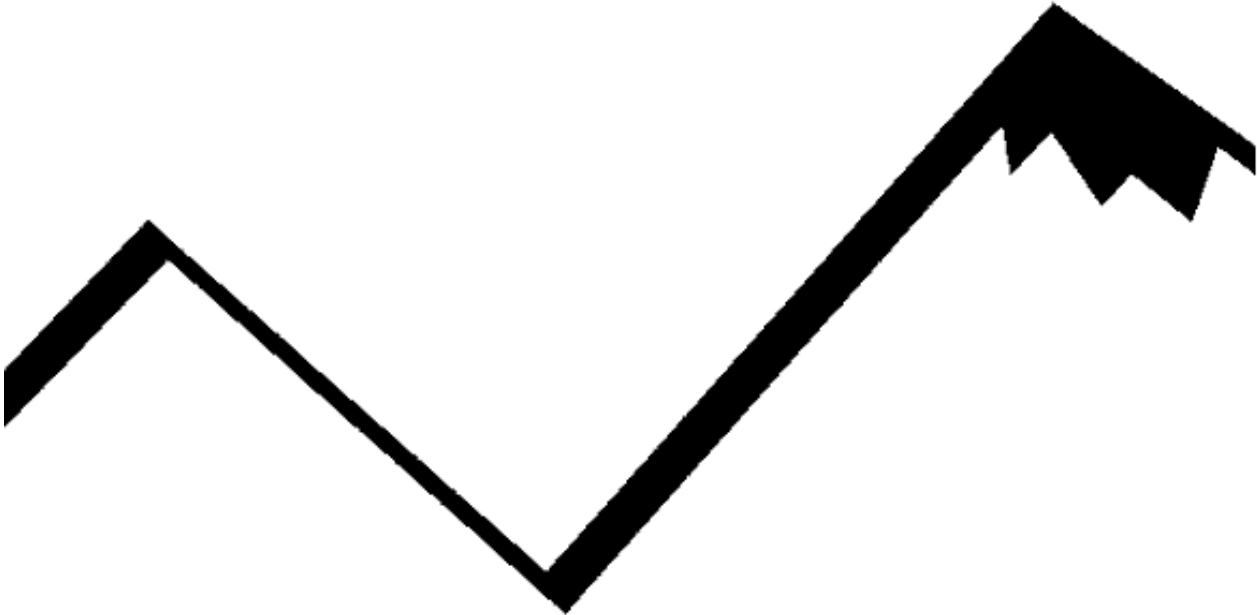


**San Joaquin Valley
Air Pollution
Control District**



2006 PM10 Plan

**San Joaquin Valley Strategy for Meeting Federal Air Quality
Requirements for Particulate Matter 10 Microns and Smaller**

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LIST OF ACRONYMS, ABBREVIATIONS, AND INITIALISMS

ACS: American Cancer Society
AIR: Agriculture Improving Resources
AQI: Air Quality Index
ARB: California Air Resources Board
BACM/BACT: Best Available Control Measures/Technology
BAM: Beta Attenuation Monitor
BAR: Bureau of Automotive Repair
BTU: British Thermal Unit
CAA: Clean Air Act
CAAP: Clean Air Action Plan
CAFO: Confined Animal Feeding Operation
CalTrans: California Department of Transportation
CASAC: Clean Air Scientific Advisory Committee
CCOS: Central California Ozone Study
CDFA: California Department of Food and Agriculture
CEFS: California Emission Forecasting System
CFR: Code of Federal Regulations
CH&SC: California Health and Safety Code
CMAQ: Community Multi-scaled Air Quality
CMB: Chemical Mass Balance
CMP: Conservation Management Practice
CO: Carbon Monoxide
COG: Council of Governments
CRPAQS: California Regional Particulate Air Quality Study
DMV: Department of Motor Vehicles
EI: Emission Inventory
EMFAC: Emission Factor Model
EPA: Environmental Protection Agency
EQIP: Environmental Quality Incentives Program
ERC: Emission Reduction Credit
FACES: Fresno Asthmatic Children's Environment Study
FRM: Federal Reference Method
GIS: Geographic Information System
IMS95: Integrated Monitoring Study 1995
ISR: Indirect Source Review
MOU: Memorandum of Understanding
MPO: Metropolitan Planning Organization
NAAQS: National Ambient Air Quality Standard
NH₃: Ammonia
NO_x: Oxides of Nitrogen
NRCS: Natural Resources Conservation Service
PM: Particulate Matter
PM2.5: PM of 2.5 microns mean arithmetic diameter or less

PM10: PM of 10 microns mean arithmetic diameter or less
PSI: Pollutant Standard Index
PSA: Public Service Announcement
RACM: Reasonably Available Control Measure
RACT: Reasonably Available Control Technology
REMOVE: REduce MOtor Vehicle Emissions
RFP: Reasonable Ruther Progress
RTP: Regional Transportation Plan
RTPA: Regional Transportation Planning Agencies
RTPACID: Regional Transportation Planning Agency Commitments for
Implementation Document
SCAQMD: South Coast Air Quality Management District
SIP: State Implementation Plan
SJV: San Joaquin Valley
SJVAB: San Joaquin Valley Air Basin
SJVUAPCD: San Joaquin Valley Unified Air Pollution Control District
SOx: Oxides of Sulfur
SSI: Selective Size Inlet
TB: Tracheo-broncial
TCM: Transportation Control Measure
TEA-21: Transportation Equity Act for the 21st Century
TEOM: Tapered Element Oscillating Microbalance
TIP: Transportation Improvement Program
TPA: Transportation Planning Agency
tpd: Tons Per Day
TSP: Total Suspended Particulates
VECAP: San Joaquin Valley Emergency Clean Air Attainment Program
VMT: Vehicle Miles Traveled
VOC: Volatile Organic Compound
WESTAR: Western States Air Resources Council
WRAP: Western Regional Air Partnership
WUD: Western United Dairymen

GLOSSARY

Air Basin: An area of the state designated by the CARB pursuant to Subdivision (a) of Section 39606 of the CH&SC that has similar meteorological and geographic conditions.

Air Monitoring: The periodic or continuous sampling and analysis of air pollutants in ambient air or from individual pollutant sources.

Air Pollutants: Substances which are foreign to the atmosphere or are present in the natural atmosphere to the extent that they may result in adverse effects on humans, animals, vegetation, and/or materials.

Air Pollution Control District (APCD): A county agency with authority to regulate sources of air pollution, other than emissions from mobile sources, such as refineries, manufacturing facilities, and power plants within a given county, and governed by a District Air Pollution Control Board composed of elected county supervisors. (Compare AQMD and Unified District)

Air Pollution Control Officer (APCO): A person appointed by the APCB given the authority to appoint district personnel for the purpose of observing and enforcing the provisions of Part 4, Division 26 of the CH&SC.

Air Quality Management District (AQMD): A group of counties or portions of counties with authority to regulate sources of air pollution within the region and governed by a regional air pollution control board comprised mostly of elected officials from within the region. An AQMD is established by state legislation. (Compare APCD and Unified District).

Air Resources Board (ARB): The State's lead air quality agency consisting of an eleven-member Governor appointed board and supporting staff fully responsible for motor vehicle pollution control, and having oversight authority over California's air pollution management program.

Ambient Air: Air occurring at a particular time and place outside of structures. Often used interchangeably with outdoor air.

Anthropogenic: Of, relating to, or influenced by the impact of humans on nature; human-made.

Area-wide Sources: Also known as "area" sources, are those sources which are not large enough to be tracked individually, but when added together can represent a large quantity of pollution. Examples of these sources include multiple stationary emission sources such as water heaters, gas furnaces, fireplaces, gas stations,

dry cleaners and woodstoves. Area sources of pollution are identified by Category of Emission Source (CES) codes.

Attainment: Achieving and maintaining the air quality standards for a given standard. This is generally accomplished by using monitoring data to demonstrate that ambient pollutant levels do not exceed the appropriate standard.

Attainment Area: A geographic area that is in compliance with the National and/or California Ambient Air Quality Standards (NAAQS or CAAQS).

Attainment Demonstration Plan (ADP): A plan prepared by air pollution control districts and air quality management districts that proposes and evaluates, through modeling, emission controls deemed necessary to attain ambient air quality standards for specified pollutants such as ozone or PM10.

Best Available Control Technology (BACT): The most up to date methods, systems, techniques, and production processes available to achieve the greatest feasible emission reductions for given regulated air pollutants and processes. BACT is a requirement of NSR (New Source Review) and PSD (Prevention of Significant Deterioration).

Best Available Control Measure (BACM): A term used to describe the “best” measures (according to EPA guidance) for controlling small or dispersed sources of particulate matter and other emissions from sources such as roadway dust, woodstoves, and open burning.

Best Available Retrofit Control Technology (BARCT): An emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source (Section 40406 CH&SC).

Biogenic: Produced by living organisms other than humans or human activity (see anthropogenic). For air pollution, this term usually refers to hydrocarbons emitted by vegetation; once emitted, these hydrocarbons participate in atmospheric photochemical reactions with anthropogenic pollutants to form ozone. Biogenic emissions are important to this plan because of the predominance of agriculture in the San Joaquin Valley and the presence of forested areas in the foothills and mountains of the San Joaquin Valley Air Basin.

Bureau of Automotive Repair (BAR): An agency of the California Department of Consumer Affairs responsible for the implementation of the motor vehicle inspection and maintenance program (smog check).

California Air Resources Board (ARB): See Air Resources Board.

California Clean Air Plan (CCAP): A plan formerly proposed by the California Air Resources Board to help meet state and federal ozone standards throughout California; not currently active.

California Environmental Quality Act (CEQA): A California law that sets forth a process for public agencies to make informed decisions on discretionary project approvals. The process aids decision makers to determine whether any environmental impacts are associated with a proposed project. It requires the elimination or reduction of environmental impacts associated with a proposed project and the implementation of mitigation measures to reduce or remove those impacts.

California Regional PM10/PM2.5 Air Quality Study: CRPAQS is a multi-year effort of meteorological and PM10/PM2.5 air quality monitoring, emission inventory development, data analysis, and air quality simulation modeling. CRPAQS monitoring occurred during a 14-month study period, between December 1999 and February 2001.

Carbon Monoxide (CO): A colorless, odorless gas resulting from the incomplete combustion of fossil fuels. Motor vehicles produce over 80 percent of the CO emitted in urban areas. CO interferes with the blood's ability to carry oxygen to the body's tissues and results in numerous adverse health effects. CO is a criteria pollutant.

Central California Ozone Study (CCOS): A research study undertaken in 2001 to collect observations related to formation of ozone at the surface and aloft for a large area of central California. Supporting activities include collecting activity and emissions data and conducting analysis and modeling.

Chemical Mass Balance: A computer modeling technique used to simulate the behavior of particulate matter in the atmosphere; it uses chemical analysis of collected air monitoring samples and information about the chemical composition of contributing sources to evaluate the link between observed conditions and emission sources.

Conformity: A demonstration of whether a federally-supported activity is consistent with the State Implementation Plan (SIP) – per section 176(c) of the FCAA. Transportation conformity refers to plans, programs, and projects approved or funded by the Federal Highway Administration or the Federal Transit Administration. General conformity refers to projects approved or funded by other federal agencies.

Consumer Products: Products such as detergents, cleaning compounds, polishes, personal care products, and automotive specialty products which are part of our everyday lives and, through consumer use, may produce air emissions that contribute to air pollution.

Criteria Air Pollutant: An air pollutant for which acceptable levels of exposure can be determined and for which a federal or state ambient air quality standard has been set. Examples include: Ozone, Carbon Monoxide, Lead, Nitrogen Dioxide, Sulfur Dioxide, and PM₁₀.

Department of Motor Vehicles (DMV): The state agency responsible for registering drivers and vehicles as well as collecting state and local motor vehicle fees.

Design Value: The air quality design value at a given monitoring site is defined as the pollutant concentration which when reduced to the numeric level of the standard ensures that the site meets the standard. For a concentration-based standard, the design value is simply the standard-related test statistic. Air quality managers use the design value as the basis for determining attainment of an air quality standard.

Emission Factor: For stationary sources, the relationship between the amount of pollution produced and the amount of raw material processed or burned. For mobile sources, the relationship between the amount of pollution produced and the number of vehicle miles traveled. By using the emission factor of a pollutant and specific data regarding the activity level for a given source (e.g., quantity of raw material processed or number of vehicle miles traveled) quantities of material used by a given source, it is possible to compute emissions for the source.

Emission Inventory: An estimate of the amount of pollutants emitted into the atmosphere from major mobile, stationary, area-wide, and natural source categories over a specific period of time such as a day or a year.

Emission Offset: Actual enforceable emission reductions from existing sources sufficient to offset anticipated emission increases associated with new or modified stationary sources. A rule-making concept whereby approval of a new stationary source of air pollution or increase of emissions from an existing source of air pollution is conditional on the equal or greater reduction of emissions from other existing stationary sources of air pollution. This concept is utilized in addition to reduction in emissions by employing BACT.

Emission Projecting: Utilizing information, including growth and control estimates, to approximate future emissions.

Emission Reduction Credit (ERC): Credits given for actual emission reductions that are real, enforceable, permanent, quantifiable, and surplus (beyond the required reduction). An actual credit is certified via a District-issued document that specifies the date of issuance, expiration date of credit, type of pollutant, and legal owner of emission reduction credits. In some cases, ERCs can be transferred to another owner or banked for future use.

Emission Standard: The maximum amount or rate of a pollutant permitted to be discharged from a polluting source such as an automobile or smoke stack.

Emissions Inventory: An estimate of the quantity of pollutants emitted into the atmosphere over a specific period such as a day or a year. Considerations that go into the inventory include type and location of sources, the processes involved, and the level of activity.

Environmental Protection Agency (EPA): The United States Environmental Protection Agency is a federal agency charged with protecting human health and safeguarding the natural environment—air, water, and land-- upon which life depends. EPA promulgates national ambient air quality standards and implements other federal programs designed to improve air quality.

Exceedance: A measured pollutant level that is greater than the numeric value of the corresponding ambient air quality standard for the time period specified in the standard.

Federal Clean Air Act (FCAA): A federal law passed in 1970 and significantly amended in 1977 and 1990 that forms the basis for the national air pollution control efforts. Basic elements of the Act include national ambient air quality standards for major air pollutants, air toxics standards, acid rain control measures, and enforcement provisions.

Federal Clean Air Act Amendments of 1990: The 1990 amended version of the FCAA that mandates attainment of the National Ambient Air Quality Standards (NAAQS) by specified dates for nonattainment areas. For ozone nonattainment, urban areas are now sorted into categories (marginal, moderate, serious, severe, and extreme) with deadlines established ranging from three years for marginal areas to twenty years for extreme areas.

Federal Implementation Plan (FIP): In the absence of an approved State Implementation Plan (SIP), a plan prepared by the EPA that provides measures that nonattainment areas must take to meet the requirements of the FCAA.

Federal Motor Vehicle Control Program (FMVCP): This program establishes the tailpipe emissions standards that are implemented by the Federal Government.

Hydrocarbon (HC): Any of a large number of compounds containing various combinations of hydrogen and carbon atoms. They may be emitted into the air as a result of fossil fuel combustion and fuel volatilization, and are a major contributor to smog.

Indirect Source: Any facility, building, structure, or installation, or combination thereof, which generates or attracts mobile source activity that results in emissions of any pollutant (or precursor) for which there is a state or federal ambient air quality

standard. Examples of indirect sources include employment sites, shopping centers, sports facilities, housing developments, airports, educational institutions, commercial and industrial developments, and parking lots and garages.

Indirect Source Review (ISR): Indirect source review refers to a process under which new development (see indirect source above) is reviewed to determine its indirect air quality impacts for the purposes of arriving at a mitigation fee to offset impacts from the new development. The mitigation fees from individual developments will in turn be placed in a fund that will be used to pay for the most cost-effective projects to reduce emissions.

Inspection and Maintenance Program (I & M): A motor vehicle inspection program implemented by the Bureau of Automotive Repair. The purpose of the I&M program is to reduce emissions by assuring that vehicles are running properly. It is designed to identify vehicles in need of maintenance and to assure the effectiveness of their emission control systems on a biennial basis. The program was enacted in 1979 and strengthened in 1990.

Internal Combustion Engine (IC): An engine in which the combustion generates the heat inside the engine proper instead of in a furnace. An example of an IC engine is an automobile engine.

Inversion: A layer of warm air in the atmosphere that covers a layer of cooler air, trapping pollutants.

Memorandum of Understanding (MOU): An agreement made among agencies for the purposes of jointly accomplishing a goal, program, etc. The governing boards of the involved agencies must ratify this agreement.

Mobile Sources: Sources of air pollution that are not stationary by nature, such as automobiles, motorcycles, trucks, off-road vehicles, boats, and airplanes.

National Ambient Air Quality Standards (NAAQS): Standards set by the Federal Environmental Protection Agency for the maximum levels of air pollutants that can exist in the ambient air without unacceptable effects on human health or public welfare.

New Source Review (NSR): The mechanism to assure that new and modified stationary sources will not interfere with the attainment or maintenance of any ambient air quality standard, or prevent reasonable further progress towards the attainment or maintenance of any ambient air quality standard. A program used in a non-attainment area to permit or site new industrial facilities or modifications to existing industrial facilities that emit non-attainment criteria air pollutants. The two major requirements of NSR are Best Available Control Technology and Offsets.

Nonattainment Area: A geographic area identified by the EPA and/or ARB as not meeting either the NAAQS or CAAQS for a given pollutant.

Oxides of Nitrogen (NO_x): A general term pertaining to compounds of nitric oxide (NO), nitrogen dioxide (NO₂), and other oxides of nitrogen. Nitrogen oxides are typically created during combustion processes, and are major contributors to smog formation, acid deposition, and secondary particulate matter. NO₂ is a criteria pollutant, and may result in numerous adverse health effects.

Ozone (O₃): A reactive gas consisting of three oxygen atoms. In the troposphere, it is a product of the photochemical process involving the sun's energy. It is a secondary pollutant that is formed when nitrogen oxides (NO_x) and reactive organic gases (ROG) react in the presence of sunlight. Ozone at the earth's surface causes numerous adverse health effects and is a criteria pollutant. It is a major component of smog. In the stratosphere, ozone exists naturally and shields life on earth from harmful incoming ultraviolet radiation.

Particulate Matter (PM₁₀): A major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and mists. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the air sacs deep in the lungs where they may be deposited and cause adverse health effects. PM₁₀ also causes visibility reduction and is a criteria air pollutant.

Parts Per Billion (ppb): Standard of measurement of concentration that represents one part (usually volume) of pollutant per billion parts (usually volume) of air.

Parts Per Hundred Million (pphm): Standard of measurement of concentration by which ozone or other atmospheric gases may be measured. One pphm is equal to ten ppb.

Parts Per Million (ppm): Standard of measurement of concentration by which ozone or other atmospheric gases may be measured. Represents one part (usually volume) of pollutant per million parts (usually volume) of air. One ppm is equal to 100 pphm or 1000 ppb.

Photochemical Reaction: A term referring to chemical reactions brought about by the energy of the sun. Photochemical reactions create harmful air pollutants such as ozone.

Public Workshop: A workshop held by an air district for the purpose of informing the public and obtaining its input on the development of a regulatory action or control measure by that agency.

Precursors: Chemicals such as volatile organic compounds and nitrogen oxides, occurring either naturally or as a result of human activities, that contribute to the

formation of ozone (a major component of smog) and secondary particulate matter. They are emitted directly from sources into the atmosphere.

Rate of Progress (ROP): The Federal Clean Air Act Amendments [Section 182(c)(2)] require ozone nonattainment areas designated as “serious” or above to demonstrate post-1996 volatile organic compound emission reductions of three percent per year, averaged over a 3-year period. The U.S. Environmental Protection Agency refers to these reductions as the rate-of-progress requirement.

Reactive Organic Gas (ROG): A photochemically reactive chemical gas, composed of non-methane hydrocarbons, that may contribute to the formation of smog by their involvement in atmospheric chemical reactions. Also sometimes referred to as Non-Methane Organic Gases (NMOGs). VOC emissions are a subset of ROG emissions.

Reasonable Further Progress (RFP): The Federal Clean Air Act (Section 189(c)) requires PM10 nonattainment areas to include quantitative milestones, which are to be achieved every three years until the area is redesignated attainment and which demonstrate reasonable further progress (RFP) toward attainment by the applicable date. Areas must show that their emission reductions meet specified percentages in specified time frames depending on the severity of the problem. For particulate matter, the District is required to achieve emissions reductions of 5% per year of PM10 or PM10 precursors until attainment is reached (2010). For ozone, refer to Rate of Progress above.

Regional Transportation Planning Agencies (RTPAs) The eight governmental bodies in the San Joaquin Valley primarily responsible for transportation planning in compliance with federal and state requirements. Also referred to as Valley Transportation Planning Agencies (TPAs).

Reasonably Available Control Technology (RACT): Devices, systems, process modifications, or other apparatus or techniques that are reasonably available taking into account the necessity of imposing such controls in order to attain and maintain a national ambient air quality standard; the social, environmental, and economic impact of such controls; and alternative means of providing for attainment and maintenance of such standard.

Reid Vapor Pressure (RVP): The absolute vapor pressure of volatile crude oil and volatile nonviscous petroleum liquids, except liquified petroleum gases (see ASTM D 323-94).

San Joaquin Valley Air Basin (SJVAB): An air basin established by the California Air Resources Board under the provisions of section 39606 of the California Health and Safety Code. Areas included within a given basin are characterized by similar meteorological and geographic conditions. The SJVAB consists of all of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, and Tulare Counties, and the Valley portion of Kern County.

San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD or District):

The SVJUAPCD is an eight county unified district formed under the provisions of the California Health and Safety Code section 40151. Also known as the "Valley Air District", it consists of eight member counties: Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare Counties, and the Valley portions of Kern County. The SJVUAPCD is responsible for developing the overall attainment strategy for its respective geographic area (see SJVAB above) and has the authority to regulate stationary sources, some area sources, and some aspects of mobile sources.

Smog: A combination of smoke, ozone, hydrocarbons, nitrogen oxides, and other chemically reactive compounds, which, under various conditions of weather and sunlight, may result in a murky brown haze that causes adverse health effects. A primary source of smog is automobiles.

Smog Check Program: A motor vehicle inspection program implemented by the Bureau of Automotive Repair. It is designed to identify vehicles in need of maintenance and to assure the effectiveness of their emission control systems on a biennial basis. The program was enacted in 1979 and strengthened in 1990. Also known as the Inspection and Maintenance Program (I & M).

State Implementation Plan (SIP): A document prepared by each state describing existing air quality conditions and measures that will be taken to attain and maintain national ambient air quality standards.

Stationary Sources: Non-mobile sources such as power plants, refineries, and manufacturing facilities that emit air pollutants.

Transportation Control Measure (TCM): Any control measure to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing motor vehicle emissions. TCMs can include encouraging the use of carpools and mass transit.

Transportation Planning Agency (TPA): See Regional Transportation Planning Agency.

Unified Air Pollution Control District: A specialized APCD in which two or more contiguous counties merge their county districts into one. A unified district is formed by action of the member counties. The San Joaquin Valley Unified Air Pollution Control District is a Unified District pursuant to Division 26, Part 3, Chapter 11 of the CH&SC. (Compare APCD and AQMD).

United States Environmental Protection Agency (EPA): The United States agency charged with setting policy and guidelines, and carrying out legal mandates for the protection of national interests in environmental resources.

Urban Airshed Model (UAM): A computer model for simulating the behavior of particulate matter in the atmosphere on a regional scale. This tool is especially useful for understanding the formation of secondary particulate matter in the atmosphere through chemical reactions of precursors. Results are used in conjunction with receptor modeling to enhance the accuracy and reliability of predicted effects of emissions trends and adopted and proposed control measure reductions of secondary precursors.

Valley: All references to the "Valley" in this plan refer to the San Joaquin Valley.

Valley Transportation Planning Agencies (TPAs): The eight governmental bodies in the San Joaquin Valley primarily responsible for transportation planning in compliance with federal and state requirements. Also referred to as Regional Transportation Planning Agencies (RTPAs).

Vehicle Miles Traveled (VMT): A measure of both the volume and extent of motor vehicle operation; the total number of vehicle miles traveled within a specified geographical area over a given period of time.

Volatile Organic Compounds (VOC): Hydrocarbon compounds that can be emitted into the ambient air. VOCs contribute to the formation of smog and secondary particulate matter, and also may be toxic air contaminants. VOCs do not include methane and a limited number of other hydrocarbons for which research has shown demonstrate little photochemical reactivity. Examples of VOCs include fumes from gasoline, paint solvents, and alcohol.

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