

DRAFT

2019

Ozone Attainment Master Plan



City of San Antonio

The Ozone Attainment Master Plan

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Executive Summary

Air quality is a significant priority for the City of San Antonio as it has an impact on our community's public health and economic prosperity. The U.S. Environmental Protection Agency (EPA) lowered the primary and secondary eight-hour ozone National Ambient Air Quality Standards (NAAQS) to 70 parts per billion (ppb) on October 1, 2015. The EPA updated its air quality standards for ground-level ozone to 70 ppb in response to a careful examination of several studies showing that the 75 ppb standard set in 2008 was not protective enough of public health. If San Antonio does not reach the ozone attainment standard of 70 ppb by December 2020, The EPA will require additional regulations for businesses that plan to expand or are potentially relocating to San Antonio.

On September 24, 2018, the EPA announced that Bexar County was in marginal nonattainment. Marginal nonattainment areas are those closest to being within the designated attainment standard at the current level of 70 ppb or lower. To help achieve the City's goal of reaching ozone attainment by December 2020, the San Antonio Metropolitan Health District (Metro Health) convened a "Getting to 70" Committee to coordinate activities that have air quality benefits for residents, businesses, and City internal operations. The Committee's goal is to reduce ground-level ozone by reducing ozone precursors, oxides of nitrogen (NOx) and volatile organic compounds (VOCs).

The Ozone Attainment Master Plan establishes a strategic and technical review of current local ozone levels and provides recommendations for reducing emissions of ozone-forming compounds (NOx and VOCs) into the atmosphere, both on Ozone Action Days (OAD) as well as throughout the ozone season (March-November). The Ozone Attainment Master Plan was designed with input from stakeholders in six crucial planning areas: (1) Communications and Marketing Plan (2) Volkswagen (VW) Beneficiary Mitigation Plan (3) Ozone Best Practices (4) Identification of Point Sources and Mitigation (5) Business Community (6) Policy, Advocacy and Funding.

The Ozone Attainment Master Plan differs from the City's Climate Action and Adaptation Plan (CAAP) in that it is short-term and has a singular focus on targeted ozone reduction efforts thru December 2020, while the CAAP is long range and contains guiding principles for implementing mid to long-term goals associated with Climate Change (greenhouse gas reductions).

Introduction

The Ozone Attainment Master Plan establishes strategies and provides recommendations for reducing emissions of ozone-forming compounds into the atmosphere. Below is an outline of the plan and lists the strategic recommendation and the responsible party for each part of the plan:

Ozone Master Plan	Strategy	Responsible Party
Communications	<ul style="list-style-type: none">• Grassroots• Influencer Outreach• Digital Outreach• Public Svc Announcements• Public Relations Outreach	<ul style="list-style-type: none">Metro HealthMetro HealthGPAGPAMetro Health
Volkswagen Mitigation Grants	<ul style="list-style-type: none">• City's Fleet Replacement• Electric Vehicle Infrastructure Placement• Electric Ground Support Equipment• ISD support – School Busses	<ul style="list-style-type: none">BESDOSAviationISDs
Ozone Best Practices	<ul style="list-style-type: none">• Anti-Idling Ordinance Amendments• Telecommuting/Telework Schedules• Flexible Work Schedules• Bus – and Vanpool Programs• Community-wide Marketing Campaign	<ul style="list-style-type: none">City CouncilCity ManagerCity ManagerCity ManagerMetro Health
Pt. Source ID & Mitigation	<ul style="list-style-type: none">• Harvey E. Jeffries, Ph.D., 2019 Contract• Air Pollution Control - Business Registration• Request for Proposal Point Source Mitigation	<ul style="list-style-type: none">Metro HealthMetro HealthMetro Health
Business Involvement	<ul style="list-style-type: none">• Pt. Source Reduction – Ozone Action Day• Telecommuting Awareness Program• Transit Planning Options• Anti-idling Diesel Const. Equip. Incentives	<ul style="list-style-type: none">Metro HealthMetro HealthMetro HealthMetro Health
Policy/Advocacy/Funding	<ul style="list-style-type: none">• City's Departmental Ozone Action Day Metrics• Promote Targeted Education• Voluntary Airport Low Emissions Grant• CMAQ Funding – AAMPO/TxDOT Grant	<ul style="list-style-type: none">Metro HealthMetro HealthAviationTCI

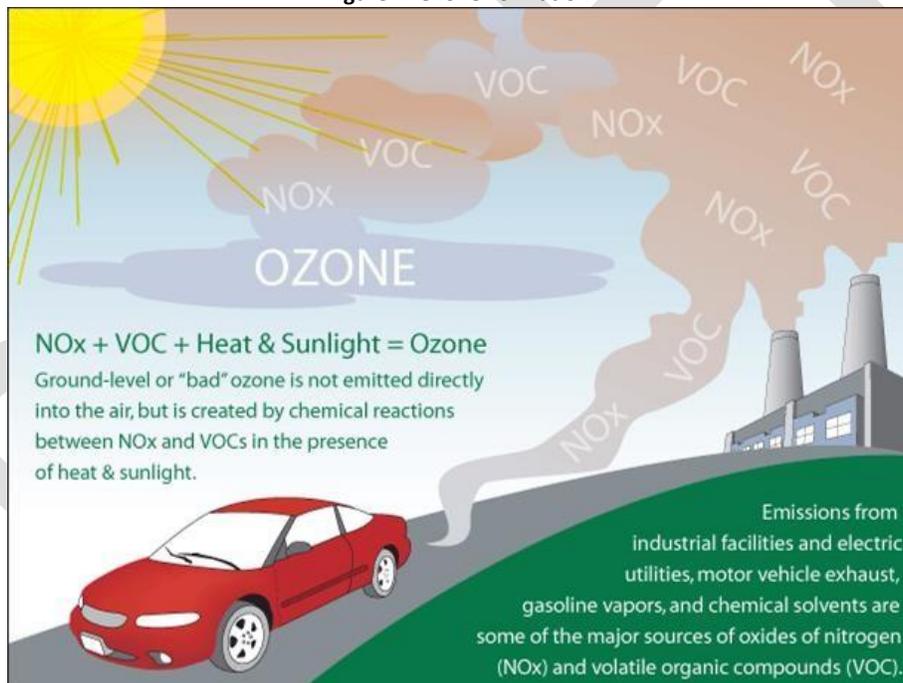
Ozone Basics

Ground-level ozone is the major component of smog and is not typically emitted directly from any source. There are two kinds of ozone:

- “Good” ozone is in the stratosphere and protects earth from the sun’s harmful ultraviolet radiation.
- “Bad” ozone or ground-level ozone causes many health impacts and is regulated by the EPA under the Clean Air Act.

Ozone is generally created in urban environments as a result of air pollution. Uncontrollable factors such as sunlight, high temperatures, and low winds combine with controllable emissions to form ground-level ozone. As seen in Figure 1, emissions that contribute to ozone formation can be grouped into two basic classes: (1) volatile organic compounds (VOCs), such as fuels, solvents, paints, etc. and (2) oxides of nitrogen (NOx), which form as a by-product of combustion.

Figure 1. Ozone Formation.



Source: <https://www.epa.gov/ground-level-ozone-pollution/ground-level-ozone-basics>.

Ground-level ozone can damage health, and can aggravate allergies, asthma, and lung disease. Children, outdoor workers and the elderly are the groups most sensitive to increased levels of ground-level ozone.

The City of San Antonio can achieve lower ozone levels during ozone season if the entire community works together to reduce emissions, especially on Ozone Action Days. To date, the San Antonio region has implemented numerous voluntary emission reduction programs, including episodic and year-round

programs, use of alternative fuels in local fleets, and technical studies to characterize our situation. The two largest local sources contributing to ozone in San Antonio are: (1) area sources, such as residential and commercial painting, refueling activities, and construction sources, and (2) mobile sources including automobiles, trucks, and other motor vehicles.

Important Ozone Issues

The City has two major concerns regarding air quality and ozone nonattainment.

One is *Public Health*; the following are health factors to consider:

Death (children & elderly)

Cardiovascular disease

Respiratory disease

Asthma attacks

The second is *Economic Cost* if the City fails to reach attainment. Federal regulations could cause:

Loss of Gross Regional Product (GRP)

Road Construction/Project Delays

Lost Manufacturing Expansion

Working Groups

On August 24, 2018, the City assembled various departments including Metro Health, Office of Sustainability, Aviation, City Attorney's Office, Transportation and Capital Improvements, Public Utilities, Economic Development, Government & Public Affairs, and the City Manager's Office. The purpose of this group was to determine the overall strategy to reach ozone attainment. The City group decided to focus their efforts on getting to 70ppb and created the Getting to 70 Committee. The idea was to concentrate efforts in the areas where the ground-level ozone non-attainment air monitoring sites (CAMS 58 and CAMS 23) are located.

Much of the efforts around the Ozone Attainment Master Plan are built around what are called the 4 A's: Awareness, Alliance, Action, and Attainment.

Awareness (Progress to Date)

External Messaging

- Summer 2018 Social Media Campaign
- Photo challenges with public Instagram (Public Transit, Carpooling)
- City's Website Programs
 - Office of Sustainability – Breathe Tomorrow, SA Tomorrow; SA Climate Ready
 - Metro Health Department – Air Quality Page; Business Registration Program

Internal Messaging

- Office of Sustainability (OS)
- Department Sustainability Liaisons

Awareness (Master Plan)

External Messaging (Next Steps)

- Grassroots
 - Business outreach – presentations to Chambers of Commerce boards & committees
 - Outreach to school districts – distribution of materials to parents
- Influencer Outreach
 - Ozone Team Members
 - SATX Social Ride
 - Blogger Outreach - Dr. Jefferies
- Digital Outreach
 - Transit Challenges – Instagram
 - Text messaging – targeted zip codes
- PSA: Focused anti-idling and public health
- Public Relations Outreach
 - The Source – TPR
 - Targeted Messaging (North/Northwest zip codes)

Internal Messaging (Next Steps)

- Departmental Ozone Action Day Plans
- OS Anti-idling Sticker Program
- Office of Historic Preservation – Deconstruction/Salvage Pilot Ordinance
- Transportation Capital Improvements (TCI) – TDM Programs

- Department of Innovations – Kiosk Program for Air Quality Testing

Alliance

List of Partners (Pre/Post-Master Plan)

- EPA Region 6
- TCEQ
- www.4cleanerair.org
- Texas Clean Air Working Group (Urban Counties)
- AAMPO
- Alamo Area Council of Governments (AACOG)
 - Air Quality (AQ) Committee and Clean Cities Program
- Bexar County
- CPS Energy
- Region 20
- UTSA
- UT Austin
- SA Tomorrow
- SA Climate Ready
- Parks & Rec Master Plan

Actions (Progress to Date)

- Business Forum with TCEQ (SAMHD, September 26, 2018)
- Dr. Jeffries Report at B Session (October 17, 2018)
- Comment on VW
- City's EV RFP
- Additional B-Cycle deployment

Actions (Master Plan)

- Dr. Jeffries Business Coalition session
- Apply for VW Funding (City's Fleet, Aviation, and EV Infrastructure)
- School voluntary anti-idling
- AQ Monitoring Smart Kiosk Sensors
- Set up webpages and coordinate messaging

- RFP (Air Sampling Solicitation)
- Aviation (FAA's VALE grant program)
- Develop City's Ozone Action Plan Metrics
- Amend Anti-Idling Ordinance (encourage City employees to not use drive-thrus)

Attainment

- **September 24, 2018**, effective date of Bexar County nonattainment designation.

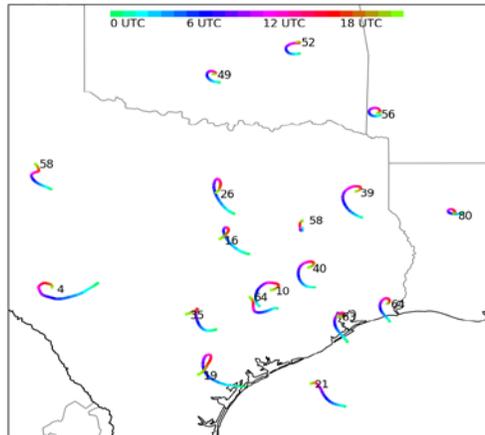
Attainment (Master Plan)

- **September 24, 2019**, Transportation Conformity: deadline for approval (AAMPO)
- **September 24, 2020**, Emissions Inventory SIP due
- **December 31, 2020**, Attainment year for evaluation

One important aspect under the Awareness category was the completion of updates to the City's Departmental Ozone Action Day Plans on September 29, 2018. The updated Departmental Ozone Action Day Plans are in keeping with the City's principle of "Leading by Example."

The Action component of the overall plan has seen steady progress since August 2018. Work-to-date has been realized in the study completed by Dr. Harvey Jeffries, Professor Emeritus, of the University of North Carolina-Chapel Hill and his presentation to a City Council B Session on October 17, 2018. Dr. Jefferies took special care to explain how ozone is created by necessary wind conditions and sufficient chemical conditions. In his review of the monitors at Camp Bullis (CAMS 58) and San Antonio Northwest (CAMS 23), Dr. Jeffries explained how ozone exceedances often occur due to rotating winds, as opposed to winds moving in a particular direction such as from the northwest moving in a southeastern direction, as seen in Figure 2.

Figure 2. Rotating Winds in Upper Air Current in Texas.



Source: Dr. Harvey Jefferies, B Session, City of San Antonio, October 2018.

On February 20, 2019, the Air Quality webpage on the Metro Health website was completed. This accomplishment represents another milestone in the Action component.

The next section of the Ozone Attainment Master Plan will address the core work areas needed to move forward and bring the City of San Antonio back into ozone attainment. Those core work areas are:

- Communication Plan – Designed to identify effective marketing and awareness campaigns and have a specific focus within the targeted north and northwest nonattainment areas.
- VW Settlement Initiatives – Projects selected will be funded per the requirements of the VW Beneficiary Mitigation Trust.
- Ozone Best Practices – Research and identify national best-in-class air quality practices in adopting ozone initiatives.
- Point Sources & Mitigation - Identify NOx and VOC point sources to implement effective mitigation practices.
- Business Community – Integrate business community involvement through extensive awareness and outreach programming.
- Policy/Advocacy/Funding – Review City’s air quality policies, advocate collaboration with partners, and seek outside funding opportunities.

Communications Plan

The Communications Plan, prepared by the City’s Government & Public Affairs office in coordination with Metro Health, consists of various components that are designed to connect with the general community and local businesses especially those in the North and Northwest areas of San Antonio

where air monitors have recorded high levels of ozone. The Communications Plan has been developed around the City of San Antonio's air quality mission that is based on two governing values: the health of our residents and a thriving economy.

The three target messages of this plan are:

- High levels of ozone create public health issues.
- Ozone nonattainment is costly to local businesses and taxpayers.
- Residents can take small actions to reduce air pollution.

High levels of ozone create public health issues.

- Ozone (O₃) is a gas that is formed when three atoms of oxygen combine.
 - Ground level ozone is created by chemical reactions between oxides of nitrogen (NO_x) and volatile organic compounds (VOCs) in the presence of sunlight.
 - Major sources of NO_x and VOCs include emissions from industrial facilities and electric utilities, motor vehicle exhaust, gasoline vapors, and chemical solvents.
- Ozone can make it more difficult to breathe deeply, inflame and damage the airways, cause coughing and cause a sore throat.
- Ozone can also aggravate lung diseases such as asthma, emphysema and chronic bronchitis, especially among children, the elderly and adults who often spend time outside.
- Ozone can also cause chronic obstructive pulmonary disease.
- In 2014, the pediatric asthma hospitalization rate in Bexar County was more than 170% of that of Texas, costing \$3,400 per child for inpatient treatment.
- Air pollution damages lung tissue in ways similar to second hand tobacco smoke. Air pollution triggers heart attacks and strokes. It causes diseases like bronchitis and lung cancer. It sends people to the emergency room with respiratory problems such as asthma attacks.

Ozone nonattainment is costly to local businesses and taxpayers.

- Failure to meet the stricter federal air quality standard means additional regulations for businesses that want to expand or relocate to San Antonio, putting new jobs and investment in the area at risk.
- Advanced manufacturing is a major industry sector for San Antonio, yet companies interested in building a major manufacturing plant will likely not build in a nonattainment area due to the

increased costs, delays and uncertainties associated with new restrictive permit requirements from the federal government.

- Federally supported highway and transit projects may be paused in a nonattainment area if the state cannot demonstrate that the project will cause no increase in applicable emissions.
- Companies must offset the projected emissions of new projects or major modification by purchasing unused emission credits from others, or by reducing their own emissions. The ability to purchase emissions credits becomes increasingly difficult as the available emissions credits are used up over time. Where no offset can be found, the project may not go forward.

Residents can take small actions to reduce air pollution.

- Drive less by combining errands into as few trips as possible, consider carpooling, use public transportation, walk or take a bike.
- Conserve fuel by reducing idling of your vehicle, by parking instead of utilizing drive-thru; avoid aggressive driving by starting and stopping your vehicle gradually; drive the posted speed limit, shut off the engine while waiting outside of schools, businesses and other waiting areas; keep excess weight out of your vehicle; don't continue to fill your gas tank after the pump has automatically shut off and seal the gas cap tightly.
- When possible, plan ahead to avoid traffic delays by anticipating construction and other congested areas or leave earlier or later than rush hours to avoid traffic.
- Other things residents can do:
 - Keep car engines and yard equipment maintained.
 - Keep tires properly inflated.
 - Consider buying a "cleaner" or more fuel-efficient vehicle.
 - Conserve electricity.
 - Use paint and/or cleaning products with less or no VOCs.

Communications Strategy: Progress to Date

The initial communication strategies utilized were:

Breathe Today, SA Tomorrow

- Communications and marketing started in 2017 helping the community to better understand air quality.

- Office of Sustainability started the campaign in 2017 and Metro Health continued the campaign in 2018.

SA Climate Ready

- SA Climate Ready started in 2018 and is currently open for public comment.

Departmental Ozone Action Day Plans

- City departments updated their respective ozone action plans in September 2018.

Clean Air for Kids!

- This program was started in 2018 and is an anti-idling program at schools.

Communications Strategy: Master Plan

Marketing and Public Relations Strategy

- Grassroots:
 - “Living” plant installations with messaging at City parks
 - Pop-up distribution of materials & interactive materials (in lieu of public meetings)
 - Business outreach – presentations to Chambers of Commerce boards & committees
 - Outreach to school districts – distribution of materials to parents
 - On-campus outreach – UTSA
- Influencer Outreach:
 - Promote Ozone Action Days during SATX Social Ride cycling events (local cyclists group)
- Digital Outreach:
 - Create single microsite
 - Text messaging – clean air tip of the month
 - Blurbs for City Council newsletters
- Video Production for Public Service Announcements (PSA)
 - PSA: Focused on anti-idling and public health
 - PSA: Focused on easy home tips like lawn care and public health
- Public Relations Outreach:
 - Working with media stations to promote Ozone Action Days during weather forecast.
 - The Source – air quality update/discussion of ways to be more sustainable

- Public affairs shows – clean air tips & distribution of PSAs
- Deskside briefings with health & environmental reporters

Creative Brief

Metro Health’s Ozone Action Day marketing efforts will aim to create simple messages for the community through engaging videos for television and social media audiences, geographically-targeted digital advertisements, and radio advertising targeting commuters. The advertising will distill the complex content into easy to understand messages that underscore the most important message: air quality is a public health issue and everyone can help to clean up the air.

The goal of the targeted ozone action advertising campaign will be to increase awareness and provide simple, actionable steps for residents to help improve San Antonio air quality. The \$50,000 advertising budget will be spent from April thru August 2019. This budget will include paid sponsorships, television and radio broadcasts, and digital and social media advertisements. The budget will also cover development and production of all print marketing materials.

Timeline

The first outreach and input effort will be held in April 2019 at the Claude Black Community Center. A local news station will broadcast the weather segment live from the Center. Viewers will be notified that morning of a free Fiesta medal giveaway and will be invited to attend the broadcast’s taping. During the live segment, the ozone attainment plan will be briefly discussed. Ozone attainment flyers and information will also be distributed while also seeking public input. The campaign also includes ozone awareness during a seven week “Allergy Report Sponsorship” during the 12 noon broadcast with another news station.

In addition, television ads will run on both English and Spanish stations. Fourteen radio stations will air sponsorship of “Total Traffic and Weather Reports” to promote ozone awareness during evening commuting time periods. The sponsorship will run three days a week for five weeks.

Digital placement of both online ads and social media ads will be placed in the north and northwest areas of San Antonio throughout the campaign. Additionally, digital alerts will be made across the City on days with increased potential for high ozone. The combined television, radio and digital campaign will be layered to run in the same weeks when feasible, to increase exposure to issues related to ozone.

Volkswagen (VW) Settlement Plan

VW Beneficiary Mitigation Settlement

In June of 2016, the Volkswagen (VW) Corporation and the U.S. Federal Trade Commission (FTC) settled their litigation concerning Volkswagen's deceptive practice of utilizing a "defeat device" on its diesel automobiles (2.0 liter engines). The defeat device allowed the vehicle being tested for emissions to report lower levels of pollutants than actually being emitted. The settlement provided funding in three different categories: (1) a customer buyback program (2) a zero emission investment fund concerning future technologies, and (3) a funding program which provides each state a cash allotment for reducing NOx emissions. The Ozone Attainment Master Plan focuses on the projects that are available through the Emissions Reduction Program.

The Emissions Reduction Program will help reduce NOx pollution that contributes to the formation of harmful smog and soot (which contains ozone), exposure which is linked to a number of respiratory- and cardiovascular-related health effects as well as premature death. Children, older adults, people who are active outdoors (including outdoor workers), and people with heart or lung disease are particularly at risk for health effects related to smog or soot exposure. Nitrogen dioxide (NO₂) formed by NOx emissions can aggravate respiratory diseases, particularly asthma, and may also contribute to asthma development in children.

VW Texas and San Antonio Funding

The VW/FTC settlement awarded \$209 million in grant funding to the State of Texas through the Volkswagen Beneficiary Mitigation Trust Fund, administered by the VW Beneficiary Mitigation Trustee through the Texas Commission on Environmental Quality (TCEQ). The San Antonio four-county area (Bexar, Comal, Guadalupe, and Wilson) has an allocation amount of \$61.6 million.

- TCEQ will issue multiple grant applications that will include a combination of first-come, first-serve and competitive-selection opportunities. The grant application process is expected to be initiated by the 2nd quarter of 2019.
- Grants will reimburse up to 80% for City projects and a 20%-50% local match is required. Office of Sustainability, Building Equipment Services Department, Solid Waste Management Department, Aviation, and Center City Development Office have begun identifying projects, but detailed scope and costs are still being vetted. The following are identified projects-to-date;

Volkswagen Settlement: Progress to Date

The following work has taken place since the City of San Antonio has been notified of its marginal nonattainment status:

- VW settlement grant process has not been opened by TCEQ yet.
- Some topics (categories and vehicle types) pertaining to the VW mitigation trust were discussed during the November 27, 2018 AACOG Inter-local Agreement meeting (attended by City, Bexar County, and AACOG representatives).
- Through a series of two stakeholder meetings, representatives identified thirteen local control strategies which were later narrowed to six.
- Stakeholders discussed different eligible vehicle classes (see additional details below underlined section).
- San Antonio International Airport Electric Charging Infrastructure
- Electric Vehicle Conversion & Infrastructure Deployment Study 1-year \$125,000 contract.
 - Contract began February 1, 2019 – thru February 1, 2020.
 - Electric Vehicle Charging Infrastructure at City's facilities and City-managed surface parking lots.

Volkswagen Settlement: Master Plan

City's Fleet Replacement

This project will replace aging, diesel-powered trucks with new diesel, alternative fuels, or all-electric vehicles. There will be no impact to the General Fund for vehicle replacements and associated charging infrastructure. The proposed match of \$1.4 Million is available through the Equipment Renewal and Replacement Fund (ERRF). The Environmental Defense Fund (EDF) Clean Energy Program will work with City to further evaluate fleet electrification beginning in March 2019. Potential funding is \$6.2 million.

Electric Vehicle Charging Infrastructure at City's Facilities & Parking Lots

The Office of Sustainability's selection for consulting services for Electric Vehicle Fleet Conversion & Citywide EV Infrastructure Study was approved at the City of San Antonio City Council A Session on February 14, 2019; the study results will identify locations which best meet charging station demand based on the available power grid. Potential funding is \$250,000.

School Bus Alternative Fuel Program – EDF and ISDs

The Environmental Defense Fund (EDF) and the local Independent School Districts (ISDs) have been in discussions over grant funding. These talks are leading to recognition of which busses would most likely to be replaced under this funding.

Ozone Best Practices

Best Practices: Progress to Date

The Current Initiatives Working Group (CIWG) was tasked with researching “Best in Class” cities that have programs addressing ozone nonattainment. The next task assigned to the CIWG was to compare these best practices to City internal operations, partners and policies. Data from approximately 50 entities was gathered and presented to the Getting to 70 Committee at the beginning of December 2018. The Committee then evaluated the compiled research and selected the Top Six (6) Initiatives for prioritization (See page 18).

Table 1 lists current operations, partnerships, and policies that the City of San Antonio presently has in place.

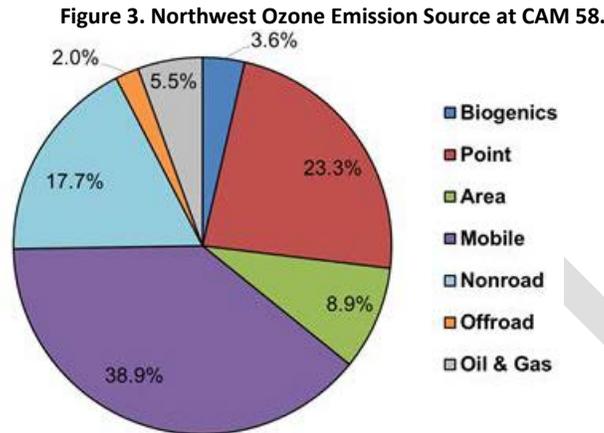
Table 1. Current City Initiatives

INTERNAL OPERATIONS	City & PARTNER PLANNING	POLICY
<ul style="list-style-type: none">• Ozone Action Day Plans• Fleet Alternative Fuels Vehicle & Emissions Testing• Anti-Idling Administrative Directive• Alternative transportation encouragement for City employees• Solar projects	<ul style="list-style-type: none">• AACOG Regional Air Quality Plan 2018-2023• VIA Mobility 2040• CPS Energy Flex Path Generation Plan	<ul style="list-style-type: none">• Anti-Idling Ordinance• Business Registration Program• Coal Tar Sealant Ban• Tree Ordinance

Source: Getting-to-70 Committee, Current Initiatives Working Group, December 2018

The City of San Antonio has partnered with regional organizations such as the Alamo Area Council of Governments (AACOG) when it comes to air quality. Since Bexar County was deemed in nonattainment by the EPA, AACOG has been the regional body that has assisted the region in providing ozone modeling

studies of the critical levels in conjunction with the Texas Environmental Quality Commission (TCEQ). One such collaboration in modeling is provided in Figure 3, the data is collected from local emission source contributions to ozone at CAM58 in 2017 based on maximum 8-hour ozone on days with greater than 60 ppb of ozone.



Source: AACOG Photochemical Modeling Report, August 22, 2019.

Best Practices: Master Plan

The following are the Top Six (6) Initiatives:

1. **Reduce Automobile Idling.** In order to help reduce emissions from automobiles, cities and states are passing ordinances to encourage drivers to turn off engines when the vehicles are not in motion.
 - Ozone Action Day Specific
 - Cost: Low
 - Implementation Timing: Swift
 - San Antonio: Administrative Directive (could be expanded)
2. **Telecommute.** Using information and communications technology to work from home. This can range from 100% of the time to three days a week to efforts that only target ozone action days.
 - Ozone Action Day Specific
 - Cost: Low
 - Implementation Timing: Swift
 - San Antonio: Limited Availability
3. **Flexible Working Schedules.** Encouraging City departments to offer employees flexible schedules or condensed work weeks. Options include: flexible start and end times, compressed work weeks and staggered shifts.

- Ozone Action Day Specific
 - Cost: Low
 - Implementation Timing: Swift
 - San Antonio: Limited Availability
4. **Bus and Vanpool Programs.** In order to reduce emissions and traffic congestion, cities and other government institutions are providing vanpool programs for their employees to commute to work.
- Ozone Action Day Specific
 - Cost: Capital
 - Implementation Timing: Slow
 - San Antonio: Not Offered
5. **Community-wide marketing/education campaign.** Marketing is a powerful tool to encourage behavior change. Arming the general public with the knowledge of how they can help improve air quality could encourage better commuting choices and reduce emissions.
- Ozone Action Day Specific
 - Cost: Variable
 - Implementation Timing: Slow
 - San Antonio: \$50,000 for targeted messaging
6. **City/VIA Mass-Transit Collaboration.** In partnership with VIA, the City would collaborate regarding future mass transit projects.
- Ozone Action Day Specific
 - Cost: Capital
 - Implementation Timing: Slow
 - San Antonio: Offered (but could be expanded)

Identification of Point Sources & Mitigation

Point Source Identification and Mitigation: Progress to Date

Metro Health was very active during fiscal year 2018 working on initial steps to identify point sources to lower ozone precursors. The progress that has been made in the area of ozone formation at area monitors in San Antonio is largely due to the efforts of Harvey E. Jeffries, Ph.D. and the Alamo Area Council of Governments (AACOG). Dr. Jeffries has completed research and analysis regarding ozone formation in Bexar County and will continue his work in 2019. AACOG has completed work on Interlocal

Agreement (a contract between City of San Antonio, Bexar County, and AACOG) and will complete its work by the end of 2019. Metro Health's Air Pollution Control Program will continue its work of identifying and registering local businesses that are sources of emissions. Finally, Metro Health has posted a Request for Proposal with a goal to identify VOC and NOx sources in NW Bexar County which will lead to mitigation of emissions at these sources.

Harvey E. Jeffries, Ph.D.

Metro Health contracted with Harvey E. Jeffries, Ph.D., (Dr. Jeffries), a nationally recognized atmospheric chemist that has been studying ozone formation for many years. Dr. Jeffries has been successful in helping to lower ozone levels in other Texas cities. Dr. Jeffries performed a site-by-site, hour-by-hour, and year-by-year analysis of 1-hour ozone, wind data and other available observational data for San Antonio monitors, including the non-regulatory monitors. The purpose of this analysis is to improve the understanding of ambient ozone formation and the trends leading to exceeding the EPA Federal Ozone Standard. Dr. Jeffries was able to determine the direction and approximate distances from the regulatory monitors that ozone precursors were originating. He also noted a potential pattern of emissions triggering exceedance days. Dr. Jeffries delivered presentations to local businesses regarding air quality and emissions during meetings hosted by Southwest Research Institute and held in July and October of 2018. Dr. Jeffries presented his findings entitled, "Observational Analysis to Improve Understanding of Ozone Formation in San Antonio"; this technical report was also presented to City Council and the public in a B Session during his October visit.

Air Pollution Control Program

Policy is important when it comes to air quality. The City of San Antonio updated its most recent Air Pollution Control Ordinance in November of 2015; the last air pollution ordinance update had not taken place since 1982. The 2015 ordinance requires businesses with air emissions to register with Metro Health (see Table 2. Sample Business Registration). The required registration provides information that Metro Health can use in determining strategies to lower ozone levels and other air pollutants. This allows the City of San Antonio to continue to develop its air pollution program while working with businesses in San Antonio to lower emissions.

Table 2. Sample Business Registration

Aggregate Production Operations	Dry Cleaning	Printing Presses (media & garments)
Auto Body	Fleet Maintenance	Surface Coating
Auto Repair	Foundries	Thermoset Resin/Cultured Marble Facilities

Source: <https://www.sanantonio.gov/Portals/0/Files/health/HealthyEnvironment/registration-requirements-english.pdf>

Emissions Data

- TCEQ data compiled using geographic information system (GIS)
- Emissions data from TCEQ used by ITSD to create GIS map of monitoring sites and registered facilities.
- Locations of Monitors and Point source information for 2018.

Request for Information

- Posted in the fall of 2018
- Seeking methods to detect and mitigate ozone precursor emissions
- Five consultants responded; information obtained used to post a Request for Proposals (RFP)

ID Point Sources and Mitigation: Master Plan

Request for Proposal

A Request for Proposals (RFP) was posted for solicitation on March 13, 2019 to assist the City by locating and mitigating VOC and NO_x sources located in northwest Bexar County.

The purpose of the services will be to: (1) locate the highest concentrations of VOCs and NO_x in the air in the northwest quadrant of Bexar County (2) to find possible sources contributing to those concentrations that would most likely impact the TCEQ air monitoring stations (CAMS 58 and CAMS 23) in the northwest quadrant and (3) to advise the City of San Antonio on mitigation strategies to reduce the VOC and NO_x concentrations that most likely would impact the TCEQ Air monitoring stations.

The selected vendor will be asked to propose plans for four particular areas of work:

1. Identify where and when VOC and NO_x releases are occurring in Northwest Bexar County.
2. Identify fugitive emissions from facilities in northwest Bexar County.
3. Research unplanned and accidental emissions in northwest Bexar County.
4. Recommend and plan mitigation strategies and industry stakeholder engagement.

A Request for Proposal (RFP) will be posted for six weeks in the spring of 2019; at the end of this posting period a vendor will be selected. A request for Council consideration will occur in early summer of 2019. The selected vendor will present draft work plans to Metro Health; field work will begin during the 2019 ozone season.

Air Pollution Control Program

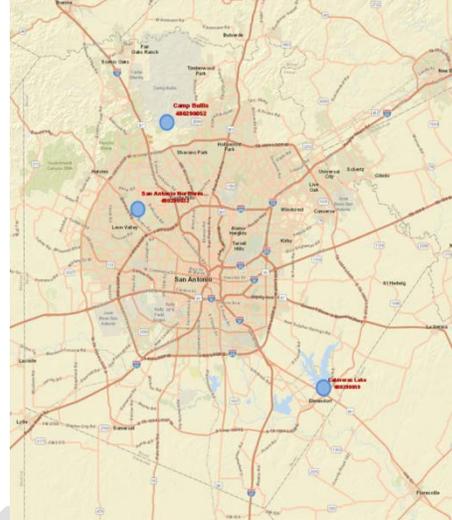
Metro Health's Air Pollution Control Program continues to register businesses that generate air emissions. The Air Pollution Control Program partners with TCEQ, City's Code Enforcement, and the San Antonio Fire Department to work with local businesses. The Air Pollution Control Program will add the following to the program: (1) an education and outreach component, and (2) gather new data for 2019.

Dr. Jeffries' 2019 Report

A City contract with Harvey E. Jeffries, Ph.D., has been executed for fiscal year 2019. This contract will include conducting graphical analysis of ambient chemical and meteorological data monitored in the San Antonio area for 2017 and 2018. The purpose of this analysis is to improve the understanding of ambient ozone formation and the trends leading to exceeding the EPA Federal Ozone Standard. This will require local planning for potential new controls on emissions. This data will include weather cycle information necessary to understand ozone formation events leading to exceedance days. A review of chemical information will be conducted, including Auto-GC (automatic gas chromatography) data located at TCEQ CAMS 58, CAMS 1038, and CAMS 1070 as well as additional chemical data that may become available. Dr. Jeffries will also review reported release events for TCEQ-permitted facilities within Bexar County, including event occurrence and duration by event number, presenting his findings in graphical representations, where relevant.



Infrared Imaging of Emissions



Regulatory Air Quality Monitoring Sites

Business Community

Business Community: Progress to Date

Metro Health conducted several meetings with the business community in 2018 and early 2019. The Texas Commission on Environmental Quality (TCEQ) presented an update on 2015 Ozone NAAQS at a meeting hosted by Metro Health at Mission San Jose Library in late September 2018. At this meeting, TCEQ presented information to help businesses and the public understand the requirements of marginal nonattainment.

Metro Health also hosted a meeting with businesses in November 2018 to choose ozone control strategies for AACOG to model as required by the Inter-local Agreement between City of San Antonio, Bexar County, and AACOG. Six control strategies were selected for modeling by the business group. The six selected control strategies were:

1. Significant Point Source Reduction on High Ozone Days
2. VW Funding for School Buses
3. Telecommuting
4. Open Burning Restrictions
5. VW Funding for Transit and Shuttle Buses
6. Anti-Idling for Diesel Equipment Vehicles

On February 11, 2019, another business community meeting was held to share the City's plans to reach ozone attainment and to gather ideas from the business community. At this meeting, Metro Health reported on accomplishments to date and plans for the upcoming ozone season.

Some meeting attendees voiced suggestions for ozone attainment going forward; these suggestions included: holding monthly stakeholder meetings, asking local television stations to announce ozone action days during the weather report, creating a list of actions businesses and employees can take to lower emissions, and reaching out to more businesses (especially small and medium-sized businesses) by engaging business groups such as Chamber of Commerce and San Antonio Manufacturer's Association to help disseminate information to businesses.

Business Community Meeting Highlights (2018 into early 2019):

- The July 26, 2018 meeting Dr. Jeffries presented on "Bexar County Ozone Exceedance Analysis" for Business Stakeholder meeting.
 - Rotating wind flows necessary for ozone exceedances (confirmed by site data).
 - 37 Attendees
 - October 17, 2018 presentation was held before City Council: 131 Attendees
- November 27, 2018 AACOG Inter-local Agreement meeting
 - Metro Health hosted this meeting to discuss ozone control strategies for AACOG to model as required by the Inter-local Agreement.
 - 26 Attendees.
 - At this meeting, stakeholders were asked to prioritize the controls in order to narrow them down to six controls which would be chosen for modeling.
 - These controls were, in order of prioritization:
 1. point source reduction on high ozone days,
 2. VW funding for school buses,
 3. telecommuting,
 4. open burning restrictions,
 5. VW funding for transit and shuttle buses, and
 6. Diesel construction equipment anti-idling.
- February 11, 2019 meeting was held at Hardberger Park to share the City's plans to reach ozone attainment and to gather ideas for reaching ozone attainment from the business community.
 - 15 Attendees.

Business Community: Master Plan

The first approach is to expand the Business Stakeholder Ozone Attainment meeting group. The participants of the current group predominantly represent some of San Antonio's largest corporations and businesses. While this is extremely positive, it may be helpful to have the participation of small- and medium-sized business, especially in northwest Bexar County. The meetings held by this group will have the purpose of encouraging all businesses to either lower their emissions directly (if the business has emissions) or to enact policies that will also help to lower emissions (such as carpooling or anti-idling policies).

This approach has the advantage of helping businesses understand the costs and consequences of ground-level nonattainment status. Examples of the costs and consequences that can be conveyed to businesses are:

1. Ozone nonattainment means additional regulations for businesses that want to expand or relocate to San Antonio, putting new jobs and investment in the area at risk.
2. Advanced manufacturing is a major industry sector for San Antonio, yet companies interested in building a major manufacturing plant will likely not build in a nonattainment area due to the increased costs, delays and uncertainties associated with new restrictive permit requirements from the federal government.
3. Federally supported highway and transit projects may be paused or halted in a nonattainment area if the state cannot demonstrate that the project will cause no increase in applicable emissions.
4. Companies must offset the projected emissions of new projects or major modification by purchasing unused emission credits from others, or by reducing their own emissions. The ability to purchase emissions credits becomes increasingly difficult as the available emissions credits are used up over time. Where no offset can be found, the project may not go forward.

An additional approach will rely on businesses to provide access to employees in order to educate them on ozone issues and to persuade employees to take action to individually reduce emissions that cause ozone. One program that may work to educate employees is to provide free gas cap testing and replacements where they work. Properly fitting gas caps reduce the amount of VOC emitted from

vehicles and provide an opportunity to inform employees about the health dangers of ground-level ozone.

Business Community Master Plan Highlights

Expand Business Stakeholder Ozone Attainment Meeting Group

- Increase participation of small- and medium-sized business, especially in northwest Bexar County.
- The meetings held by this group will have the purpose of encouraging all businesses (voluntary actions) to either lower their emissions directly (if the business has emissions) or to enact policies that will also help to lower emissions (such as carpooling or anti-idling policies).

Educate employees about ozone

- This approach will rely on businesses to provide access to employees in order to educate them on ozone issues and to persuade employees to take action to individually reduce emissions that cause ozone.
- One program under consideration to educate employees is to provide free gas cap testing and replacements at their place of employment.

Pilot - Anti-Idling Diesel Construction Equipment

- Metro Health, TCI and Bexar County
- Onsite education and observation for contractors and their employees.
- Incentives for not idling diesel construction equipment.

Joint Base San Antonio (JBSA)

JBSA is working on their own air quality plan to include the following;

- Updating environmental contract specifications for construction.
- Educating and training Civil Engineers and other Mission Partners on new permitting requirements.

These updates are designed to minimize emissions and achieve JBSA emission reductions.

Policy/Advocacy/Funding

Policy/Advocacy/Funding : Progress to Date

Policy

History points to the City of San Antonio being proactive when it comes to protecting air/water quality of the 'Alamo' City. The following are a list of policies addressed since 2015:

Air Pollution Ordinance – November 19, 2015, City of San Antonio City Council amends ‘Pollution Control’ Ordinance, requiring that businesses with sources of air pollution register with Metro Health.

Coal Tar Sealants – Effective January 1, 2017, the City of San Antonio no longer allows asphalt contractors from utilizing coal tar as a sealant. The City has identified coal tar sealant products used in pavement preservation as emitting volatile carcinogens.

Anti-Idling Ordinance - Effective January 1, 2017, implementation of rules to reduce the extended idling of gasoline and diesel-powered heavy-duty vehicles will help to ensure the reduction in oxides of nitrogen (NOx) and volatile organic compounds (VOC) emissions, which is needed to achieve or maintain attainment of the federal ozone standard.

State of Texas

The Texas Commission on Environmental Quality (TCEQ) strives to protect our state's public health and natural resources consistent with sustainable economic development. Their goal is clean air, clean water, and the safe management of waste. Just as the City of San Antonio develops policy and programs so does TCEQ. TCEQ has several policies and programs that affect our local air quality when it comes to clean air and pollution. One of the most critical tasks that TCEQ performs as a daily/hourly routine is to monitor the air quality within the San Antonio Metropolitan Area. There are three (3) certified monitoring stations within the City’s Metropolitan Area:

- Camp Bullis C58
- Northwest C23
- Calaveras Lake C59

Stations C58 and C23 are the monitors that recorded Bexar County as out of attainment. TCEQ works with EPA when preparing emission inventories and State Implementation Plans (SIP) concerning the State as a whole. The Texas Nonattainment regulations are written as follows:

TCEQ’s Role in Nonattainment Planning

The Texas Commission on Environmental Quality’s (TCEQ) authority to propose and adopt SIP revisions is derived from the following sections of Texas Health and Safety Code, Chapter 382, Texas Clean Air Act (TCAA), §382.002, which provides that the policy and purpose of the TCAA is to safeguard the state’s air resources from pollution; §382.011, which authorizes the commission to control the quality of the

state's air; and §382.012, which authorizes the commission to prepare and develop a general, comprehensive plan for the control of the state's air.

Emissions Inventory (EI) SIP Revision

The Federal Clean Air Act (FCAA) §172 (c)(3) and §182 (a)(1) requires states to submit EI information for all relevant sources for each area designated nonattainment for the ozone NAAQS within two years of the effective date of nonattainment. For areas classified as marginal, the EI SIP is the only SIP revision required to be submitted to the EPA. The EPA interprets these FCAA requirements to be due within two years of the September 24, 2018 effective date of the Bexar County designation for the 2015 eight-hour ozone NAAQS, which would be September 24, 2020.

The EI SIP revision would satisfy the FCAA, §172 and §182 EI requirements for the Bexar County nonattainment area under the 2015 eight-hour ozone NAAQS. The EPA's 2015 eight-hour ozone standard SIP requirements rule recommends states use 2017 as the base year to fulfill the EI requirements. The FCAA requires that EIs be prepared for nonattainment areas generally, and provides for specific requirements that apply in ozone nonattainment areas. Because ozone is photochemically produced in the atmosphere when VOC mix with NO_x in the presence of sunlight, the TCEQ must compile information on the important sources of these precursor pollutants. The EI identifies the source types present in an area, the amount of each pollutant emitted, and the types of processes and control devices employed at each plant or source category. The EIs provide data for a variety of air quality planning tasks including establishing baseline emission levels.

Since TCEQ has the regulatory power over the SIP the City of San Antonio will continue to review legislation as it develops through the continuous review process that is now in place. As for City policy, moving forward towards attainment will require the Master Plan to look at current policy and seek amendments where possible to improve opportunities of getting quickly back into ozone attainment.

Advocacy

The policy/advocacy/funding working group began by researching advocacy opportunities as one of their first tasks. The initial effort was to communicate to those organizations that advocate for similar environmental issues. The short list of collaborators is as follows:

- Mayor's Office
- City's Government and Public Affairs Department

- National Association of Clean Air Agencies
- AACOG
- Bexar County
- VIA
- CPS Energy
- U.S. Climate Mayors

One example of the City of San Antonio’s advocacy efforts was a letter from the Mayor’s Office dated October 24, 2018 concerning EPA’s call for comments on reducing Corporate Average Fuel Economy (CAFÉ) Standards. In his letter to the EPA, Mayor Nirenberg stated that while local ozone levels were on a downward trend (prior to the EPA’s 2015 Ozone Standard Amendment to 70 ppb), pulling back on the CAFÉ Standard would only hurt our efforts in making progress.

Funding

The policy/advocacy/funding working group reviewed grant and other funding opportunities as part of their early Getting to 70 duties. The most prominent funding opportunities identified were the VW Mitigation Beneficiary Trust and AAMPO/TxDOT Congestion Mitigation and Air Quality (CMAQ) project grants. Each entity seeking funding from the VW Trust will need to work through TCEQ since the trust was set up to be funded through the recognized State Agency and in Texas’s case that was TCEQ. Presently, the VW Trust applications have not been made available to Texas agencies at the release of this Master Plan. The CMAQ funding process has begun and to assure Metro Health’s participation, department staff attended the required ‘Local Government Workshop’ on February 21, 2019. The lead department for this funding opportunity is TCI for the City of San Antonio. See Table 3 for proposed projects.

Policy/Advocacy/Funding: Master Plan Highlights

Educate City Employees

- Updates to our anti-Idling Administrative Directive, to change City employees’ routines while on duty.

Advocate for Positive Legislation/against roll backs

- Engage state and federal elected officials in support of City’s Air Quality legislative items.
- Support funding requests (grants/other) through engagement with granting agencies and elected officials.

Research for Ongoing Funding and Local Match Dollars

- Specific Funds
 - VW Trust (\$61M)
 - CMAQ (\$60.4M) – See Table 3. Proposed Projects
 - FAA’s Voluntary Airport Low Emission (VALE: \$4.3M)

Table 3. Proposed Projects.

Proposed Projects	MPO Project Type	Council District	Program Cost/ Project Cost¹	20% Local Match
City’s Transportation Demand Management (TDM) Programs	Travel Demand Management	Citywide	\$0.75M	\$0.15M
Sustainability / Heath Education & Outreach	Public Education & Outreach Activities	Citywide	\$0.45M	\$0.09M
Bicycle Master Plan Update	Bicycle & Pedestrian Programs	Citywide	\$1.5M	\$0.3M
Medical Center Green Street (Hamilton Wolf/ Ewing Halsell)	Bicycle & Pedestrian Facilities	CD8	\$6M	\$1.2M
Abe Lincoln Bicycle Facility	Bicycle & Pedestrian Facilities	CD 7	\$1.5M	\$0.3M
Five Palms Bicycle Facility	Bicycle & Pedestrian Facilities	CD 4	\$7M	\$1.4M
Lockhill-Selma Bicycle Facility	Bicycle & Pedestrian Facilities	CD 9	\$5M	\$1M
Citywide Intelligent Transportation Systems (ITS) Upgrades	Congestion Reduction & Traffic Flow Improvements	Citywide	\$2M	\$0.4M
Traffic Signal Optimization	Congestion Reduction & Traffic Flow Improvements	Citywide	\$5M	\$1M
Rittiman Rd at UPRR Crossing Overpass	Congestion Reduction & Traffic Flow Improvements	CD2	\$30M	\$6M
Westover Hills Blvd / Military Dr Turn Lanes	Congestion Reduction & Traffic Flow Improvements	CD6	\$1.2M	\$0.24M
US281 at Basse Rd / US281 at Jones-Maltsberger (TxDOT ²)	Congestion Reduction & Traffic Flow Improvements	CD1	\$12.8M ²	\$1.28M ²
VIA Programs: Frequency, Vanpool & Mobility on Demand	Programs that Encourage Transit Ridership	Citywide	\$14M ²	\$1.4M ²
		TOTAL	\$60.4M	\$14.76M

Source: City of San Antonio, Department of Transportation and Capital Improvements, April 2019

¹Project Cost represents only construction cost, local agency is responsible for design and right-of-way acquisition.

²10% overmatch proposed to help ensure project selection, Project Cost not included in Total.

Conclusion

The Ozone Attainment Master Plan was developed as a living document that allows for data updates, community and stakeholder input, and changes as funding resources become available. This plan is designed around the 'Marginal' category (lowest level of nonattainment) meaning that the focus of most of the City, community and stakeholder efforts will be based on voluntary measures as opposed to mandated federal regulations. The success of this plan and eventual ozone attainment can be achieved with community wide participation.

"KEEP IT CLEAN  IT'S OUR AIR".

DRAFT