

MARICOPA COUNTY TRIP REDUCTION ORDINANCE

ORDINANCE NO. P-7

Adopted as Amended by Board of Supervisors July 23, 1997

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ORDINANCE NO. P-7
ADOPTED November 24, 1992
AMENDED July 23, 1997

MARICOPA COUNTY ORDINANCE NO. 7
TRIP REDUCTION PROGRAM

SECTION 1. PURPOSE

Pursuant to A.R.S. 49-581, et. Seq., the purpose of this ordinance is to reduce traffic impacts on air pollution and emissions within the County by requiring major employers and schools to develop, implement, and maintain a Trip Reduction Program.

SECTION 2. DEFINITIONS

In this ordinance, unless the context otherwise requires:

1. Adjustment Factor means a factor of .5 applied to a commute trip or commute mile for the purpose of calculating equivalent emissions reduction credit for reducing peak commute trips and work-related trips.
2. Alternative Fuel means liquefied petroleum gas, natural gas, hydrogen, solar energy, electricity, a blend of hydrogen with liquefied petroleum or natural gas and alcohol fuels that contain not less than eighty-five per cent alcohol by volume.
3. Alternative Fuel Vehicle (Dedicated) means any motor vehicle engineered and designed to operate only on alternative fuel.
4. Alternative Fuel Vehicle (Dual-Fuel) means any motor vehicle engineered and designed to operate on either petroleum-based or alternative fuel, but not a mixture.
5. Alternative Fuel Vehicle (Flexible-Fuel) means any motor vehicle engineered and designed to operate on a varying mixture of petroleum-based fuel and alternative fuel.
6. Alternative Mode means any mode of commute transportation other than the single-occupancy vehicle.
7. Approval Trip Reduction Plan means a plan meeting the requirements of Section 7 (C).

8. Area Source means any minor source, as defined by A.R.S. §49.401.01(15), that is not a major source, as defined by A.R.S. §49-401.01(13). Such sources may include: dry cleaners, printers, auto body shops, service stations, construction sites, architectural coatings, fireplaces, and consumer solvents.
9. Arizona Emissions Standards means the set of motor vehicle emissions standards in Table 18, pursuant to A.R.S. §49-542.
10. Board means the board of supervisors.
11. Carpool means two to four persons commuting in a motor vehicle to or from work or school.
12. Certified Vehicle means any motor vehicle that has met all criteria identified in Section 8, subsection B(1)(C) 9(c) and 9(f) for an alternative fuel vehicle, or Section 8, subsection B(1)(D) for a motor vehicle with a device.
13. Clean Air Act means the Clean Air Act of 1963, (P.L. 88-206); 42 United States Code sections 7401 through 7671 as amended by the Clean Air Act amendments of 1990 (P.L. 101-549).
14. Clean Off-Road Mobile Equipment means off-road equipment and vehicles powered by off-road or utility engines that meet the emissions standards in Appendix A.
15. Clean On-Road Vehicle means a reduced emissions vehicle.
16. Commute Trip means a trip taken by an employee to or from a work site located within the County, or by a student to or from a school site located within the County.
17. Commuter Matching Service means a system, whether it uses computer or manual methods, which assists in matching employees and/or students for the purpose of sharing rides to reduce commuter travel.
18. Compressed Work Week means any work schedule that eliminates at least one commute trip to a work site or school site in each two week period.
19. County means Maricopa County.
20. Device means any component or equipment that is designed to be installed in or on a motor vehicle as an addition to, as a replacement for, or through alteration or modification of, any original component or device. Any fuel conversion configuration, or conversion kit is a device.

21. Emissions means the release of pollutants or pollutants released.
22. Employee means an employee who works at, or reports to, a single work site within the County during any time period of a twenty-four hour day, at least three days per week, during any six months of the year.
23. Equivalent Emission Reduction Credit means the credit applied to the rates of single-occupancy vehicle trips and/or miles traveled when an emissions reduction, other than a reduction in the number of single occupancy vehicle trips or vehicle miles traveled, is achieved.
24. Equivalent Emissions Reduction Measure means a procedure or process implemented to reduce emissions other than those from commute trips and commute miles. Such measures are identified in Section 8, subsection B.
25. Equivalent Emissions Reduction Target means the target rates of single-occupancy vehicle trips and miles traveled converted to pounds of emissions so that credit may be applied when equivalent emissions reduction measures are implemented.
26. Federal Clean Fuel Fleet Vehicle (CFFV) Standards means the standards to which low emissions vehicles are certified pursuant to 40 CFR Part 88.
27. Fuel Additive means any substance designed to be combined with gasoline for the purpose of increasing fuel efficiency and reducing emissions of motor vehicles, off-road mobile equipment, or area sources.
28. Handheld Equipment means utility equipment that the operator is required to fully support its weight for the equipment to properly perform its design function.
29. High-Polluting Vehicle means a vehicle that fails the state of Arizona's vehicle emissions inspection test.
30. Major Employer means a sole proprietor, partnership, corporation, unincorporated association, cooperative, joint venture, agency, department, district, or other individual or entity, public or private, who employs 50 or more employees working at, or reporting to, a single work site.
31. Mode means the type of conveyance used for commute trips, including single-occupancy motor vehicle, rideshare vehicles, transit, bicycle and walking.
32. Motor Vehicle means any self-propelled vehicle including a car, van, bus, motorcycle, and all other motorized vehicles, including golf carts.

33. Off-Road Engine means a heavy duty diesel engine with a diesel cycle engine greater than 175 horsepower designed to power equipment such as that used in agriculture, construction, forestry, industrial, and mining industries.
34. Off-Road Mobile Equipment means equipment and vehicles not licensed for on-road use, that are designed to operate during transport and emit or generate emissions while in motion or at rest. Such equipment and/or vehicle is powered by a utility or off-road engine and includes equipment such as: tractors, backhoes, excavators, dozers, portable generators and compressors, lawn mowers, edgers, trimmers, blowers, vacuums, tillers, shredders, grinders, chainsaws, riding mowers, and garden tractors.
35. Plan means a written report describing trip reduction measures and/or equivalent emissions reduction measures that a major employer or school intends to implement.
36. Political Subdivision means the County or an incorporated city or town within the County.
37. Quantifiable means the ability to estimate in terms of amount and characteristics.
38. Rate of Single-Occupancy Vehicle Miles Traveled means the number of single-occupancy vehicle commute trip miles traveled divided by the total number of vehicle commute trip miles traveled by all modes for that work site or school site.
39. Real means actually occurring, implemented and not artificially devised.
40. Reduced Emissions Vehicle means a motor vehicle, including a clean on-road vehicle, that is certified by the Task Force as being substantially lower emitting in actual use than like vehicles generally purchased in the area and for trip reduction purposes, is counted as less than a single motor vehicle for commute and work-related trips.
41. Reduced Emissions Vehicle Credit means the allowance given when a reduced emissions vehicle factor is applied to the rate of single-occupancy vehicle trips and/or single-occupancy vehicle miles traveled.
42. Reduced Emissions Vehicle Factor means the factor applied to the rates of single-occupancy vehicle trips and miles pursuant to A.R.S. 49-581, et. Seq. which will allow a reduced emissions vehicle to receive less than the full count than that of a regular single-occupancy vehicle trip or mile traveled.

43. Reduced Emissions Vehicle Standards means the standards described in Section 8 for the purpose of applying reduced emissions vehicle factors and subsequent reduced emissions vehicle credit toward trip reduction goals.
44. Remaining Useful Life means the estimated number of years remaining until an existing piece of equipment is removed from service.
45. Remote Sensing means the use of an emissions monitoring device to detect, measure, and record emissions from motor vehicles.
46. Ridesharing means transportation of more than one person for commute purposes, in a motor vehicle, with or without the assistance of commuter matching service.
47. School means for the purpose of this ordinance, any school district, community college, trade school, university, or other educational institution having 50 or more employees or students working at, or reporting to, a single school site.
48. Single-Occupancy Vehicle means a motor vehicle occupied by one employee or student for commute purposes, including motorcycles.
49. Staff means the County staff assigned to the Task Force.
50. Staggered Work Schedule means a work schedule that begins before the hour of 6:00 a.m. or after the hour of 10:00 a.m.
51. Student means a driving-aged student commuting to a single school site within the County at least three days per week.
52. Substantially Lower Emitting Vehicle means any motor vehicle or group of motor vehicles demonstrating a carbon monoxide emissions level of twenty percent or more below the average carbon monoxide emissions of a like motor vehicle generally purchased in the area, as determined by the most recent EPA mobile monitoring model, and having the emissions standards identified in Table 1.
53. Surplus means in excess of that required by law, rule, ordinance or permit.
54. Survey Data Results means a summary provided by staff, of the information from a major employer's or school's annual survey.
55. Task Force means the Trip Reduction Regional Task Force, designated by the Board as the responsible agency to implement and enforce this ordinance, and established in the County by Title 49, Chapter 3, Article 8, Arizona Revised Statutes.

56. Telecommuting means eliminating commute trips and/or vehicle miles traveled by allowing employees to work at home, or a location close to home.
57. Trade-Out means to permanently remove from use, or to retire, a high-polluting vehicle.
58. Transit means a bus of other public conveyance system.
59. Transportation Coordinator means a person designated by a major employer or school to serve as the lead person in developing and implementing a Trip Reduction Program.
60. Trip Reduction Measure means an incentive or disincentive, intended to reduce the rate of single-occupancy trips, or the rate of single-occupancy vehicle miles traveled; such as: a) A commuter matching service to facilitate ridesharing for commute trips; b) Providing of vans for vanpooling; c) Subsidies for carpooling or vanpooling including payment for fuel, insurance, or parking; d) Use of company vehicles for carpooling; e) Provision for preferential parking for carpool or vanpool users which may include close-in parking or covered parking facilities; f) Cooperation with other transportation providers to provide additional regular or express service buses to the work site or school site; g) Subsidized bus fares; h) Construction of special loading and unloading facilities for transit, carpool, or vanpool users; i) Cooperation with a political subdivision to construct walkways, or bicycle routes to the work site or school site; j) Provision of bicycle racks, lockers, and showers for employees who walk or bicycle to school; k) Establishment of a telecommuting program for employees; l) Establishment of a program of adjusted work hours which may include compressed work weeks or staggered work hours. Work hour adjustments should not interfere with or discourage the use of ridesharing and transit; m) Establishment of a program of parking incentives such as a rebate for employees or students who do not use the parking facility; n) Incentives to encourage employees to live closer to work or students to live closer to school; o) Provision of day care facilities; p) Emergency transportation services; q) Joining a Transportation Management Association; r) Incentives to encourage the use of certified vehicles for commute trips or work-related trips; s) Establishment of a trip reduction committee to define new strategies and assist with the implementation of measures; t) Replace gasoline powered motor vehicles with electric golf-type carts or bicycles for traveling at the work site; and u) Modify procedures to enable employees who normally commute for the sole purpose of picking up a company vehicle, to bring those vehicles home at the end of the work day to eliminate the commute trip.
61. Utility Engine means an engine rated under 25 horsepower and designed to power equipment such as: lawn and garden, turf, and general landscaping.

62. Utility Equipment means handheld or non-handheld off-road mobile equipment powered by a utility engine.
63. Vehicle Occupancy means the number of occupants in a motor vehicle including the driver.
64. Vanpool means more than four persons commuting in a motor vehicle to or from work or school.
65. Voluntary Participant means an employer or school that is not included in the definition of a major employer or school and chooses to participate in the Trip Reduction Program.
66. Work-Related Trip means any non-commute trip that originates and ends at a work site.
67. Work Site means a building and any group of buildings that are on physically contiguous parcels of land or on parcels separated solely by private or public roadways or rights-of-way and which are owned or occupied by the same major employer or school.

SECTION 3. TRIP REDUCTION REGIONAL TASK FORCE COMPOSITION

- A) A Trip Reduction Regional Task Force is established in a County with a population of one million two hundred thousand or more persons for the purpose of this ordinance under Title 49, Section 582. The Regional Public Transportation Authority, established under Title 28, Chapter 20, and the regional planning agency for the County, shall provide assistance to the Task Force. The Task Force shall nominate a chair for the Task Force Program director to supervise the staff and to be assistant chair of the Task Force. The director is not a voting member.
- B) The Board shall appoint members of the Task Force in an equitable manner. Task Force members shall be appointed to serve two year terms, and membership shall be staggered so that no more than two-thirds of the appointed members' terms expire on January 31, of any year. The Board shall determine the method of selection and appointment of Task Force members, as provided by law, ordinance or the guidelines established by Title 49, Chapter 3, Article 8, Arizona Revised Statutes.
- C) The Task Force members shall be appointed to represent interests affected by the Trip Reduction Program. Candidates for membership must be residents of the County and shall be selected from major employers and/or schools, a member or manager of a transportation management association, an owner or manager of a business park, industrial park, office building,

shopping center or other concentration of commercial interests, a public interest group established to address transportation or air quality issues or political subdivisions within the County.

SECTION 4. DUTIES AND POWERS OF THE TASK FORCE

- A) The Task Force shall review and approve the baseline survey distributed to major employers and schools for the purpose of collecting data on commuting patterns. The Task Force shall provide uniform formats for data to be provided by each major employer and school on the commuting patterns of its employees and/or students and the effectiveness of its Trip Reduction Program. Collected data shall include the mode used and the distance traveled for commute trips. The Task Force shall establish uniform requirements for record keeping and reporting as necessary to comply with this ordinance and reasonable deadlines for submittal of additional data as required.
- B) The Task Force shall:
- 1) Evaluate the major employer's or school's trip reduction plan and approve or object to any such plan received.
 - 2) Review all responses by a major employer or school to the annual survey and determine if they meet the requirements of this ordinance.
 - 3) Review the trip reduction plan submitted by a major employer or school, along with a staff report on the plan, to conclude if the plan contains trip reduction measures and/or the equivalent emissions reduction measures which seek to achieve the target reduction goals.
 - 4) Monitor the implementation of a trip reduction plan as submitted by a major employer or school and as approved by the Task Force.
 - 5) Develop and implement policies, standards and criteria for certifying eligible motor vehicles as being reduced emissions vehicles if they are substantially lower emitting in actual use than like vehicles generally purchased in the area. The Task Force shall not certify any reduced emissions vehicle or group of vehicles unless the Task Force has evidence of all of the following:
 - 1) Results of a federal test procedure conducted pursuant to 40 Code of Federal Regulations Part 86, Subpart B, effective July 1, 1992, of an equivalent method approved by the Administrator of the United States Environmental Protection Agency, demonstrating substantially lower emissions from the vehicle or group of vehicles.

- 2) In the case of any device added to the vehicle to reduce emission, that the device has printed on it, or on the packaging, clear statements by the device manufacturer as to whether use of the device will void any existing vehicle warranty or adversely affect the onboard diagnostics system, and what the responsibility of the device manufacturer will be under such circumstances. The state shall have no responsibility as to the validity of such statements.
 - 3) United States Environmental Protection Agency approval of the use of a reduced emissions factor for that vehicle or group of vehicles as a revision to the State Implementation Plan.
 - 6) Develop and implement policies, standards and criteria for reduced emissions vehicle factors to be applied to the rate of single-occupancy vehicle trips and rate of reduced emissions vehicle factor applied to a reduced emissions vehicle shall be proportional to its average emissions reduction in actual use as compared to like vehicles generally purchased in the area and shall be less than or equivalent to the reduced emissions vehicle standards identified in Table 1 of this ordinance.
 - 7) Make available to employers and schools with one hundred or more employees at a single work site or school site, a standard notification form which is to be used to notify employees and students of the requirements of Arizona Revised Statute 49-542.
- C) A plan submitted to the Task Force under subsection b, paragraph 1, of this section shall be approved or objections shall be filed within ninety days of its submission. The plan is automatically approved unless objected to by the Task Force within ninety days. Objections shall be based upon criteria set forth in Section 7. If the Task Force objects to the plan, it shall be reviewed and revised in consultation with the major employer or school. The Task Force shall determine if enforcement action is appropriate and shall recommend action as it deems necessary.
- D) If any response submitted to the Task Force pursuant to subsection b, paragraph 2 of this section is not approved, the Task Force shall direct the major employer or school to submit additional data within ten working days. If subsequent submissions of data are not approved, the Task Force shall evaluate the major employer or school and supporting data and decide if enforcement action is appropriate.
- E) If a trip reduction plan submitted to the Task Force pursuant to subsection b, paragraph 3 of this section is not approved, the Task Force shall describe the

inadequacies and direct the major employer or school to modify the plan within ten working days. If the plan as modified is not approved, the Task Force shall evaluate the supporting data and decide if enforcement action is necessary.

- F) If a major employer or school has not implemented the trip reduction plan as submitted and approved by the Task Force pursuant to subsection b, paragraph 4 of this section, the Task Force shall describe the inadequacies and shall direct modification to the plan implementation. If the major employer's or school's efforts remain inadequate, the Task Force shall evaluate the supporting data and decide if enforcement action is necessary.

- G) If a major employer's or school's trip reduction plan fails to achieve a goal identified in Section 7, subsection B, the Task Force shall direct the staff to work with the major employer or school to increase the use of alternative modes and reduce single-occupancy vehicle miles traveled, consistent with the target reduction goals. The major employer or school shall submit a plan addendum outlining measures aimed at achieving any goal identified in Section 7, subsection B. When the implementation of measures identified on the plan addendum demonstrates that there has been no further progress toward attaining reduction goals, the Task Force shall determine whether the major employer or school is putting forth a good faith effort to meet the goals. On an individual basis, the Task Force shall evaluate the supporting data and decide if enforcement is necessary. The Task Force shall consider:
 - 1) The cost of the major employer's or school's Trip Reduction Program as compared to the average cost of such programs for all major employers and schools.
 - 2) Unusual circumstances faced by the major employer or school. If unusual circumstances exist, the Task Force shall determine if a major employer or school who fails to submit a plan addendum within thirty days of written notice should be subject to enforcement action.

- H) The Task Force shall direct the staff to identify and contact potential voluntary participants to encourage and assist them in participating in cooperative efforts to collect data on commuting patterns, needs and desires of their employees and their tenants' employees. These potential voluntary participants shall include property managers and other employers or schools who may wish to participate in a Trip Reduction Program. The Task Force shall encourage these owners, managers, schools, and employers to form transportation management associations. Among other activities, the transportation management associations may disseminate information on alternative modes of transportation. The Task Force shall encourage transportation management associations to assist member employers and schools in developing and implementing trip reduction plans.

- l) The Task Force shall review the performance of the regional program annually and prepare a report for the Board. The report shall include successes and problem areas and shall recommend revisions to this ordinance, as necessary.

SECTION 5. STAFF DUTIES

The staff shall provide support to the Task Force, major employers, and schools. The staff shall:

- 1) Provide assistance to each major employer or school in coordinating data collection, dissemination of information on air quality, alternative modes, programs, developing a trip reduction plan and increasing the effectiveness of selected trip reduction measures and equivalent emissions reduction measures.
- 2) Coordinate training programs for major employers and schools to assist them in training their transportation coordinator, preparing and implementing their trip reduction plans and preparing annual reports.
- 3) Coordinate survey and data collection activities and overall program monitoring with the Task Force.
- 4) Under direction of the Task Force, develop an implementation schedule for annual surveys of the employer and school community.
- 5) Assist the Task Force in developing and implementing policies, standards and criteria for certifying eligible motor vehicles as being reduced emissions vehicles.
- 6) Assist the Task Force in developing and implementing policies, standards and criteria for reduced emissions vehicle factors to be applied to the rates of single-occupancy vehicle trips and rate of single-occupancy vehicle miles-traveled pursuant to Section 7 of this ordinance.

SECTION 6. VOLUNTARY PARTICIPATION

Employers and schools or groups of employers and schools, not affected by this ordinance, are encouraged to participate in data collection, information, dissemination efforts, and in the preparation of their own trip reduction plans on a voluntary basis. The Task Force shall assist these groups; these groups are eligible for participation in all programs and services and are encouraged to form transportation management associations.

SECTION 7. REQUIREMENTS OF MAJOR EMPLOYERS AND SCHOOLS

A major employer or school with 50 or more persons who are employees or students shall:

- A) Conduct and submit to the Task Force, on an annual basis, a survey for each work site as directed by the Task Force. A major employer or school's annual survey shall be reviewed by staff to determine if the requirements set forth by the Task Force have been met. If any survey is not approved by the Task Force, the major employer or school shall submit additional data as required by the Task Force within ten working days of notice of disapproval. A major employer or school's rate of single-occupancy vehicle trips and rate of single-occupancy vehicle miles traveled will be determined from the survey for each work site. The results of the initial survey shall form a baseline against which attainment of future targets identified in subsection b of this section, shall be measured.
 - 1) The baseline for participation in alternative modes of transportation shall be based on the proportion of employees or students commuting by single-occupancy vehicles. This proportion shall be identified as the rate of single-occupancy vehicle trips.
 - 2) The baseline for vehicle miles traveled shall be the number of single-occupancy vehicle commute miles traveled divided by the total number of commute miles traveled by all modes to a work site. This proportion shall be identified as the rate of single-occupancy vehicle miles traveled.
- B) Implement all trip reduction and/or equivalent emissions reduction measures approved by the Task Force to:
 - 1) maintain a rate of single-occupancy vehicle trips or rate of single-occupancy vehicle miles traveled for employees of not more than sixty percent, or
 - 2) attain target reductions in single-occupancy vehicle trips or single-occupancy vehicle miles traveled. The first year target will be a ten percent reduction from the baseline established for the rate of single-occupancy vehicle miles traveled. The second through fifth year target will be a ten percent reduction from the target of the previous year; targets following the fifth year will be a five percent reduction from the target of this previous year, or
 - 3) attain the equivalent emissions reduction target for the rate of single-occupancy vehicle trips or single-occupancy vehicle miles traveled.
- C) Develop an approvable trip reduction plan designed to meet target reductions for all work sites and submit to the Task Force within five weeks after receiving survey data results. A major employer or school's plan shall be

reviewed by staff to determine if the requirements of the Task Force have been met. A major employer or school shall be notified of the approval or disapproval of the plan within ninety days. If any plan is not approved by the Task Force, the major employer or school shall modify and resubmit the plan within ten working days of notice of disapproval. An approvable trip reduction plan shall include:

- 1) The name and signature of the designated Transportation Coordinator.
- 2) A description of information programs, trip reduction measures and/or equivalent emissions reduction measures that were completed in the previous year.
- 3) A description of information programs, trip reduction measures and/or equivalent emissions reduction measures that will be implemented in the current year.
 - a) For major employers or schools who do not meet a reduction goal in the second year of the program, the plan shall contain any two of the following measures, and shall contain any four of the following measures when a reduction goal is not met in any year thereafter. Measures shall be consistent with the work site, location, and/or survey data results.
 - 1) A pay for parking program.
 - 2) Preferential parking for carpools/vanpools.
 - 3) A telecommuting program for employees that seeks to achieve a target reduction.
 - 4) A compressed work week program that seeks to achieve a target reduction.
 - 5) Subsidized vanpool. The cost to employee or student shall be comparable to other alternate modes such as transit or carpooling.
 - 6) Subsidy program where 50% or more of the commute trip cost is reimbursed by the major employer or school when an alternative mode is used.
 - 7) Guaranteed ride home program.

- 8) Program to recruit and reward new alternate mode users and those employees or students who move closer to the work site.
 - 9) Prize drawings which encourage alternate mode participation.
 - 10) On-site day care facility added after June 1, 1994.
 - 11) Shower and locker facilities constructed or renovated after June 1, 1994, for bicyclists and walkers.
- b) After the second year, the Task Force shall review the Trip Reduction Program of any major employer or school who does not meet a target reduction goal and may recommend additional measures.
- 4) A description of a mechanism for regular distribution of alternative mode transportation information.
 - 5) Name, address, telephone number, and signature of the Chief Executive Officer or the highest ranking official responsible for implementing the plan.
 - 6) Such other information as may be required by the Task Force.
- D) Implement a trip reduction plan approved by the Task Force.
- E) Provide each employee and student with information on alternative mode options, equivalent emissions reduction measures and trip reduction measures. This information shall also be provided to new employees at the time of hiring and to new students at the time of enrollment.
- F) Designate a Transportation Coordinator responsible for implementing the major employer's or school's Trip Reduction Program and serving as the liaison to the Task Force.
- G) Provide major employer's or school's name, addresses for all its work sites in the County, and the name and address of a person who works for the major employer or school and can provide information as required by the Task Force within 60 days of opening for business or hiring, relocating or otherwise adding employees or students so as to become subject to this Ordinance.
- H) Notify their employees and students of the duty to comply with the requirements of Arizona Revised Statute 49-542 when 100 or more employees or students report to a single work site.

- l) Keep all records necessary to prove compliance with and verify implementation of an approved trip reduction plan.
- J) A major employer or school who becomes subject to the requirements of this ordinance as a result of a corporate merger or consolidation may request that the predecessor corporation's program year status or approved plan addendum, to the Task Force.
 - 1) A request for adoption of a predecessor's corporation program year status or plan shall include the following information:
 - a) the effective date of the Articles of Merger or Consolidation, as filed with the Arizona Corporation Commission.
 - b) Documentation or affidavit from corporation's human resources officer or other qualified officer showing that the percentage of employees from the Predecessor Corporation retained by the merged or Consolidation corporation is at least 51%.
 - c) description of operations of both the predecessor corporation and the merged or consolidated corporations.
 - d) The number of employees remaining from the predecessor corporation.
 - e) A listing of work sites in the County.
 - 2) An employer who becomes subject to this ordinance as a result of a merger or consolidation and who does not meet the conditions for adoption of the previous major employer's plan or its program year status must establish new baseline rates for single-occupancy vehicle trips and single-occupancy vehicle traveled.

SECTION 8 EQUIVALENT EMISSIONS REDUCTION MEASURES

- A) Major employers and schools may receive credit toward meeting the requirements of Section 7 by implementing equivalent emissions reduction (EER) measures in conjunction with, or independent of, trip reduction measures. Implementation of EER measures seek to achieve the equivalent emissions reduction target (EERT) for the rates of single-occupancy vehicle (SOV) trips and single-occupancy vehicle miles traveled (SOVMT). Credit calculations and related assumptions for the implementation of measures identified in this section are found in Section 13, Appendix A.
 - 1) To qualify for EER credit, the following criteria shall be demonstrated at the time of application:
 - a) Emissions reductions are a surplus.
 - b) Emissions reductions are quantifiable.

- c) Implementation of measure(s) is enforceable as part of the major employer's or school's plan.
 - d) The credit life of the emissions reduction shall be reasonably established and commensurate with the proposed use of the credit. Credit life is the estimated amount of time over which the emissions reduction benefit is expected to be maintained. Earned credit, unless otherwise stated in this ordinance, is valid from the date of application approval with the limit that no more than one-third of the earned credit may be used within one year from the date of approval and not more than two-thirds of the earned credit used within two years from the date of approval. Earned credit is available to a major employer or school for up to seven (7) years.
- 2) A major employer or school may choose whether the earned credit be applied to the rate of SOV or the rate of SOVMT, unless otherwise stated in this ordinance. Credit shall not be transferable.
 - 3) Rates of SOV and SOVMT shall be converted to pounds of emissions. Conversion calculations for EER measures, excluding clean on-road vehicles and reduced emissions vehicles, are found in Table 3. Calculations:
 - a) convert the site's rate of SOV trips to grams per year (gm/yr) by multiplying the number of SOV trips by the average emissions of 18.34 grams per mile (gm/mi); and
 - b) convert the site's rate of SOVMT to gm/yr by multiplying the number of SOV miles by 18.34 gm/mi; and
 - c) determine the EERT for SOV trips by multiplying the total commute trips by the target reduction for SOV trips and 18.34 gm/mi; and
 - d) determine the EERT for SOVMT by multiplying the total commute miles by the target reduction for SOVMT and 18.34 gm/mi; and
 - e) convert gr/yr to pounds per year (lbs/yr) by dividing by 454.
- B) A major employer or school shall receive EER credit when any of the following EER measures are implemented:
- 1) Use clean on-road vehicle or a reduced emissions vehicle (REV). A clean on-road vehicle shall be a reduced emissions vehicle. REV factors and reduced emissions vehicle credit (credit) may be applied toward a major employer or school's rates of single- occupancy vehicle trips and miles traveled when a reduced emissions vehicles is used for commute trips or, work-related trips.
 - a) Initial application for credit will be made when credit has not been previously awarded for that vehicle or group of vehicles. Continuing award of credit for years following initial application will require an application recertification to be made when the major employer or school submits the annual survey to the County. Credits are not transferable and shall not be awarded to any vehicle that exceeds

eighty percent of the carbon monoxide standard established for the model year and vehicle classification of that vehicle.

- b) A major employer or school shall demonstrate to the Task Force that the vehicles or group of vehicles meets the standards identified on Appendix A, Table 1. The REV standards identified in Table 1 originate from the California Low Emissions Vehicle Standards, hereinafter referred to as the California LEV standards. For trip Reduction Program purposes, the carbon monoxide (CO) Standard of the California LEV standards has been reduced by twenty percent, while standards for oxides of nitrogen (NOx) and non-methane organic gases (NMOG) remain at their established levels for these standards. The California LEV standards are identified in grams per mile.
- c) For a major employer or school to receive certification of an alternative fuel vehicles as a reduced emissions vehicle and award of credit for that vehicle or group of vehicles, the major employer or school shall provide to the Task Force at the time of application:
 - 1) A completed application form.
 - 2) Evidence of the certification of that vehicle or group of vehicles to the California LEV standards or Federal Clean Fuel Fleet program standards by the motor vehicle manufacturer (for initial application only)
 - 3) Current emissions test results for that vehicle or group of vehicles from and official state of Arizona vehicle emissions inspection station.
 - 4) Documentation reflecting commute trips and miles for that vehicle or group of vehicles.
 - 5) A copy of vehicle registration, lease agreement or 3rd party contract for that vehicle or group of vehicles. (For initial application only).
 - 6) Alternative fuel purchase or distribution records substantiating a sixty percent overall use of alternative fuel for that vehicle or group of vehicles (for dual-fuel and flexible-fuel vehicles only).
- d) For a major employer or school to receive certification of a vehicle with a device as a reduced emissions vehicle and award of credit for that vehicle or group of vehicles, the employer or school shall provide to the Task Force at the time of application:
 - 1) A completed application form.
 - 2) Evidence of any one of the following: 1) certification of the device to California LEV standards or federal clean fuel fleet vehicle emissions standards on that vehicle or group of vehicle by a vehicle manufacturer; or 2) certification of the device to California LEV standards or Federal Clean Fuel Fleet vehicle emissions standards by the EPA; or 3) a certificate of compliance, issued

by a Bureau of Automotive Repair Referee Smog Check Station in the state of California, specifying that the program of the EPA, pursuant to 40 CFR Part 610, relating the results of the federal test procedure when the device is added to that vehicle or group of vehicles. (For initial application only.)

- 3) The name of the device and its manufacturer. (For initial application only.)
 - 4) A clear statement from the device manufacturer as to whether the use of the device will void any existing vehicle warranty and what the responsibility of the device manufacturer will be under such circumstances. The State of Arizona shall have no responsibility as to the validity of such statement. (For initial application only)
 - 5) A clear statement from the device manufacturer as to whether the use of the device will adversely affect onboard diagnostics and what the responsibility of the device manufacturer will be under such circumstances. The State of Arizona shall have no responsibility as to the validity of such statement. (For initial application only.)
 - 6) Device purchase receipts. (For initial application only).
 - 7) Proof of device installation, which may include receipts or signed statements from the repair shop mechanic. (For initial application only).
 - 8) Current emissions test results for that vehicle or group of vehicles from an official State of Arizona vehicle inspection station.
 - 9) Documentation reflecting commute trips and miles for that vehicle or group of vehicles.
- e) The Task Force shall certify an alternative fuel vehicle or a vehicle with a device as reduced emissions vehicle or group of vehicles, when the major employer or school demonstrates to the Task Force:
- 1) For an alternative fuel vehicle, the vehicle manufacturer has certified that vehicle or group of vehicles to California LEV standards or Federal Clean Fuel Fleet Vehicle emissions standards.
 - 2) The vehicle or group of vehicles is substantially lower emitting.
 - 3) A vehicle emissions inspection test was completed as required by Arizona Revised Statute 49-542 for that vehicle or group of vehicles.
 - 4) The major employer or school is not receiving emissions credits for that vehicle which are being relied upon to comply with the requirements of Title I of the Clean Air Act.

- 5) For a vehicle with a device, sufficient evidence has been provided to demonstrate that the device has satisfied one of the criteria described in section 8-(B) (d) 2 of this ordinance.
 - 6) For a vehicle with a device, the device does not void any existing vehicle warranty or adversely affect the onboard diagnostic system.
 - f) Once a vehicle has been certified by the Task Force as being a reduced emissions vehicle, the Task Force shall instruct staff to apply a reduced emissions vehicle factor and credit (Appendix A, Table 2) to the rates of SOV and SOVMT.
- 2) Peak Commute Trip Reductions. A major employer or school may receive credit toward meeting a target when work schedules are adjusted to end on or after 4:00 p.m. during the period of November 1st to March 31st.
 - a) Earned credit shall be applied to the EERT for SOV (Table 4) or the EERT for SOVMT (Table 5) and shall be calculated using the following:
 - 1) Commute trips or commute miles. Commute trips shall be equal to the number of employees who adjusted their start time and/or end time. When actual commute mileage is not available, commute miles shall be the combined survey data results; and
 - 2) Emissions average. For credit calculation purposes, this average shall be 18.34 gm/mi. This average is obtained from the Arizona Department of Environmental Quality (ADEQ) or the regional planning agency for the County; and
 - 3) The number of workdays from November 1st to March 31st, and/or June 1st to September 30th, as appropriate. Saturdays, Sundays and holidays shall be workdays when an employer's work week schedule includes weekends and holidays; and
 - 4) An adjustment factor. Emissions rates of a commute trip or mile are higher than the emissions rates of a non-commute trip or mile. This difference is attributed to travel demand and vehicle speeds. An adjustment factor of .5 shall be applied to the number of commute trips or miles, causing trips or miles traveled to count as one-half (50%) of a regular commute trip or commute mile. When an adjustment factor is applied, that trip or mile is an "adjusted mile."
 - b) Earned credit shall be applied to the EERT for SOV or SOVMT after application approval.
- 3) Other Work-related Trip Reductions. A major employer or school may receive credit toward meeting a target when a change is made to reduce the number

of work-related trips, and/or, work-related miles. A reduction may be obtained by implementing procedures such as routing changes to the fleet and/or sales routes, vanpooling or carpooling to meetings and work sites, and providing on-site restaurants or other such services which reduce trips during a non-commute time, such as lunch.

- a) EER credit shall be applied to the EERT for SOV (Table 6) or EERT for SOVMT (Table 7). Credit shall be rewarded only when the number of work related trips and work-related miles are reduced.
 - b) Earned credit shall be applied to the EERT for SOV or SOVMT after application approval.
 - c) Credit shall not be awarded when the reduced work-related trips or miles are the result of leasing, selling or otherwise transferring those trips or miles to any other employer in this County, who is affected or unaffected by the requirements of this ordinance.
 - d) EER credit shall be calculated using the following:
 - 1) emissions average of 18.34 gm/mi; and
 - 2) vehicle logs or other documentation to reflect reduced work-related trips and work-related traveled; and
 - 3) an adjustment factor of .5 applied to the number of reduced work-related trips. No adjustment factor shall be applied to the number of reduced work-related miles.
- 4) Voluntary Polluting Vehicle Trade-Out. A major employer or school may receive credit toward meeting a target reduction by trading-out high-polluting vehicles and replacing that vehicle with a newer, less-polluting vehicle or an alternative mode.
- a) The major employer or school shall demonstrate at the time of application for credit that:
 - 1) the traded-out vehicle is a high-polluting passenger car or light duty truck; and
 - 2) there are no liens against the vehicle; and
 - 3) the vehicle owner or operator is an employee; and
 - 4) the owner is willing to trade-out the high polluting vehicle; and
 - 5) the vehicle identification numbers, current vehicle registration and vehicle match; and
 - 6) the vehicle has been titled by the State of Arizona and Motor Vehicle Department records reflect owner's address within the County for at least 24 months prior to the date the vehicle is selected for trade-out; and
 - 7) tests confirm the operability of the vehicle; and
 - 8) the vehicle was not crushed; and

- 9) the replacement vehicle meets vehicle emissions standards in Table 18.
- b) Credit shall be calculated based upon the annual commute miles, the difference in emissions between the replacement vehicle (Table 8) and the emissions of the traded-out vehicle (Table 8 and Table 9), and the credit life of the reduction. Earned credit shall be applied to the EERT for SOVMT (Table 10), and when the replacement vehicle is an alternative mode, earned credit shall also be applied to rate of SOV.
 - 1) emissions level for a replacement vehicle shall be zero when an employee or student chooses to commute using public transit, a bicycle, and/or walking for a minimum of two (2) years, instead of purchasing, leasing, or operating another type of replacement motor vehicle.
 - 2) Emissions level for a replacement vehicle which is a carpool or vanpool shall be determined by the number of a vehicle occupants and the average emissions of 18.34 gm/mi when an employee chooses to commute using one of these modes for a minimum of two (2) years, instead of purchasing, leasing, or operating another type of replacement motor vehicle.
 - 3) Credit life of the emissions reduction shall not exceed two (2) years for trade-out of pre-1972 model-year vehicles and three (3) years for 1973 and later model-year vehicles.
 - 4) Credit toward rate of SOV trips shall be calculated by the annual survey when an alternative mode is the replacement vehicle.
 - 5) Clean Off-Road Mobile Equipment. A major employer or school may receive credit toward meeting a target when off-road mobile equipment is repowered, retrofitted, or permanently replaced with new, low or zero emitting equipment, or, when a major employer is a seller low zero emitting. Earned credit shall be applied toward the EERT for SVO or SOVMT.
 - a) The following criteria shall be demonstrated at the time of application:
 - 1) Owner of the repowered, retrofitted, or permanently replaced equipment is a major employer, employee or a student and is willing to participate; and
 - 2) For the previous 24 months, the repowered, retrofitted, or permanently replaced equipment was used for its purpose of design within the County; and
 - 3) Major employers who are sellers of retrofit kits or low or zero emitting off-road mobile equipment or engines provide incentives to buyers to encourage and increase the number

of retrofits, repowers and/or purchases of low or zero-emitting equipment. Incentives include, but are not limited to: pricing commensurate to that of equipment educational programs, advertisements or sponsorships to increase awareness; and

- 4) Off-road mobile equipment shall be permanently replaced by scrapping, relocating or selling the equipment outside of the County.
 - A) Relocated or sold equipment shall not be brought back or sold back into the County.
 - B) Proof of scrapping, replacement or sale shall include the owner's name and address; the purchaser's or scrapper's name and address; purchase, sale relocation effective date; equipment type; manufacturer; and engine model number.
 - C) Permanently replaced off-road mobile equipment shall be rendered permanently inoperable by drilling a hole through the engine block. Alternative, equally effective procedures shall be allowed, as approved by the Task Force.
 - 5) replacement utility equipment shall meet emissions standards in Table 11 or 12, as applicable ; and
 - 6) other off-road mobile equipment, excluding utility equipment, that is repowered shall meet standards for emissions Table 16.
 - 7) Other off-road mobile equipment, excluding utility equipment, that is retrofitted shall meet standards for emissions in Table 16 and standards for opacity in Table 17. Opacity is the amount of smoke emitted by the equipment.
- b) Credit shall be calculated and earned credit applied to the EERT for SOV trips or EERT for SOVMT. Earned credit is available for up to seven (7) years for sellers of low – or zero emitting equipment and up to five (5) years for buyers of low – or zero emitting equipment.
- 1) For utility equipment, calculations shall be based upon the hours of operation, the difference in emissions between the permanently replaced equipment and the replacement equipment, and the credit life of the emissions reduction. Credit shall be awarded when the replacement equipment's emissions meet the standards for year 1999 and later in Table 11 or 12, or when the replacement significantly precedes the recommended replacement or maintenance suggested by the original equipment manufacturer or

operator. Credit shall not be awarded when the replacement of equipment is a result of any mechanical or warranty problem, or from reduced performance capability of the equipment.

- A) For major employers, employees, or students who are buyers of low – or zero -emitting utility equipment, credit life shall be the remaining useful life of the replaced or scrapped equipment (Table 15).
 - B) For major employers, who are sellers of the low – or - zero – emitting utility equipment, credit life shall be the actual useful life of the replacement equipment.
 - C) A technical adjustment factor (TAF) of 1.2 has been applied to the earned credits for replacing residential equipment (Table 13) to allow for the uncertainty associated with the annual hours of equipment operation. Earned credit for replacement equipment that meets the zero emissions standards shall not be subject to the TAF.
- 2) Credit for replacing, retrofitting, or repowering off-road equipment, other than utility equipment, shall be calculated based upon the load factor supported by actual fuel consumption data, maximum rated horsepower, annual hours of operation, emissions levels, and credit life of the emissions reduction. Credit shall be awarded when the repower, retrofit or replacement of the equipment meets the 2000 or 2001 standards in Table 16, as applicable, and/or when the replacement significantly precedes the recommended replacement or maintenance suggested by the original equipment manufacturer or operator. Credit shall not be awarded when the replacement of equipment is a result of any mechanical or warranty problem, or from reduced performance capability of the equipment.
- A) When the repower, retrofit or replacement exceed the maintenance recommended or required by the original equipment manufacturer for normal operation of equipment, the emissions shall emit at least 20 percent less than the equipment's actual emissions level prior to the repower, retrofit or replacement.
 - B) For repowers and retrofits, initial credit shall be calculated based upon the difference in emissions

and the time period from installation of new low – or zero – emitting equipment to the approval of application for credit. For subsequent years, credit shall be based upon the actual operating hours for each preceding 12 month period.

C) For permanent replacement, credit shall be calculated based upon the difference in emissions and the historical records of operating hours of the replaced equipment.

D) Earned credit shall be used within two years of approval, with the limit up to 50 percent may be used in the first year. For equipment retrofitted with alternate fuel conversion kits, earned credit shall end when the useful life of the kit expires.

6) Remote Sensing. A major employer or school may receive credit toward meeting a target by obtaining remote sensing equipment and bringing it to the work site, where it is used as a screening tool to identify high emitting vehicles. Identification of such vehicle leads to subsequent vehicle maintenance being performed so that vehicle meets vehicle emissions standards in Table 18.

a) The following shall be demonstrated at the time of application for credit:

1) The vehicle is owned or operated by an employee or student who commutes to a work site, and the vehicle owner has provided permission for vehicle inclusion in this program; and

2) after identification by remote sensing, vehicle fails to pass the state of Arizona's motor vehicle emissions inspection test; and

3) subsequent vehicle repairs are conducted so that vehicle meets emissions standards in Table 18.

b) Credit shall be calculated and earned credit shall be applied to the EERT for SOVMT (Table 19) with the limit that credit shall be awarded when the same vehicle has received credit as a reduced emissions vehicle or s a trade-out vehicle, as described in this ordinance. Credit shall be calculated using the following:

- 1) emissions of vehicle prior to repair; and
- 2) emissions of vehicle after repair; and
- 3) commute miles; and
- 4) credit life. When a vehicle is subject to the vehicle emissions inspection program requirements of Arizona Revised Statute 49-542, earned credit shall be calculated based upon the time period from the date of completed vehicle repair to date of the next required emissions test.

7) Emissions Reduction from Stationary sources. A major employer or school may receive credit toward meeting a target reduction through the installation of air pollution control technologies, process modifications, or equipment shutdowns. Earned credit shall be applied to the EERT for SOVMT. The following shall be demonstrated at the time of application for credit:

- a) replacement of equipment is not in conjunction with a replacement that was scheduled or otherwise required by local, state or federal regulations; and
- b) For a stationary source under permit, a permit revision has been approved by the County; and
- c) The stationary source generated the emissions surplus after October 16, 1996; and

8) Fuel Additives. A major employer or school may receive credit toward meeting a target reduction through the year round use of fuel additives in their fleet or employee-owned and operated vehicles, off-road mobile equipment, and/or area sources. The following shall be provided at the time of application for credit:

- a) documentation substantiating continuing, year round use of fuel additive and measured reductions in emissions; and
- b) a statement from the manufacturer as to whether the use of the fuel additive will void any existing vehicle warranty. The State of Arizona and the County shall have no responsibility as to the validity of such statement; and
- c) for area sources, original equipment manufacturer's emissions standards; and
- d) the final report published from EPA's Voluntary Retrofit Device Evaluation Program, pursuant to 40 CFR Part 610, or from the California Air Resource Board. Such report shall demonstrate:

- 1) use of fuel additives demonstrates reduced VOC, CO,, or particulate matter (PM) emissions of high-

- polluting on-road vehicles, off-road mobile equipment or are sources by 20% or more; and
- 2) for motor vehicles, emissions meet the standards in Table 1; and
 - 3) for off-road mobile equipment, emissions meet the year 2000 or 20001 standards in Table 11 or 12, or, Tables 13 and 14; and
 - 4) for area sources, emissions are 20 percent less than those standard established by the original equipment manufacturer.
- e) Credit shall be calculated based upon the difference in emissions of the vehicle, equipment, or area source prior to using the fuel additive and after using the fuel additive.
 - f) Earned credit shall be applied to the EERT for SOVMT and shall reflect the credit life of the vehicle, equipment or area source.
 - g) Credit methodology, assumption, calculation, and earned credit shall be consistent with established criteria of this ordinance.
- 9) Other Mobile Source Emissions Reductions and Vehicle Miles Traveled Reduction Programs. A major employer or school may receive credit toward meeting a target reduction through the implementation of other measure(s) that reduce other mobile source emissions or vehicle miles traveled, not otherwise specified in this ordinance.
- a) Written proposal must be submitted to staff and evaluated by the Task Force prior to implementation. The proposal shall provide a methodology for credit calculation, a demonstration of emissions reduction, and additional information as requested by the Task Force.
 - b) Credit methodology, assumption, calculations, and earned credit shall be consistent with established criteria of this ordinance.

SECTION 9 VARIANCES

A major employer or school wishing a variance from any of the requirements of this ordinance may make written application to the Task Force. A request for variance shall be finally approved or disapproved within ninety days after the filing of a request by a major employer or school.

SECTION 10 EXEMPTIONS

- A) Employers or schools opening for business, or hiring, relocating or otherwise adding employees or students so as to become subject to the requirements of this ordinance are not required to conduct the survey until 60 days from the date of becoming subject to the requirements of this ordinance.
- B) The Task Force may grant an exemption to major employers or schools from the requirement to attain trip reduction goals specified in Section 7. Exemptions shall be granted if the major employer or school demonstrates the effective trip reduction strategies were implemented on or after July 1, 1988. Those exemptions may be granted only for the first year in which an employer or school is subject to this ordinance. Major employers or schools shall demonstrate that effective strategies are in place by providing;
 - 1) a detailed description of the trip reduction strategies and how they are implemented.
 - 2) The period of time that the strategies have been in place.
 - 3) Evidence indicating that the strategies have been effective in reducing the proportion of employees or students commuting by single-occupancy vehicles.
 - 4) The Task Force shall grant an exemption only on finding:
 - a) The evidence submitted by the employer or school is valid.
 - b) The measures have reduced trips at least as much as specified in the trip reduction goals in section 7.

SECTION 11 APPEALS

Any employer, school, or resident of the county may appeal to the Board of Supervisors a decision of the Task Force to authorize or withhold variances, a decision to approve or disapprove a trip reduction plan, or a decision that an employer or school is subject to the requirements of this ordinance. Any petition by an employer, school, or resident of the County appealing the decision of the Task Force must be filed with the Clerk of the Board within ten working days after the employer, school, or resident of the County receives notice of the decision.

SECTION 12 ENFORCEMENT

A) PRODUCTION OF RECORD AND OTHER INFORMATION

The Task Force may order a major employer or school to produce any and all records or other information it deems necessary to verify compliance with this ordinance or any order of the Task Force.

B) ENFORCEMENT ACTIONS

When the Task Force determines that a major employer or school has violated any of the requirements of this ordinance or any order of the Task Force it shall recommend to the Board appropriate enforcement action. The Board may request the County Attorney to take appropriate legal action.

C) CIVIL PENALTIES

A major employer or school who violates any provision or requirement of this ordinance or any order of the Task Force shall be subject to increasing civil penalties not to exceed one hundred dollars for the first violation, two hundred dollars for the second violation, and three hundred dollars for each additional violation. Violations that continue for more than one day shall constitute a separate violation for each day.

- 1) Violations of any of the following requirements may subject a major employer or school to increased civil penalties:
 - a) Failure to collect or supply information requested by the Task Force.
 - b) Failure to disseminate information on alternative modes and other trip reduction measures as specified in this ordinance.
 - c) Failure to designate a transportation coordinator.
 - d) Failure to submit an approvable trip reduction plan.
 - e) Failure to implement an approved trip reduction plan within the time scheduled or failure to perform a revision of a plan as required by the Task Force.
- 2) Failure by a major employer or school to meet trip reduction goals as prescribed in section 7 does not constitute a violation if the major employer or school is attempting in good faith to meet the goals.

SECTION 13 APPENDIX A – CALCULATIONS AND ASSUMPTIONS FOR EQUIVALENT EMISSIONS REDUCTION (EER) CREDIT

A) Reduced Emission Vehicle (REV) Credit

- 1) REV calculation assumptions:
 - a) Average carbon monoxide (CO) emissions is 3.2 grams per mile (gm/mi)¹ for like motor vehicles generally purchased in the area.
 - b) A CO emissions of 2.56 grams per mile (gm/mi) or less is required for a vehicle to meet the definition of substantially lower emitting.
 - c) A REV meets the emissions level requirements in Table 1² and the definition of substantially lower emitting.

LEVEL	CO Gm/mi	Nox Gm/mi	VOC Gm/mi	CALCULATION DATA
LEVEL 1	.01 – 2.72	.4	.125	ACTUAL EMISSIONS
LEVEL 2	ZERO	ZERO	ZERO	.10

- 2) Credit Methodology. Table 2 demonstrates the REV factor and credit to the rate of SOV trips and SOVMT:
- a) The actual CO emissions level of the REV will be compared to 3.2 gm/mi to ensure the REV's CO level is at least 20% lower. The vehicle in the sample calculation has a CO emissions of 2.3 gm/mi; Nox emissions of .18 gm/mi; and VOC emissions of .70 gm/mi.
 - b) The actual CO emissions will then be divided by the average emissions (3.2 gm/mi); the REV factor will be calculated based upon the percentage cleaner that vehicle is found to be when compared to 3.2 gm/mi. The vehicle in the sample calculation was found to be 28% cleaner.
 - c) The REV factor will be applied to the vehicle's total commute trips and commute miles. The rates of SOV and SOVMT will be recalculated.
 - d) When a REV is used for work-related trips, credit will be applied toward the equivalent emissions reduction targets (EERT) for SOVMT.

1 Maricopa Association of Governments, Transportation Planning Office (1994)

2 California Low Emission Vehicle Standards. CO standard reduced by 20%.

ACTION	CALCULATION
DETERMINE REV FACTOR. REV FACTOR= (ACTUAL EMISSION) ÷ (AVERAGE CO EMISSION).	$2.3 \div 3.2 = .72$
PERCENTAGE CLEANER = 1.0 - (REV FACTOR). THIS VEHICLE IS 28% CLEANER THAN THE AVERAGE.	$1.0 - .72 = .28$
VEHICLE'S COMMUTE TRIPS AND MILES TRAVELED WILL BE MULTIPLIED BY THE REV FACTOR.	$2800 \times .72 = 2016 \text{ MI.}$ $260 \text{ TRIPS} \times .72 = 187.2 \text{ TRIPS}$
THE DIFFERENCE BETWEEN COMMUTE MILES AND REV COMMUTE MILES IS DETERMINED. REDUCTION IS 784 MILES.	$2800 - 2016 = 784 \text{ MI.}$

THE DIFFERENCE BETWEEN COMMUTE TRIPS AND REV COMMUTE TRIPS IS DETERMINED. REDUCTION IS 72.8 TRIPS.	260 – 187.2 = 72.8 TRIPS
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- B) Conversion of rates of single-occupancy vehicle (SOV) trips and miles traveled (Table 3).
- 1) Credit calculation for implementing EER measures, other than REV, use the following assumptions:
 - a) the average total emissions is 18.34 grams per mile (gm/mi).³
 - b) average commute miles⁴ is 11.5 miles for employees and 4.9 miles for students.
 - c) Grams are converted to pounds when divided by 454.
 - d) Total commute trips include all SOV and alternative modes trips for a single work site and total commute miles include all SOV and alternative mode miles for a single work site.
 - e) A site's rate of SOV is converted to gm/yr by multiplying the average total emissions by the site's SOV trips.
 - f) A site's EERT for SOV trips is the total commute trips, multiplied by the site's SOV target reduction and the average total emissions.
 - g) The amount of reduction needed to meet the EERT for SOV is the difference between the site's EERT for SOV and its rate of SOV.
 - h) The site's rate of SOVMT is converted to gm/yr by multiplying the average total emissions by the site's SOVMT.
 - i) A site's EERT for SOVMT is the total commute miles multiplied by the site's target reduction for SOVMT and the average total emissions.
 - j) The number of work days in a calendar year for a 3 day work week = 156 days; 4 day work week = 208; 5 day work week = 260; 6 day work week = 312; and 7 day work week = 365.

³ Includes carbon monoxide, oxides of nitrogen and volatile organic compounds. Arizona Department of Environmental Quality, 1997.

⁴ Maricopa County Trip Reduction Program Annual Report, 1996/1997. Average may vary.

2) Sample Calculation.

Assume a company (ABC Co.) with 450 employees; SOV rate of 78.98%, target SOV rate is 60%; rate of SOVMT is 87.49%, target SOVMT is 63%; SOV trips (70,252) + alternate mode trips (10,920) = total trips (81,172); and SOVMT (782,548) + alternate mode miles (111,927.4) = total miles (894,475.4).

TABLE 3: TRP SUMMARY OF CALCULATIONS	
ACTION	CALCULATION
CONVERT RATE OF SOV (78.98 %) TO GRAMS. (AVERAGE TOTAL EMISSIONS) X (SOV TRIPS)	$78.98\% = 18.34 \times 70,252 = 1,288,421.68$ (GM/YR)
EERT SOV TRIPS = TOTAL COMMUTE TRIPS X (TARGET REDUCTION %) X (AVG EMISSIONS)	$81,172 \times .60 \times 18.34 = 893,216.69$ (GM/YR)
CALCULATE THE AMT. OF REDUCTION NEEDED TO MEET EERT FOR SOV.	$1,288,421.68 - 893,216.69 = 395,204.99$ (GM/YR)
CONVERT RATE OF SOVMT (87.49%) TO GRAMS. (AVERAGE TITAK ENUSSUIBS) X (SOV TRIPS)	$87.49\% = 782,548 \times 18.34 - 14,351,930.32$ (GM/YR)
EERT SOV TRIPS = TOTAL COMMUTE MILES X (TARGET REDUCTION %) X (AVG EMISSIONS)	$894,475.4 \times .63 \times 18.34 = 10,334,947.67$ (GM/YR)
CALCULATE THE AMT. OF REDUCTION NEEDED TO MEET EERT FOR SOVMT	$14,351,930.32 - 10,334,947.67 = 4,016,982.65$ (GM/YR)

C) Reducing Peak Commute Trips

1) Calculation Assumptions:

- a) an adjustment factor of .5 is applied to the number of commute trips and commute miles taken by employees who adjusted their work schedule.
- b) Average commute miles⁵ is 11.5 miles for employees and 4.9 miles for students.
- c) The amount of earned credit toward the EERT for SOVMT will be the adjusted trips multiplied by the average total emissions level and the number of work days.
- d) The amount of earned credit toward the EERT for SOVMT will be the adjusted miles multiplied by the average total emissions, the total number of schedule changes, and the number of work days.
- e) Credit is calculated and then applied to the rate of SOV or SOVMT.

- 2) Sample credit calculations for ABC Co. with 450 employees are shown in Tables 4 and 5. The rate of SOV = 78.98% = 70,252 SOV trips = 1,288,421.68 gm/yr. The rate of SOVMT = 87.49% = 782,548 SOV miles = 14,351,930.32 gm/yr. For sample calculation purposes, the number of schedules changes is 80, therefore, the number of adjusted trips is 40; the number of work days from June 1st to September 30th is 61.

5 Maricopa County Trip Reduction Program annual Report, 1996/1997. Average may vary

TABLE 4 TRP SAMPLE CALCULATION – REDUCING PEAK COMMUTE TRIPS SOV TRIP CALCULATION	
ACTION	CALCULATION
CONVERT RATE OF SOV (78.98%) TO GM/YR: (SOV TRIPS) X (AVG EMISSIONS)	$70,252 \times 18.34 = 1,288,421.68$ (GM/YR)
ADJUST TRIPS. MULTIPLY NO. OF SCHEDULE CHANGES BY THE ADJUSTMENT FACTOR.	$80 \times .5 = 40$ ADJ. TRIPS
AMT. OF CREDIT EQUALS (ADJ. TRIPS) X (AVG EMISSIONS) X (# OF WORKDAYS)	$40 \times 18.34 \times 61 = 44,749.60$ (GM/YR)
APPLY CREDIT TO RATE OF SOV	$1,288,421.68 - 44,749.6 = 1,243,672.08$ (GM/YR)
DETERMINE NEW SOV TRIP COUNT. (CONVERTED SOV) ÷ (AVG EMISSIONS)	$1,243,672.08 \div 18.34 = 67,812$ SOV TRIPS
CHANGIN 80 SCHEDULES REDUCES THE SOV TRIPS BY 2,440 PER YEAR.	$70,252 - 67,812 = 2,440$
CALCULATE NEW RATE OF SOV	IF: $78.98\% = 70,252$ SOV TRIPS ($70,252 \div .7898 = 88,949.10 = 100\%$) THEN: $X\% = 67,812$ SOV TRIPS ($67,812 \div 88,949.10 = 76.24\%$) SOV = 76.24% (2.74% SOV REDUCTION)

TABLE 5 TRP SAMPLE CALCULATION – REDUING PEAK COMMUTE MILES SOVMT CALCULATION	
ACTION	CALCULATION
CONVERT RATE OF SOVMT (87.49%) TO GM/YR: (SOV MILES) X (AVG EMISSIONS)	$782,548 \times 18.34 = 14,351,930.32$ (GM/YR)
ADJUST MILES. MULTIPLY AVG COMMUTE MILES (13) BY THE ADJUSTMENT FACTOR.	$13 \times .5 = 6.5$ ADJ MILES
AMT. OF CREDIT EQUALS (ADJ. MILES) X (AVG EMISSIONS) X (# OF WORKDAYS) X (NO. OF TRIPS)	$6.5 \times 18.34 \times 61 \times 80 = 581,744.80$ (GM/YR)

APPLY CREDIT TO RATE OF SOVMT	$14,351,930.32 - 581,744.80 = 13,770,185.52$ (GM/YR)
DETERMINE NEW SOV MILES COUNT. (CONVERTED SOVMT) \div (AVG EMISSIONS)	$13,770,185.52 \div 18.34 = 750,828$ SOV MILES
CHANGING 80 SCHEDULES REDUCES THE SOV MILES BY 31,720 PER YEAR.	$782,548 - 750,828 = 31,720$ (MI/YR)
CALCULATE NEW RATE OF SOVMT	IF 87.49% = 782,548 SOV MILES ($782,548 \div .8749 = 894,442.79 = 100\%$) THEN X% = 750,828 MILES ($X = 750,828 \div 894,442.79 = 83.94\%$) NEW SOVMT = 83.94% (3.55% SOVMT REDUCTION)

D) Reducing Work-Related Trips

1) Calculation Assumptions

- a) an adjustment factor of .5 is applied to the number of reduced work-related trips.
- b) No adjustment factor is added to the number of reduced work-related miles.
- c) The amount of earned credit toward the EERT for SOV trips = (adjusted trips) x (average emissions). The amount of earned credit toward the EERT for SOVMT = (number of reduced work-related miles) x (average emissions).

2) Sample Credit Calculations (Tables 6 and 7):

TABLE 6: TRP REDUCED WOR-RELATED TRIPS SOV CALCULATION	
ACTION	CALCULATION
CONVERT RATE OF SOV (78.98% TO GM/YR: (SOV TRIPS) X (AVG EMISSIONS)	$70,252 \times 18.34 = 1,288,421.68$ (GM/YR)
ADJUST TRIPS. (NO. OF WORK-RELATED TRIPS REDUCED) X .50	$100 \times .5 = 50$
CALCULATE CREDIT. (ADJUSTED TRIPS) X (AVG EMISSIONS)	$50 \times 18.34 = 917$ (GM/YR)
APPLY CREDIT; AND CALCULATE NEW SOV TRIP COUNT.	$1,288,421.68 - 917 = 1,287,504.68$ GM/YR $1,287,504.68 \div 18.34 = 70,202$
CLCULATE NEW RATE OF SOVMT	IF: 79.98% = 70,252 SOV TRIPS ($70,252 \div .7998 = 87,836.96 = 100\%$) THEN X% = 70,202 SOV TRIPS ($70,202 \div 87,836.96 = 79.92\%$) X% = 79.92% (.06% SOV REDUCTION)

TABLE 7: TRP REDUCED WORK – RELATED TRIPS SOVMT CALCULATION

ACTION	CALCULATION
CONVERT RATE OF SOVMT (87.49%) TO GM/YR: (SOV MILES) X (AVG EMISSIONS)	$782,548 \times 18.34 = 14,351,930.32$ (GM/YR)
AMT. OF CREDIT: (NO. OF SOV MILES) – (NO. WORK-RELATED MILES)	$782,548 - 10,000 = 772,548$
CALCULATE NEW RATE OF SOVMT	IF: $87.49\% = 782,548$ SOV MILES $(782,548 \div .8749 = 894,442.79 = 100\%)$ THEN: $X\% = 772,548$ SOV MILES $(772,548 \div 894,442.79 = 86.37\%)$ $X\% = 86.37\%$ (1.12% REDUCTION)

E) Vehicle Trade-Outs

1) Calculation Assumptions

a) Emissions⁶ for replacement vehicles are identified in Table 8.

TABLE 8: TRP EMISSIONS OF REPLACEMENT VEHICLES (GM/MI)	
REPLACEMENT MODE	AVERAGE EMISSIONS (GM/MI)
MODEL – YEAR 1972	76.75
MODEL – YEAR 1973	73.08
MODEL – YEAR 1974	72.22
MODEL – YEAR 1975	109.13
MODEL – YEAR 1976	103.33
MODEL – YEAR 1977	96.90
MODEL – YEAR 1978	94.43
MODEL – YEAR 1979	94.65
MODEL – YEAR 1980	28.07
MODEL – YEAR 1981	29.57
MODEL – YEAR 1982	27.74
MODEL – YEAR 1983	26.43
MODEL – YEAR 1984	23.80
MODEL – YEAR 1985	22.15
MODEL – YEAR 1986	20.32
MODEL – YEAR 1987	17.15
MODEL – YEAR 1988	14.73
MODEL – YEAR 1989	13.29
MODEL – YEAR 1990	11.57
MODEL – YEAR 1991	9.47
MODEL – YEAR 1992	7.06
MODEL – YEAR 1993	6.07
MODEL – YEAR 1994	4.82

MODEL – YEAR 1995	3.33
MODEL – YEAR 1996	2.33

6 AZ Dept. of Environmental Quality, Office of Air Quality, Emissions Report dated Jan 1996

- b) Average emissions⁷ for trade-out vehicles are identified in Table 9. * (For post 1981 vehicles refer to applicable model-year of Table 8),

MODEL YEAR	CO Gm/mi	Nox Gm/mi	VOC Gm/mi	TOTAL Gm/mi
PRE 1972	69.5	4.0	12.4	85.9
1974 – 1974	46.4	3.8	9.7	59.9
1975 – 1981	36.1	3.1	3.9	43.1
*1981 +				

- c) The annual commute miles of the trade-out vehicle equals the average commute miles of the replacement vehicle.
- d) Earned credit toward the rate of SOVMT will be determined by the difference in emissions levels between the trade-out and replacement vehicle.

South Coast Air Quality Management District, Rule 1610. Average Emissions for post – 1981 vehicles

2) Sample SOVMT credit calculation (Table 10)

- a) For sample calculation purpose: the trade-out is a 1972 model-year with 2,860 annual commute miles. The replacement vehicle is a 1990 model-year, Emissions for a 1990 model-year is 11.57 gm/mi. Emissions of a 1972 model-year is 85.9 gm/mi.
- b) The emissions benefit is expected to be maintained for two (2) years⁸ for a 1972 model-year trade-out.

ACTION	CALCULATION
CALCULATE EMISSIONS OF TRADE-OUT. (EMISSIONS) X (ANNUAL COMMUTE MILES)	85.9 X 2,860 = 245,674 GM/YR
CALCULATE EMISSIONS OF REPLACEMENT. (EMISSIONS) X (ANNUAL COMMUTE MILES)	11.57 X 2,860 = 33,090.2 GM/YR
CALCULATE THE DIFFERENCE IN EMISSIONS OF THE 2 VEHICLES.	245,674 – 33,090.2 = 212,583.8 GM/YR
CALCULATE CREDIT EARNED OVER THE LIFE OF THE TRADE-OUT (2	2 X 212,583.8 = 425,167.60 GRAMS

YEARS)	
CALCULATE REDUCTION OF SOVMT FOR YEAR 1: UP TO 1/3 OF EARNED CREDIT	$425,167.60 \times .33 = 140,305.31$ GRAMS
APPLY CREDIT TO SOVMT	$14,351,930.32 - 140,305.31 = 14,211,625.01$ GRAMS
CALCULATE NEW RATE OF SOVMT	IF: $87.49\% = 14,351,930.32 \text{ GM/YR}$ $(14,351,930.32 \div .8749 = 16,404,080.83 = 100\%)$ THEN: $X\% = 14,211,625.01$ $(14,211,625.01 \div 16,404,080.83 = 86.63\%)$ $X\% = 86.63$ (.86% REDUCTION IN YR 1) UNUSED CREDIT: 284,862.29 GRAMS

F) Clean off-Road Mobile Equipment

1) Calculation assumptions:

- a) replacement equipment meets utility equipment standards⁹ (Tables 11 or 12).

YEAR	ENGINE DISPLACEMENT	HC + Nox Gm/bhp-hr	CO Gm/bhp-hr	TOTAL Gm/bhp-hr
1995 – 1998	Less than 20cc	220 + 4	600	824
1995 – 1998	20cc to 49.9cc	180 + 4	600	784
1995 – 1998	50cc and greater	120 + 4	300	424
1999+	All	50 + 4	130	184

YEAR	ENGINE DISPLACEMENT	HC + Nox Gm/bhp-hr	CO Gm/bhp-hr	TOTAL Gm/bhp-hr
1995 – 1998	Less than 225cc	12.0 + 0	300	312
1995 – 1998	225cc and Greater	10.0 + 0	300	310
1999 +	All	3.2 + 0	100	103.2

⁸ Section 8 (B)(4)(b)(3).

⁹ Mobile Source Emissions Standards Summary, California Air Resources Board, 1994. 1995 and Later Small Utility Engines, Standards apply to equipment that is powered by gasoline or diesel engines rated at under 25 horsepower. Standards are based on total engine displacement in cubic centimeters (cc). All standards are expressed in grams per brake-horsepower-hour (g/bhp-hr).

- b) Earned credit is based upon the difference in emissions standards between the 1995, 1999 and zero-emitting off-road utility equipment.
- c) Table 13 is the earned credit¹⁰ (gm/yr) for residential off-road utility equipment.

TABLE 13: TRP EARNED CREDIT : RESIDENTIAL UTILITY EQUIPMENT (INCLUDES LAWN & GARDEN) (GM/YR)			
OFF-ROAD EQUIPMENT	1995 STANDARDS	1999 STANDARDS	ZERO EMISSION STANDARDS
2 stroke Lawn Mowers	7945	12106.7	18160
4 stroke Lawn Mowers	3405	7604.5	12303.4
2 stroke Blowers, <50cc, Hand Held	1513.3	3405	4994
2 stroke Blowers, >50cc, Hand Held	2270	3405	4994
2 stroke Blowers	2648.3	3405	4994
4 stroke Blowers	1891.7	3783.3	538.8
2 stroke Chainsaws, <50cc	756.7	3783.3	5448
2 stroke Chainsaws, >50cc	2648.3	3783.3	5448
Garden Tractors – All	25348.3	111305.7	18777.4
Riding Mowers – All	7945	37984.7	34831.2
4 stroke Edgers/Trimmers	1891.7	3405	6401.4
2 stroke Edgers/Trimmers, <50cc	1513.3	3405	4994
2 stroke Edgers/Trimmers, >50cc	2270	3405	4994
4 stroke Tiller <225cc	4540	11009.5	17342.8
4 stroke Tiller >225cc	4918.3	11009.5	17342.8
2 stroke Shredder/Grinder	7945	11728.3	16798
4 stroke Shredder/Grinder	3405	7226.2	11849.4

- d) Table 14 is the earned credit¹¹ (gm/yr) for commercial off-road utility equipment.

10 California Air Resource Board, Rule 1623 – Credits for Clean Lawn and Garden Equipment (May 1996). Amount of credit for residential equipment reflects a Technical Adjustment Factor of 1.2 to account for the uncertainty for hours of operation.

11 California Air Resources Board, Rule 1623 – Credits for Clean Lawn and Garden Equipment (May 1996). Amount of credit for residential equipment reflects a Technical Adjustment Factor of 1.2 to account for the uncertainty for hours of operation.

TABLE 14: TRP EARNED CREDIT: COMMERCIAL OFF-ROAD UTILITY EQUIPMENT (INCLUDES LAWN & GARDEN) (GM/YR)			
OFF-ROAD EQUIPMENT	1995	1999	ZERO EMISSION

	STANDARDS	STANDARDS	STANDARDS
2 stroke Lawn Mowers < 225cc	117968	272854	329286.1
2 stroke Lawn Mowers > 225cc	179784	273308	329286.1
4 stroke Lawn Mowers< 225cc	73548	168842.6	225683.4
4 stroke Lawn Mowers > 225cc	74456	16871.8	225683.4
2 stroke Blowers/Vacuums, <20cc, Hand Held	152998	417226	500308
2 stroke Blowers/Vacuums, 20-50cc Hand Held	169796	417226	500308
2 stroke Blowers/Vacuums, > 50cc, Hand Held	317800	417226	500308
2 stroke Blowers/Vacuums < 225cc	364108	449006	500308
2 stroke Blowers/Vacuums > 225cc	365470	449460	500308
4 stroke Blowers/Vacuums <225cc	44946	158037.4	223867.4
4 stroke Blowers/Vacuums >225cc	46308	158037.4	223867.4
Garden Tractors – All	111230	487777.6	682952.2
Riding Mowers – All	99426	469980.8	663339.4
4 stroke Edgers/Trimmer > 225cc	55388	114952.8	167299
4 stroke Edgers/Trimmer< 225cc	54480	115225.2	167299
2 stroke Edgers/Trimmers < 20cc	22700	131660	166345.6
2 stroke Edgers/Trimmers, 20-50cc	29510	131660	166345
2 stroke Edgers/Trimmers, > 50cc	91254	131660	166345.6
4 stroke Tiller < 225cc	27240	63741.6	83445.2
4 stroke Tiller > 225cc	27694	63696.2	83445.2
2 stroke Shredder/Grinder <225cc	316438	485780	580439
2 stroke Shredder/Grinder >225cc	316892	486234	580439
4 stroke Shredder/Grinder < 225cc	66738	237487.4	332645.8
4 stroke Shredder/Grinder > 225cc	70370	237669	332645.8

- e) estimated years of credit life¹² for off road mobile utility equipment (Table 15) is based upon whether the employer, employee or student is the buyer or seller of the equipment.

¹² California Air Resources Board, Rule 1623 – Credits for Clean Lawn and Garden Equipment (May 1996).

EQUIPMENT	RESIDENTIAL		COMMERCIAL	
	BUYER	SELLER	BUYER	SELLER
LAWNMOWERS, 4-STROKE EDGERS/TRIMMERS	4	7	2	3
2-STROKE EDGERS/TRIMMERS	3	5	2	3
SHREDDERS/GRINDERS	4	7	3	5
4-STROKE BLOWERS/VACUUMS	4	7	2	3
2-STROKE BLOWERS/VACUUMS	3	5	2	3
CHAINSAWS	3	5	1	1
TILLERS	4	7	3	5
GARDEN TRACTORS	4	7	2	4
RIDING MOWERS	4	7	2	4

- f) emissions standards¹³ for off-road mobile heavy duty diesel engines (tables 16 and 17). Credit will be calculated from the year 2000 standard for 750+ horsepower (hp) equipment and the year 2001 standard for 175 – 750 hp equipment.

HORSEPOWER	YEAR	HC Gm/bhp-hr	Nox Gm/bhp-hr	CO Gm/bhp-hr
175 – 750	1996 - 2000	1.0	6.9	8.5
175 – 750	2001+	1.0	5.8	1.0
750 +	2000+	1.0	6.9	8.5

HORSEPOWER	YEAR	LUGGING	ACCELERATION	PEAK LEVEL
175 – 750	1996 - 2000	15%	20%	50%
175 – 750	2001+	15%	20%	35%
750 +	2000+	15%	20%	35%

3) Sample Calculation

Off road heavy-duty diesel calculation will reflect the difference in the actual emissions standards if available, or the 1996 – 2000 emission standards compared to the year 2000 or 2001 emissions standards; the annual hours of operation; the rated horsepower (hp); the load factor (lf); and fuel consumption:

$$[(\text{baseline emissions} - \text{emissions standards}) \times (\text{hrs} \times \text{hp} \times \text{lf})] = \text{gm/yr}$$

G) Remote Sensing

1) Calculation Assumptions

- a) after repairs, vehicle meets Arizona Emissions Standards¹⁴ (Table 18).

TABLE 18: TRP ARIZONA EMISSION STANDARDS I/M 240 (MAXIMUM GRAMS PER MILE)			
MODEL – YEAR	VOC + NOX	CO	TOTAL
1996 +	2.1	10	12.1
1983 – 1995	2.8	15	17.8
1981 – 1982	2.8	30	32.8

- b) emissions levels prior to repair will be compared to after repair levels.
- c) When subject to vehicle emissions inspection program¹⁵, the next scheduled emission test date determines maximum credit life.

- 2) Sample Calculation (Table 19): ABC Co.'s rate of SOVMT = 87.49%; SOV miles = 782,548; converted rate of SOVMT = 14,351,930.32 gm/yr; 1988 model year vehicle commutes 2860 mi/yr; emissions are 28.2 gm/mi.; Date of repair is 6/6/97; date of application for credit is 4/30/97; date of next emissions test is 1/31/99; the emissions standard is 17.8 gm/mi; and subsequent testing shows emissions level of 16.2 gm/mi.

TABLE 19: TRP REMOTE SENSING CREDITS SOVMT CALCULATIONS	
ACTION	CALCULATION
calculate emissions benefit, per mile, of repair: (old emissions) – (after repair emissions)	$28.2 - 16.2 = 12 \text{ GM/MI}$
Calculate emissions reduction, per day, after repair. (emissions reduced) x (commute miles per day)	$12 \times 13 = 156 \text{ GM/MI/DAY}$
Calculate emissions reduction from date of repair (6/6/97) to application date (4/30/98) or date of next test, whichever is sooner, exclude non-work days. (# adj days x emission reduction per day)	$(226 \times .5) \times 156 = 17,628 \text{ GM}$

Subtract reduction from sovmt and recalculate sovmt miles	14,351,930.32 – 17,628 = 14,334,302.32 GM/YR 14,334,302.32 ÷ 18.34 = 781,586.82 SOV MILES
Calculate new rate of sovmt	IF : 87.49% = 14,351,930.32 GM/YR (14,351,930.32 ÷ .8749 = 16,404,080, .83 = 100%) THEN: X% = 14,334,302.32 (14,334,302.32 ÷ 16,404,080, .83 = 87.38%) X% = 87.38% (.11% REDUCTION)
Calculate credit for next year: # work days from application date (4/30/98) to next emission test date (1/31/99). ((# days x .5) x emission reduction)	(186 X .5) X 156 = 14,508 GM

¹⁴ Emissions standards approved for use in the state of Arizona by the EPA pursuant to Arizona Administrative Code R18-2-1006.

15 A.R.S. 49-542, Annual Emissions and Inspection Program

H) Stationary Source – Calculation Assumptions:

- 1) permit revisions establish new emission standard ceiling for stationary source.
- 2) Calculations and related assumptions will be consistent with methodology used to calculate EER credit and other local, state, and federal regulations, as applicable.

I) Fuel Additives – Calculation Assumptions

- 1) Motor vehicle emissions, prior to use of fuel additive, were 20% or greater than the standards identified in table 18, for the applicable vehicle model- year.

TABLE 18: TRP ARIZONA EMISSION STANDARDS I/M 240 (MAXIMUM GRAMS PER MILE)			
MODEL – YEAR	VOC + NOX	CO	TOTAL
1996 =	2.1	10	12.1
1983 – 1995	2.8	15	17.8
1981 – 1982	2.8	30	32.8

- 2) off-road utility equipment emissions, prior to use of fuel additive, were 20% or greater than the standards identified in table 11 or 12, as applicable.

TABLE 11: TRP – HAND HELD UTILITY EQUIPMENT				
YEAR	ENGINE DISPLACEMENT	HC + nox Gm/bhp-hr	Co Gm/824bhp-hr	TOTAL Gm/bhp - hr
1995 – 1998	Less than 20cc	220 + 4	600	824
1995 – 1998	20cc to 49.9cc	180 + 4	600	784
1995 – 1998	50cc and greater	120 + 4	300	424

1999+	All	50 + 4	130	184
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TABLE 12: TRP – NON-HAND HELD EQUIPMENT				
YEAR	ENGINE DISPLACEMENT	HC + nox Gm/bhp - hr	CO Gm/bhp - hr	TOTAL Gm/bhp - hr
1995 – 1998	Less than 225cc	12.0 + 0	300	312
1995 – 1998	225cc and Greater	10.0 + 0	300	310
1999+	All	3.2 + 0	100	103.2

- 3) off-road heavy duty diesel equipment emissions, prior to use of fuel additive, were 20% or greater than the standards identified in Tables 16 and 17.

TABLE 16: STANDARDS FOR HEAVY DUTY DIESEL ENGINES				
HORSEPOWER	YEAR	HC Gm/bhp - hr	Nox Gm/bhp - hr	CO Gm/bhp - hr
175 – 750	1996 - 2000	1.0	6.9	8.5
175 – 750	2001+	1.0	5.8	1.0
750 +	2000+	1.0	6.9	8.5

TABLE 17: OPACITY LEVEL OF SMOKE FOR HEAVY DUTY DIESEL ENGINES				
HORSEPOWER	YEAR	LUGGING	ACCELERATION	PEAK LEVEL
175 – 750	1996 - 2000	15%	20%	50%
175 – 750	2001 +	15%	20%	35%
750 +	2000 +	15%	20%	35%

- 4) area source emission, prior to use of the fuel additive, were 20% or greater than original equipment manufacturer's specifications.
- 5) Calculations and related assumptions will be consistent with methodology used to calculate EER credit.
- J) Other Mobile Source Reductions and Other Vehicle Miles Reduction Programs

Calculations and related assumptions will be consistent with methodology used to calculate EER credit.

Adopted as amended by Board of Supervisors July 23, 1997.