION CAN MAKE IT DIFFICULT TO BREATHE FOR CHILDREN, SENIORS, AND PEOPLE SUFFERING FROM ASTHMA. YOU CAN DO YOUR PART TO KEEP THEM HEALTHY BY REDUCING EMISSIONS WHILE ALSO SAVING MONEY. HOW CAN YOU HELP? TRY CARPOOLING, AVOID SIDE TRIPS, AND LIMIT IDLING WHEN PICKING UP AND DROPPING OFF KIDS AT SCHOOL, ESPECIALLY ON OZONE ACTION DAYS. BE AIR AWARE. A MESSAGE FROM THE CENTRAL TEXAS CLEAN AIR COALITION.

The second ad was a "drive clean" message that encouraged residents of Central Texas to look into grant opportunities to replace older vehicles. These ads ran from September 10 – September 28.

STILL DRIVING THAT OLD CLUNKER? DID YOU KNOW THAT THE STATE OF TEXAS CAN HELP YOU PAY FOR UP TO \$3,000 FOR CERTAIN NEW, LOW-EMISSIONS CARS, SUVS, OR PICKUPS? YOU CAN RECEIVE EVEN MORE TO REPLACE AN OLD A HEAVY-DUTY VEHICLE. TO FIND OUT IF YOU QUALIFY FOR FUNDING AND TO LEARN MORE ABOUT THESE OPPORTUNITIES, ASK YOUR LOCAL DEALERSHIP, OR VISIT CAPCOG DOT ORG SLASH AIR QUALITY. THAT'S CAPCOG DOT ORG SLASH AIR QUALITY. THIS FALL, DRIVE CLEAN ACROSS CENTRAL TEXAS. A MESSAGE FROM THE CENTRAL TEXAS CLEAN AIR COALITION.

This second advertising campaign is estimated to have achieved a net reach of 964,700 in the Austin-Round Rock MSA (969,000 total). The average audience member listening to these stations during the advertising campaign would have heard these ads an average of 3.4 times, producing a total of 3,237,000 GIs (3,239,500 total), at an average cost of \$18.29 per 1,000 GIs. Anecdotally, CAPCOG can report that we received a number of calls during this second period of advertising from people who had heard the radio ads and were interested in finding out more. This was the only time CAPCOG received such calls during the two radio advertising campaigns.

The higher cost per 1,000 GIs compared to the first round of advertising can be attributed to the fact that in the first round, Emmis Communications matched the buy ad for ad as part of its corporate stewardship efforts, but these were not provided by any of the three companies ads were purchased

from as part of the second buy. The table below shows the net reach, frequency, and GIs for this second campaign, including for targeted sub-groups. And while the cost per 1,000 GIs was higher for the second buy, this advertising campaign did achieve a higher efficiency in terms of GIs in the MSA per ad run (7,193 GIs per ad) compared to the first campaign (6,993 GIs per ad).

Sub-Group	Net Reach	Frequency	Gross Impressions
Bastrop County	40,600	3.4	138,500
Caldwell County	19,400	3.7	72,000
Hays County	86,800	3.5	303,500
Travis County	583,100	3.3	1,921,500
Williamson County	234,800	3.4	801,500
Hispanic	298,800	4.1	1,212,00
Parents with Children < 18 y/o	394,400	3.6	1,401,000
MSA Total	964,700	3.4	3,237,000

Table 11: August/September CAPCOG Radio Advertising Outcomes by Targeted Sub-Group

As with the first campaign, CAPCOG created a dedicated page with a prominent link featured at the URL referenced in the ad that would help guide listeners to funding opportunities for vehicle replacement. This enabled CAPCOG to analyze whether the ads caused listeners to visit CAPCOG's website in order to find out more about the grant opportunities.

### CAPCOG Advertising in the Context of All Air Quality Radio Advertising

In addition to CAPCOG's radio advertising, the City of Austin purchased its own air quality-related advertising, CAMPO purchased radio advertising for the Commute Solutions program, and Travis County purchased radio advertising for the LIRAP program. The following table shows summarizes these buys and provides details on the cost and number of GIs in the MSA for each buy.

Organization	Stations	Total Spots	Cost	MSA GIs	Cost Per Thousand
City of Austin	KLBJ-AM, KGSR-AM, and KLZT- FM-HD2	315	\$15,105.00	1,328,300	\$11.37
City of Austin	KUT and KUTX	274	\$25,000.00	1,379,600	\$18.12
CAMPO	KUT and KUTX	174	\$16,143.696	824,900	\$19.57
Travis County	KBPA-FM, KLZT-FM, and KLZT- FM-HD2	146	\$8,950.00	1,186,800	\$7.54
CAPCOG	KROX, KLBJ-AM, KBPA-FM, and KLZT-FM	240	\$14,730.00	1,678,200	\$8.78
CAPCOG	KKMJ-FM, KLBJ-AM, KBPA-FM, KPEZ-FM, KLZT-FM, KASE-FM	450	\$53,825.00	3,237,000	\$16.63
Combined	n/a	1,599	\$133,753.69	9,634,800	\$13.88

Table 12: Air Quality Radio Advertising Purchased by City of Austin, CAMPO, and Travis County

<sup>&</sup>lt;sup>6</sup> Cost of CAMPO advertising estimated based on cost per ad spent up to October. CAMPO has not been billed for the October advertising yet.

One way to compare the scope of the radio advertising purchased by CAPCOG using the funding provided by COA is to compare CAPCOG's radio ad buys to all of the above in terms of inputs, outputs, and outcomes. The following table shows a comparison of CAPCOG's radio advertising compared to all of the air quality-related radio advertising procured during 2014.

Data Point	CAPCOG % of Total
Money Spent	51%
Ads Run	43%
Bastrop County GIs	55%
Caldwell County GIs	48%
Hays County Gls	57%
Travis County GIs	50%
Williamson County GIs	51%
Hispanic GIs	66%
Parents with Children < 18 y/o GIs	56%
MSA Total GIs	51%

Table 13: CAPCOG Radio Advertising Compared to all Air Quality Radio Advertising in 2014

#### Analysis of Effectiveness of Radio Advertising

#### Representativeness of Radio Advertising Audience

One objective of the regional outreach and education plan was to ensure that outreach efforts were able to reach key groups roughly in proportion to their share of the MSA's population. By that measure, the CAPCOG radio advertising was quite successful. The metric that is most relevant for the purposes of gauging impact on behavior is gross impressions, since it accounts for both the number of people reached and the frequency with which they are reached. As the chart below shows, the distribution of GIs achieved from CAPCOG's two rounds of radio advertising among the targeted sub-groups closely matches the actual distribution of these groups within the MSA's overall population.





The "parents with children < 18 y/o" data for the Austin-Round Rock MSA reflects the percentage of people who are recorded as being a "householder" or "spouse" in a family household in the five-year 2009-2013 American Community Survey (ACS) data for the MSA.<sup>7</sup> The other data reflects the 2013 population count for each county and for the "Hispanic" ethnicity as reported by the Census.

#### Impact of Radio Advertising on Web Traffic

Since CAPCOG set up specific web pages in conjunction with its radio advertising and, for two of the three ads that were ran, specifically encouraged listeners to visit its website, CAPCOG analyzed its website traffic for 2014 in order to detect any patterns linked to the radio advertising. The following figure shows the average visits each month to CAPCOG's main air quality page and the special pages created just for these advertising campaigns.

<sup>&</sup>lt;sup>7</sup> U.S. Census Bureau. "Table B09019: HOUSEHOLD TYPE (INCLUDING LIVING ALONE) BY RELATIONSHIP : Total population" 2009-2013 American Community Survey 5-Year Estimates.

http://factfinder.census.gov/bkmk/table/1.0/en/ACS/13 5YR/B09019/320M200US4812420



Figure 2: CAPCOG Website Traffic for Main Page, Air Quality Alerts Page, and Drive a Cleaner Vehicle Page

On average, CAPCOG's main air quality page received 4.75 visits per day for all periods other than 9/10 - 9/26, when the "Drive a Cleaner Vehicle" ad was being run. While that ad was running, however, average daily visits increased almost fourfold – to 18.24 visits per day. There was no evidence that the first campaign drove any listeners to CAPCOG's website, and during the first part of the  $2^{nd}$  campaign, the ad did not specifically prompt the listeners to visit CAPCOG's website. Given that the "Drive a Cleaner Vehicle" message was only delivered during half of the  $2^{nd}$  campaign, it is possible to estimate that the gross impressions with this message was about ½ of the total for that campaign. The total 231 visits to the dedicated page for cleaner vehicle funding, therefore, required about 1,619,750 gross impressions, or 7,012 gross impressions per visitor.

## Analysis of Results from Regional Survey

CAPCOG conducted a regional phone survey from September 29 – October 10 through Customer Research International (CRI), the firm that had previously conducted the phone surveys for the Central Texas Sustainability Indicators Project. CAPCOG received 601 responses across the MSA from respondents who were randomly selected from phone lists containing 50% cell phones and 50% land lines. The survey provided a number of insights that will be useful for regional air quality planning. One of the questions asked, "have you heard any radio ads about air quality recently?" A total of 11.81% of respondents answered "yes," while 87.02% responded "no," and 1.16% responded that they didn't know.

It is not immediately clear from the survey that the radio advertising made any significant impact on awareness of ozone issues, perception of the seriousness of the threat of ozone, or behavior. In analyzing responses to the following questions, there did not appear to be statistically significant differences between respondents who had reported recently heard the radio ads and those that had not:

- "Are you familiar with Ozone Action Days?"
- "Do you believe that higher ozone levels pose a very serious threat to you and your family, somewhat serious, not so serious, or not threat at all?" and
- "Do you do any of the following differently on Ozone Action Days?"

The results analyzed, however, do not control for other variables that might influence the responses to these questions. CAPCOG is planning on conducting a more extensive analysis that does take other variables into account, and will make that analysis available to COA when it becomes available.

## **Establish Baseline Metrics**

One of the key activities identified in the plan for 2014,

• Establish good baseline metrics for measuring the impact of the regional outreach and education efforts.

Some of the activities undertaken in 2014 that can help establish such metrics were the ongoing Clean Air Partners Program reporting, the reporting conducted by CAPCOG for the annual regional air quality report, and the regional survey conducted in late September and early October, as well as the data reported above for events and radio advertising. Since one of the key objectives of this activity is to be able to translate outreach and education activities into quantifiable emission reductions, it is important to express these metrics in terms that can be compatible with well-defined methods for quantifying emission reductions. The Outreach and Education Subcommittee will discuss and decide upon set of metrics to use moving forward.

## **Other Activities**

One of the other activities pursued in 2014 was a concerted effort to get the word out about the availability of the Emission Reduction Incentive Grant (ERIG) funding through the Texas Emission Reduction Plan (TERP), administered by TCEQ. CAPCOG staff obtained a list of TERP grant recipients in the region in prior years and placed phone calls to them notifying them of the availability of the funding and offering assistance to them in their grant application process. CAPCOG staff provided direct assistance to three entities – Austin White Lime, CapMetro, and the City of Round Rock – as part of this effort.

# **Overall Evaluation of Performance & Recommendations for 2015**

The regional air quality outreach and education effort is much better organized and focused now than it was a year ago, and thanks to this coordination, radio advertising and event staffing in particular were pursued in a more rational and organized manner. Thanks to Travis County, there is now also a dedicated, free way to procure high-quality printed material for outreach efforts. The data that was

collected in 2014 will provide an important foundation for future work and will help regional partners better understand the relative effectiveness of various outreach and education techniques.

There were several areas in which the regional effort did not fully meet the goals and priorities set out at the beginning of the year. Some of this will be helped by the added staff at CAPCOG – the Air Quality Program is now at 2.5 FTE, rather than the 1 FTE that was in place in March, July, and August, and one of the new staff members is primarily focused on outreach and education efforts, allowing for more sustained focus on all of the various outreach and education priorities. In other cases, the shortfalls in 2014 may require the Outreach and Education Subcommittee to rethink the scope of what can be achieved with the personnel who have been available to perform the work involved. It may be possible to augment these efforts by recruiting additional staff members from the CACAC to participate, or to recruit citizen volunteers throughout the region to help with these efforts.

In the case of radio advertising, which was a large part of the effort in 2014, there is some evidence – both from increases in web traffic and responses to the regional survey – that significant portions of the population were receiving the messages and may even have been moved to take some action, but additional research on this will be needed. In the future, some additional research and message-testing ahead of time may be warranted to ensure that the ads run are carrying messages that can be shown to have impacts on behavior.

2015 will be a very important year for the nonattainment designation process for EPA's proposed ozone standards. It will be one of the three years used for the designation process, regardless of the time frame EPA chooses to use. Ensuring that existing commitments are fully implemented and that any additional commitments are secured in time to have an impact on the nonattainment designation process should be the priority. With this in mind, CAPCOG recommends the following for 2015.

# • Prepare a short list of high-impact emission reduction measures that can be implemented in less than a year to focus the 2015 outreach and education messages on.

Any measures that can be implemented by the start of the 2016 ozone season – or even as late as May 2016 – should be prioritized over longer-term measures. This list should be specific to our region's emissions inventory and focus on those measures that are: a) going to achieve maximum emission reductions and, b) are simple to implement and track.

# • Focus the message for 2015 on the urgency of reducing emissions to reduce the risk of being designated nonattainment.

The most pressing reason for emission reductions in 2015 specifically – rather than emission reductions in general – is the impact that they could have on a potential nonattainment designation. With TCEQ's chief Toxicologist and all three Commissioners publicly and prominently announcing their belief that the EPA's proposed ozone standards will not provide any added health benefits, it may be more difficult to persuade certain members of the community that they should voluntarily reduce emissions because of

the ozone health benefits. A focus on the need to reduce emissions in order to avoid a nonattainment designation can provide a justification for the urgency of action and avoid the need to get into the disagreements between EPA and TCEQ on the science behind ozone standards.

# • Conduct outreach to the local TV and radio broadcasters and meteorologists regarding the EPA's ozone standard proposal.

CAPCOG's 2014 Regional Survey showed that the vast majority of people find out about ozone and air quality through their local weather forecasts and radio reports. Making sure that the people in these news organizations have the best information available about ozone air pollution will therefore be important to making sure that the general public is getting the right information about air pollution. The lack of Ozone Action Days in 2014 is likely to have had a significant impact on awareness levels. One potential strategy might be to try to get the broadcasters and meteorologists to focus on the air quality forecasts rather than the Ozone Action Day alerts.

# • Coordinate radio advertising buys and message development among City of Austin, Travis County, CAMPO, and CAPCOG.

A lot of the radio advertising that was run in 2014 had already been purchased by the time the Outreach and Education Plan was finalized, so it was not possible to fully synchronize or coordinate the radio advertising across organizations. This coordination should include each organization specifically identifying the objective of their advertising buy, the target audience, the target frequency, the messages that will be run, the schedules for which the ads will be run, and any follow-up work or data collection that will be conducted. This will help all of the organizations maximize the utility of these ads and should enable each organization to be better able to achieve their goals.

- Renew efforts to recruit key institutional actors to reduce emissions, including:
  - Independent School Districts;
  - Universities and Colleges; and
  - Health Institutions.

These types of institutions have not been fully engaged in the regional effort, and have numerous opportunities to contribute to regional emission reductions. They are also important entities in helping provide protection for sensitive populations when high ozone levels do occur.

• Develop "commitment cards" and online forms to help track individual and organizational commitments and conduct follow-up at the end of the ozone season through e-mails and phone calls.

Air North Texas has some great examples of these commitments on their website. These can be repurposed and geared towards Central Texas fairly easily. People are much more likely to actually take action if they have made a commitment to do so.

- Improve the resource efficiency of staffing events.
  - Be strategic about which events to staff.
  - Recruit additional personnel including volunteers to help staff community events and conduct presentations as part of the regional outreach efforts.

Staffing events is by nature a labor-intensive activity. Beyond labor costs, booth fees and mileage reimbursement required to get professional staff from participating organizations add to the resource requirements for such activities. Compared to other forms of contact such as radio advertising, digital advertising, or direct mail, it is a fairly expensive way to conduct outreach per person contacted. Using data collected in 2014 will help in identifying the highest-impact events to staff in 2014, but recruiting additional people to help with this effort –including volunteers – could greatly augment the effectiveness and efficiency of this strategy. In-person communication can be much more effective than other forms of communication, but making sure to have someone local makes a big difference in the potential impact. The Outreach and Education Committee should consider starting to recruit High School groups, college groups, and other community groups to participate in these efforts.

# Conclusion

This report is the final deliverable due from CAPCOG to COA under the 2014 interlocal agreement. It provides COA with a full accounting of how all of the funding was spent, provides a first-of-its-kind accounting of all of the various outreach and education activities undertaken during the ozone season, and provides detailed comparison of those activities to the priorities laid out in the *Outreach and Education Plan* developed under this agreement. If COA has any questions on this report, please do not hesitate to contact CAPCOG's Air Quality Program Manager, Andrew Hoekzema, at (512) 916-6043, or at ahoekzema@capcog.org.