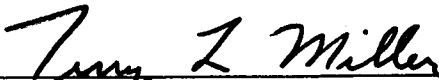
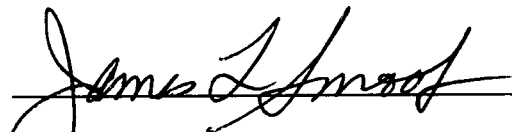
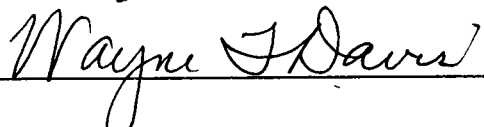
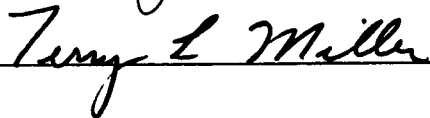


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THE EFFECTS OF TRANSPORTATION DEMAND MANAGEMENT ON THE
EMISSIONS OF GLOBAL WARMING GASES FOR THE BRENTWOOD,
TENNESSEE INTERSTATE 65 TRANSPORTATION CORRIDOR

A Thesis

Presented for the

Master of Science

Degree

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Christopher R. Rys

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ABSTRACT

The research resulted in development of a technique and application of the technique to determine the effects of traffic demand management and traffic control measures applied to the Brentwood, Tennessee, Interstate 65 transportation corridor on aggregate daily vehicular emissions of global warming gases. Traffic control measures in the corridor consisted of construction of high occupancy vehicle lanes for Interstate 65 and resequenced signalization on major arterial roadways in the corridor study area. Traffic demand management involved implementation of van pooling where thirty vans were utilized to transport workplace commuters and, thereby, alleviate passenger automobile traffic. Four temporal states were analyzed - preconstruction of high occupancy vehicle lanes without traffic demand management or traffic control measure implementation, construction ongoing without implementation of traffic demand management or traffic control measures, construction ongoing with partial traffic demand management and traffic control measure implementation and the phase of construction completed with full traffic demand management and traffic control measure implementation.

The global warming gases considered were carbon dioxide, carbon monoxide, nitrogen oxides, methane hydrocarbons, and non-methane hydrocarbons. Except for carbon dioxide, emissions of each of the gases were determined by utilizing the United States Environmental Protection Agency's MOBILE5 emissions model with inputs of roadway average daily traffic, roadway average speeds, and a roadway vehicular mix of eight vehicle type classifications. Carbon dioxide emissions were derived by assuming that

carbon dioxide emissions are directly proportional to vehicle fuel consumption. This method of carbon dioxide emissions analysis is an original contribution of the study. Fuel consumption data for various types of vehicles were utilized to obtain carbon dioxide emissions. The global warming effects of each of the gases were characterized by quantifying the respective gas emissions in terms of mass emissions of carbon dioxide that would result in a global warming effects equal to that of the respective gas considered - a global warming potential.

The research resulted in a determination of global warming potential changes over the four temporal phases of the Brentwood traffic demand management project. Results showed variation in global warming potential and attempted to explain the changes. A surprising result of a net increase in global warming potential of the vehicular exhaust emissions from the preconstruction phase to the full transportation demand management phase was obtained. This appeared to result from an increase in vehicular traffic as a result of greater roadway utilization and higher corridor average speeds. From the traffic data utilized, the traffic demand management, while providing increased roadway utility, actually result in an increased global warming potential in terms of both absolute emissions and emissions per vehicle mile travelled.

However, due to the limited scope of the traffic data utilized (essentially only one traffic input data set observation per project phase), no conclusion could be statistically supported other than the conclusion that a more complete traffic flow data set was required - one that would include multiple observations of traffic parameters at given points in time for the respective project phases so that statistical confidence limits could

be derived.

An ancillary task of the research resulted in micro-scale modeling of maximum carbon monoxide concentrations for a major roadway intersection in the study corridor for the pre-construction phase and post construction, full traffic demand management phase of the Brentwood project. The Environmental Protection Agency's CAL3QHC dispersion model was use for this task. Results of one hour maximum concentrations showed relatively low carbon monoxide concentrations emanating from the roadways modeled for the two phases and a generally increased concentration in the full transportation demand management implementation phase as compared to the preconstruction and no transportation demand management implementation phase. In both phases, the derived maximum carbon monoxide concentration results were lower than the one hour average concentration national ambient air quality standard of thirty-five parts per million. Maximum concentrations, however, approached the limits of the eight hour average national ambient standard for carbon monoxide of eight parts per million. These results, too, were dependant on traffic data so, conclusions regarding changes in concentrations could not be statistically supported.

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1. LITERATURE REVIEW

Introduction

This thesis presents the development of a technique and the application of the technique to determine the effects of transportation demand management (TDM) and traffic control measures (TCM) implementation on emissions of greenhouse gases and the global warming potential of those gas emissions along the Brentwood, Tennessee I-65 transportation corridor. The study of the effects of the TDM's and TCM's on the transportation corridor builds on a background of representative literature concerning global warming as a result of emissions of greenhouse gases and of representative literature on TDM's and TCM's as they apply to traffic congestion and resulting impacts on greenhouse gas emissions from road vehicles.

A background of literature concerning the nature of global warming, the history of global warming awareness, the potential consequences of global warming, economic considerations, and global warming potentials of individual gases are reviewed together under the heading of global warming. The review of literature on transportation demand management (TDM) and traffic control measures (TCM) applied to vehicle emissions are covered in a subsequent section having the title Transportation Demand Management and Traffic Control Measures (Bowker, 1994).

Global Warming

The potential for global warming was recognized as early as the 1940's. "The History of Germany's Response to Climate Change" (Cavender, 1993) summarizes German attitudes toward climate change from 1940 to the present. The first recognition by German scientists that air pollution could alter the Earth's climate occurred during World War II, although awareness of the potential for climate change did not spread throughout the general German scientific community until the 1970's. At this time, the national media also began to focus attention on the threat of global warming. By the late 1980's, widespread public awareness of environmental problems was generating huge political pressure for action to combat global warming.

A review of the literature on global warming revealed pervasive perceived consequences from the global warming trend. Global warming is considered to have impact potential on many areas of life on the planet. Some articles illustrating the pervasiveness of the global warming discussion are summarized.

"Agriculture and Global Warming" (Orr, 1993) discusses agricultural systems and claims that agricultural systems worldwide are threatened by the global warming trend. The inappropriate application of models of risk and economic impact causes this threat to be consistently understated. Strategies of game theory are proposed as an alternative model of risk to determine probable effects of global warming on agriculture.

"Climate Change and World Food Supply" (Rosenzweig et. al., 1993) examines both the biological processes and the economic consequences of climate change. According to the report, food production will be reduced by six percent as a net effect of climate

change. Greater production disparities between developing and developed nations are expected. Even after adaptive measures are adopted, cereal prices are expected to increase, and poverty-stricken nations will be vulnerable to food shortages.

"Effects of Expected Global Climate Change on Marine Faunas" (Fields, 1993) asserts that the biodiversity and productivity of marine ecosystems will be affected by global climate changes, which will in turn, affect human utilization of marine resources. The possible results are determined by examining the effects of past climate changes, shifts in physical parameters, and community interactions. Predictions from modeling are made. The article states that current global climate change models do not accurately portray the nature of vertical ocean circulation or the impacts of cloud cover on the oceans.

The effects of global warming on wildlife has attracted interest. "Possible Impacts of Climatic Warming on Polar Bears" (Stirling, 1993) states that the global warming trend is expected to first affect the polar bear population at the southern end of their distribution near the James and Hudson Bays. A prolonged ice melt period will delay return to feeding grounds and place nutritional stress on this species. Human interactions with bears will be increased. Long-term reductions in seal populations will also negatively impact polar bears. Reduced bear populations may impact the tourism industry, as well as food resources for native populations, with resulting adverse political and economic effects.

Economic and governmental policy considerations of global warming are discussed in "Policy Options for Curbing CO₂ Emissions: the Case of the Netherlands" (Bovenberg,

1993). The difficulties and complications that might accompany an imposition of a carbon tax to control emissions of greenhouse gases by decreasing demand for fuel consumption due to a higher effective price for consumption in the Netherlands, particularly in energy-intensive industries, are explored. Other control options currently being considered include subsidies, government regulation, and voluntary agreements with industry. It is argued that taxes that impact on energy-intensive sectors are unattractive because they impose high costs but yield only small or even perverse environmental effects from a global point of view. Subsidies may be the most promising alternative, in combination with voluntary agreements with industry, because such a policy would impose less distortion on international trade. It would not only encourage domestic producers to shift to cleaner production processes, but it would also keep up net exports of energy-intensive commodities. In households and industrial firms not subject to international competition, regulation appears to be the most attractive option.

Another economic effect of global warming is discussed in "Law: Sea Level Rise and Insurance" (Wilford, 1993). The article describes the meeting of representatives of five small island countries in 1989 to address the risks of sea-level rise resulting from melting polar ice caps due to global warming. This meeting spawned the formation of the Alliance of Small Island States (AOSIS) in 1990, an organization that now has a membership of 36 countries. One key issue for AOSIS is protection by insurance, a subject that will surely warrant more interest if predicted global warming consequences materialize.

An article that accepts the necessity for mitigating greenhouse gas emissions and

advocates a market based approach of controlling those emissions is "Tradeable Permits and the Comprehensive Approach to Climate Change: Can We Get the Best of Both Worlds?" (Grubb, 1993). Grubb asserts that the comprehensive approach to climate change involves the consideration of all sources and sinks of greenhouse gases. Any international agreement to limit greenhouse gas emissions must necessarily begin with a limited range of sources and sinks, probably only CFC's and fossil-fuel carbon dioxide. Other greenhouse gases could be included on a transition list where they could be subject to other forms of control on a source-by-source basis. The phasing in of a system of overlapping tradeable permits has been suggested, under which 10-year permits would be issued. One-tenth of these would be withdrawn each year and replaced with a new issue, using an agreed allocation formula. As old permits are retired, new ones could be added to expand the source/sink coverage.

"Economic Analysis of the Greenhouse Effect: Optimal Abatement Level and Strategies for Mitigation" (Adger, 1993) applies economic analysis to the issue of global warming to evaluate optimum abatement and mitigation strategies. A cost/benefit model of optimal greenhouse gas abatement is presented and applied to a coastal protection strategy for East Anglia, UK. Inputs to the model include various scenarios of sea-level rise, the costs of increased sea defenses, the damage to the environment under the various mitigative approaches, and the environmental benefits derived from the mitigative measures. Simulation results are tabulated. The study illustrates the various aspects of controlling global warming at the global and local scales.

There is also literature on the measurement and prediction of global warming.

Climate Change: the IPCC Scientific Assessment (IPCC, 1990) encompasses the subject of global warming. Subjects covered include climate change, greenhouse gases, the greenhouse effect, changes in sea levels, and the history of climate change. Values of global warming potentials (GWP) of greenhouse gases in terms of equivalent masses of CO₂ resulting in an equivalent global warming effect are provided in this work. Numerical quantities of GWP's for the various greenhouse gases analyzed in this thesis were taken from this source.

"Assessing the Impact of CO₂ Emission Control Scenarios in Finland on Radiative Forcing and Greenhouse Effect" (Korhonen, et. al. 1993) describes a research effort in Finland where mathematical models are being developed to examine the impacts of carbon dioxide emissions reductions on the greenhouse effect. The REFUGE model described is used to evaluate the impacts of various emission-reduction strategies under consideration in Finland. REFUGE includes models for methane, nitrous oxide, and CFC's.

"The Atmospheric CH₄ Increase Since the Last Glacial Maximum" (Chappellaz et. al., 1993) discusses the natural fluctuation of concentrations of one greenhouse gas - methane. It claims that to better understand the future rate of increase and the role of methane in future climate scenarios, the natural source strengths and their association with climate change must be determined, as increases in methane concentrations are not necessarily a result of anthropomorphic activity. The historical methane budget is evaluated by estimating methane sources and determining their consistency with atmospheric concentrations for the Last Glacial Maximum in order to arrive at a cyclical

baseline for evaluating global warming trends attributable to methane.

"Ozone Layer Shows Record Thinning" (Monastersky, 1993) asserts that stratospheric ozone concentrations were at extraordinarily low levels during 1992 and early 1993. While the ozone layer, which blocks ultraviolet radiation to some extent, has been thinning in recent decades because of atmospheric pollution, recent dramatic decreases in stratospheric ozone levels can probably be attributed to the 1991 eruption of Mount Pinatubo in the Philippines. The ozone measurements were taken principally with the satellite-based Total Ozone Mapping Spectrometer (TOMS). TOMS showed that ozone levels fell from two to three percent in 1992. Ozone concentrations are expected to return to more normal levels as the residue of Mt Pinatubo's eruption dissipates from the atmosphere.

Air Pollution from Transport (OECD/IEA, 1993) summarizes local and regional effects of transportation emissions. The health and welfare impacts of vehicular emissions are tabulated, and the effects of photochemical oxidants and acid deposition are noted. Global warming phenomena associated with carbon dioxide, CFC's, nitrous oxide, and other greenhouse gases are briefly explained. It is uncertain whether the global warming potential of nitrogen oxides is positive or negative, as there is a positive impact on ozone concentrations and a negative impact on methane levels.

Not all commentators agree that global warming is being caused by man-made pollution, or is even underway. "Unfair Solution to an Uncertain Problem: the Natural Evolution of Climate Change" (Ibrahim, 1993) states that the contribution of fossil-fuel-related greenhouse gases to climate change is uncertain. The natural evolution

of global climate change over the last 5 billion years is summarized and the article asserts that researchers are unable to conclusively prove that fossil-fuel consumption and related carbon dioxide emissions will result in global warming. Efforts to reduce CO₂ emissions with a carbon tax will only depress oil consumption in favor of coal, also a CO₂ source. The imposition of such a tax would do little to alleviate greenhouse effect concerns and would only serve to create the economic effect of leaving a considerable volume of world oil production capacity idle past the year 2000 as a result of lessened oil demand.

"Absence of Evidence for Greenhouse Warming over the Arctic Ocean in the Past 40 Years" (Kahl et. al., 1993) states that arctic surface-temperature measurements have indicated global- warming trends over the past century, but tropospheric measurements have not shown such a trend. Records collected from two data bases - 16,850 lower tropospheric temperature profiles measured at the North Pole during the period 1954 through 1990, and 10,326 dropsonde temperature soundings measured by reconnaissance missions during the period 1950 through 1961 were analyzed statistically to assess the evidence of greenhouse warming. All data were quantified according to season and altitude. Most of the trends were not significant at the 95 percent confidence level, and no data bias was detected. These results indicate no evidence to support general circulation model simulations of greenhouse warming over the Arctic Ocean during the past 40 years.

Traffic Demand Management and Traffic Control Measures

Traffic demand management consists of policies and strategies to change the public's demand for transportation. The change is usually intended to result in less traffic congestion by reducing vehicle miles travelled or by shifting trips to different time periods. Generally, impacting traffic congestion by traffic demand management also changes emissions of pollutants from vehicles. This results because of changes in total vehicle traffic volume and vehicle speeds, which change the emission factors of various pollutants emitted (mass of pollutant emitted per vehicle mile travelled). Methods of traffic demand management include economic incentives to alter peoples' behavior, voluntary programs, and governmental edicts to change actualized demand. An example of the economic incentive approach is stated in "Congestion Pricing and Demand Management: a Discussion of the Issues" (McMullen, 1993). A congestion pricing policy incorporating a schedule of fees for peak hour traffic is under consideration by transportation planners as an alternative to highway development. Although it has been historically considered technologically and politically undesirable, congestion pricing has the potential to reduce unmanageable traffic. A congestion pricing model is developed that illustrates the peak load pricing curve. Recommendations for implementing a congestion pricing policy are based on overcoming political resistance by implementing a public relations campaign and specifying the allocation of revenues generated by the scheme.

"Improving Intersection Level of Service by Transportation Demand Management" (Folks et. al., 1992) describes how transportation demand management mitigates

congestion through strategies that reduce auto volume. These strategies include increasing car or mass transit ridership, and replace the need to increase roadway capacity. The city of Fremont, California, developed a citywide traffic forecasting model to assess the effectiveness of a TDM program. The model accommodates several trip purposes and predicts intersection turning volumes and volume-to-capacity ratios. The model showed that TDM can improve intersection level of service as a function of average vehicle ridership, but it cannot eliminate traffic congestion entirely.

"Managing Traffic to Reduce Environmental Damage" (Goodwin, 1991) relates a statement issued in 1989 by the European Conference of Ministers of Transport (ECMT) on transportation policy and the environment, which included a section focusing on traffic-management issues. Transportation demand and supply must be considered in any discussion of traffic-management issues. Traffic-management programs must also assess the chance that a single individual might stop using a private automobile and start using a bus, or the reverse. Ultimately, such devices as land-use planning, road pricing, and infrastructure development can be used as tools to set transportation policy.

"Urban Freeway Traffic Management Technology" (Ahmed, 1986) put forth the proposition that, in developing remedies for urban freeway traffic problems, it is important to distinguish between two types of traffic congestion: recurring and nonrecurring. Depending on the cause and severity of congestion, a variety of management techniques can be utilized to maximize the efficiency and productivity of existing urban freeways. An overview is presented of management techniques currently in use. Capacity management approaches entail use of entrance ramp, mainline, corridor,

and priority controls. Demand management techniques involve peak period dispersion, ridesharing, and improving public transit.

"Deficiencies of Travel-Forecasting Methods Relative to Mobile Emissions" (Stopher, 1993) asserts that travel-forecasting models are required to respond to air-quality programs created by the 1990 Clean Air Act Amendments, especially for transportation-control measures, which attempt to reduce emissions either through a change of travel mode, a change in the amount of travel generated, or a change in the length of trips. The failings of conventional travel-forecasting modeling procedures to meet the requirements of federal and state emission-control programs are examined. Current models are able to effectively address only three of seven potential travel-control measures that result from capacity increases: route changes, destination changes, and mode changes. Enhancement modifications needed in these modeling procedures include the reinstitution of feedback from assignment to land use, better use of network speeds, and a transition to geographic information system-based applications for zoning and networks.

"The Clean Air Act's Revitalized Attainment Program" (Houpt, 1992). The 1990 Clean Air Act Amendments have set out to restore the attainment program by expanding the scope of regulations to address the problem of non-attainment of pollution standards and tightening federal oversight. An overview of the attainment program is provided. The designation and classification of non-attainment areas are detailed, and the mandatory elements of non-attainment plans are presented. These include: annual emission statements, demonstrations of reasonable progress, determination of major air pollution

sources, inspection and maintenance programs, vapor recovery at retail gas stations, the use of clean-fuel vehicles, transportation and traffic control measures, and the increased use of clean-fuel industrial boilers. EPA sanctions to force compliance include reduced federal funds to the states, reclassification to a higher air pollution class, or the imposition of monetary penalties.

"Transportation Demand Management: Promise or Panacea?" (Giuliano, 1992). Transportation demand management represents an attempt to ameliorate traffic congestion through measures reducing the volume of traffic at peak traveling times. Common TDM measures include staggered work hours, permitting employees to work at home, and requiring the use of mass transit or carpools. TDM has been used to mitigate the effects of new development and to improve air quality. In 1984 Los Angeles instituted a TDM program for the duration of the Olympic games; this program was extremely successful. The report states that TDM has the potential to achieve some success if conditions are carefully assessed.

"On the Road to Clean Air" (Prendergast, 1990). This report asserts that, while tail-pipe emissions have been cut by 96 percent since the first Clean Air Act, the number of vehicles on the road and the number of miles travelled has increased dramatically. The New York Dept of Environmental Protection estimates that motor vehicles are responsible for about 60 and 90 percent of volatile organic compounds (VOC) and carbon monoxide emissions, respectively, in New York City. City officials are controlling the problem by improved traffic flows and using alternative fuels. Mitigative measures in Washington, DC, and Houston, Texas, and southern California are discussed. These efforts include

enhanced vehicle inspection programs, mileage restrictions, carpooling, and the introduction of low-emission vehicles.

"Clean Air Policy in Major Cities" (Weidner, 1988) states that atmospheric concentrations of sulfur dioxide, carbon monoxide, ozone, and other pollutants plague European cities. Policies being considered or implemented to reduce industrial and power plant emissions, automotive emissions, and the importation of pollutants are surveyed. Cities are implementing TDM's and TCM's to improve or restrict traffic flows and mitigate vehicular pollution. Additionally, the cities are introducing vehicles with environmentally improved exhaust systems.

"Urban Freeway Congestion: Quantification of the Problem and Effectiveness of Potential Solutions" (Lindley, 1987) states that urban freeway congestion in the U.S. annually consists of over 1.2 billion vehicle-hours of delay, over 1.3 billion gal of wasted fuel, and over \$9 billion in user costs. These figures are expected to increase substantially by 2005 as urban freeway travel is anticipated to grow by nearly 49 percent. Freeway congestion patterns are projected to the year 2005 for 37 large urban centers, and various remedial measures are analyzed. Measures considered are: widening roads, implementing surveillance and control systems, and making low-cost modifications to increase capacity. Widespread implementation of the latter option will result in the greatest total benefits for users of the urban freeway system; more than \$4.6 billion could be saved annually.

2. INTRODUCTION

Interstate 65 has been widened in the Brentwood, Tennessee transportation corridor in order to add one HOV (high occupancy vehicle) traffic lane and one non-HOV traffic lane in each direction (Refer to figures 1 and 2 in Appendix A).^{*} During the construction period, various TDM (transportation demand management) activities and TCM (traffic control measures) were implemented to alleviate congestion. The traffic demand management included a ridematching program, park and ride lots, and increased van pooling. Traffic control measures consisted of construction and implementation of HOV lanes and construction of non-HOV lanes, resequenced signalization on major arterial roadways, and an incident management program to quickly clear disabled vehicles from blocking I-65. During the construction activity traffic performance was measured periodically to monitor the effects of the TDM's and TCM's.

This study report is concerned with an analysis of the air pollution impacts of these TDM's and TCM's. Reducing traffic congestion can result in a reduction of air pollution emissions. In this study, the primary focus is on the emissions of those pollutants associated with global warming. These "greenhouse gases" include carbon dioxide (CO₂), carbon monoxide (CO), methane, non-methane hydrocarbons (NMHC), and nitrogen oxides (NO_x). Automobiles emit all of these greenhouse gases, plus CFC's which leak from air conditioning systems.

This report provides an analysis of the emissions of greenhouse gases from

^{*} All figures, data inputs and outputs and computer printouts are in the appendix.

automobiles operating within the Brentwood, Tennessee I-65 transportation corridor for four phases of the project. The four phases are preconstruction and pre-TDM/pre-TCM implementation (preconstruction), construction ongoing without TDM/TCM implementation (pre-TDM), construction ongoing with partial implementation of TDM's and TCM's (interim-TDM), and construction completed with full TDM and TCM implementation (full-TDM). The techniques used to evaluate emissions from vehicles in the preconstruction phase are used to evaluate the emissions in all other phases. The results obtained for the preconstruction phase are a baseline for evaluation of changes in emissions between the respective project phases. Determination of changes in emissions of gases with global warming potential between project phases are the desired result. The study corridor is therefore modeled by selecting only I-65 and major arterial roads in the study area and using traffic data from those roadways. Consequently, applying the method of analysis developed in this study, the derived quantities of emissions of global warming gases in the transportation corridor are not exhaustive in including emissions from minor roadways. Minor roadways have not been judged to be affected by the various phases of the Brentwood project. Therefore, analyzing changes in global warming gas emissions using only major roadways provides a valid method of determining the effects of the respective phases of the Brentwood project on global warming gas emissions. In addition to an analysis of corridor-wide emissions of greenhouse gases for the four phases of the Brentwood Project, a separate analysis of microscale carbon monoxide (CO) concentrations was also performed. Microscale concentrations of CO are readily influenced by changes in emissions of CO from vehicles

operating on nearby streets; especially near intersections where traffic congestion is greatest. To evaluate this, a microscale CO analysis was performed on the most heavily traveled intersections in the study area - the Old Hickory Boulevard and Franklin Road intersection. This report presents the results of that analysis for the baseline phase (preconstruction) and final phase (full-TDM).

3. METHOD OF ANALYSIS FOR DETERMINING GREENHOUSE GAS EMISSIONS AND CONCENTRATIONS

Emission Factors

The U.S. Environmental Protection Agency's MOBILE5 program (EPA, 1992a) was used to determine emission factors for four greenhouse gases in the study corridor: Carbon Monoxide(CO), Nitrogen Oxides (NO_x), Non-Methane Hydrocarbons (NMHC), and Methane Hydrocarbons (MHC). MOBILE5 does not calculate emission factors for Carbon Dioxide (CO₂), so an alternative method, an original methodology contribution developed through the study of the Brentwood TDM Project, was employed using fuel consumption data to develop a CO₂ emission factor from the Federal Highway Administration's Highway Performance Monitoring System, (HPMS) (FHWA, 1975 and FHWA, 1985). Actual emissions are calculated by multiplying emission factors by the vehicle miles of travel (VMT) on each highway segment or link. The emissions of different air pollutants have different potential impacts on global warming, so emissions of each pollutant have been adjusted to their carbon dioxide equivalents in order to calculate total global warming potential (GWP) of greenhouse gas emissions. The techniques used to determine the VMT, emission factors, and potential greenhouse gas emissions are described in detail.

Vehicle Miles of Travel

Vehicle miles of travel per day (VMT) is calculated from the traffic volume measured as average daily traffic (ADT) in units of vehicles per day multiplied by the distance on each highway link in miles. The engineering firm of RPM & Associates of

Brentwood, Tennessee identified the most significant highway segments within the study area that could be affected by the TDM's. It performed traffic measurements on these highway segments to determine the average daily traffic volume (ADT) and the length of each segment or link and vehicle mix, which is the relative proportion of each of eight classes of vehicles in a traffic population. These data are presented in Appendix B and are also summarized in Appendices D-1 through D-3 for the preconstruction phase of the Brentwood TDM Project. Corresponding data relative to the other three phases of the project: pre-TDM, interim TDM, and full-TDM are found in appendices E-1 through E-3, F-1 through F-3, and G-1 through G-3 respectively. A total of 15 highway segments were evaluated, with each segment having two links which represent travel in opposing directions. Five of these segments comprise I-65. The others are segments of Franklin Road, Wilson Pike, Old Hickory Boulevard, Concord Road, Maryland Way, and Harding Place. Figure 2 in Appendix A shows the transportation corridor with the roadways analyzed. I-65 carries the highest traffic volume, in all TDM project phases. Wilson Pike has the lowest ADT in the study corridor for all TDM project phases.

Emission Factors Calculated From MOBILE5

MOBILE5 is the mobile source emission factor model developed by the United States Environmental Protection Agency's (EPA) Office of Mobile Sources in Ann Arbor, Michigan. MOBILE5 is a Fortran based program that calculates emission factors for hydrocarbons, carbon monoxide, and nitrogen oxides from gasoline and diesel fueled on-road vehicles. The emission factors are expressed in grams per vehicle -mile of travel. MOBILE5 is the fifth generation of EPA's MOBILE source emissions models and represents the state-of-the-art in estimating emissions from highway sources.

The MOBILE5 Model is capable of accounting for the many variables that affect mobile source emissions. Mobile source emissions vary widely from vehicle-to-vehicle and even from the same vehicle when it operates under different conditions. Some of the most important variables affecting mobile source emissions are the type of vehicle, the fuel it uses, the speed of operation, and the environmental conditions under which it operates. For example, heavy duty diesel trucks emit about 10 times more NO_x emissions per mile, than a gasoline fueled passenger car. Vehicle speed influences primarily HC and CO emissions, although NO_x emissions from diesel vehicles increase dramatically as vehicles speed increases. Low average route speeds of 5 miles per hour (which includes idling delays) may yield 10 times higher CO emissions per mile of travel from light duty gasoline automobiles than do emissions at average route speeds of 55 miles per hour. At speeds exceeding 55 mph, emissions generally increase. Evaporative hydrocarbon emissions are much higher on a hot summer day than during the winter.

All these factors, as well as many others, are taken into account by the MOBILE5 model in order to calculate a composite emissions factor for a mix of vehicles operating on a given highway segment. Tables of data are built into the model to allow the user to utilize typical default values based on national statistics. For example, national vehicle registration data is used to develop the vehicle age mix of the national fleet in 8 different categories: LDGV - light duty gasoline vehicles, LDGT1 & LDGT2 - light duty gasoline trucks and vans, LDDV - light duty diesel fueled autos, LDDT - light duty diesel trucks, HDGV - heavy duty gasoline fueled trucks, HDDV - heavy duty diesel fueled trucks, and MC - motorcycles. Each different vehicle type has different emission standards and different schedules (depending on it's age) for meeting emission standards as required by the manufacturers. Default mileage accumulation rates for each vehicle type and age are

also incorporated into tables in the MOBILE5 model as vehicle age and mileage also effect emissions.

For this study a combination of national default values and local values were used to determine emissions. The traffic conditions which vary locally and effect emissions are primarily traffic volume, vehicle speed, and vehicle mix. These three factors are the ones most influenced by TDM's and that can cause changes in vehicle emissions. Other factors such as ambient temperature, vehicle age distribution, fuel volatility, and operating mode mix (i.e. 20.6 % cold starts, 27.3 % hot starts, and 52.1 % hot stabilized operation) were kept constant throughout the analysis. Vehicle age distribution and mileage accumulation rates used for this study are the national default values in the model. Ambient temperature inputs used were a minimum temperature of 68 degrees and a maximum temperature of 96 degrees which are based on the temperatures for a hot summer day. These are the same model inputs used by the University of Tennessee for the Middle Tennessee State Implementation Plan (SIP) Emission Inventory for the Nashville ozone non-attainment area prepared for the State of Tennessee (Davis, et. al. 1993).

Traffic volumes, speeds, and vehicle mix (by vehicle type: LDGV, LDGT1.etc.) were determined for I-65 and six other major highways in the study corridor by RPM & Associates of Brentwood, Tennessee. Those data are presented in the Appendix B for all four phases of the TDM project. MOBILE5 program inputs and outputs are given in Appendix C for the four project phases of pre-construction, pre-TDM, interim-TDM and full-TDM respectively. The MOBILE5 model was run twice for each highway link where vehicle speeds or vehicle mix changes. One run was to calculate total hydrocarbons (THC), CO, and NOx emission factors. The second run was to obtain nonmethane

hydrocarbon (NMHC) emission factors which were subtracted from THC emissions factors to obtain methane emission factors.

Carbon Dioxide Emission Factors

Values of emission factors for carbon dioxide were obtained from fuel consumption data. The Federal Highway Administration HPMS analysis system has tables of fuel consumption for various types of vehicles, traveling at different speeds, over different grades (i.e. uphill, flat or downhill grades in percent). The fuel consumption values are reported in gallons per 1000 miles traveled (FHWA, 1980). The tables used for this analysis are given in Appendix H-1 for positive grades and Appendix H-2 for negative grades. Both appendices contain identical data for zero grades. Most of the roadways in the Brentwood study area have grades between plus or minus 0.4 percent, which are assigned fuel consumption factors equivalent to zero roadway grade. However, parts of I-65 have varying degrees of grade, up to 3 percent. Fuel consumption factors were taken from the HPMS tables for each appropriate vehicle type, by speed and road grade. The values used to calculate fuel consumption on each roadway link are given in Appendices D-4, E-4, F-4, and G-4 for each highway link and for each vehicle type. As with previous references of data, Appendices D, E, F, and G correspond to the four TDM project phases of pre-construction, pre-TDM, interim-TDM, and full-TDM. These factors were multiplied by the vehicle miles of travel by each vehicle type for each highway link to obtain estimates of the total gallons of gasoline and diesel fuel consumed per day for each link and vehicle type in the study area.

The categorization of vehicle types in the fuel consumption data in Appendices H-1

and H-2 differ from the eight vehicle types utilized by the MOBILE5 model. Consequently, certain assumptions were made and applied to all four phases of the TDM project in order to convert the vehicle types presented in the fuel consumption data to the eight prescribed vehicle types used in the MOBILE5 model. Light duty gasoline vehicle fuel consumption was derived by averaging the fuel consumption data given in Appendices H-1 and H-2 for small autos and medium/large autos. Light duty gasoline truck (LDGT-1 and LDGT-2) fuel consumptions were each assigned the values for pickup trucks given in Appendices H-1 and H-2. Heavy duty gasoline vehicles were assigned the values for 3-S2 (three axle semi-trucks), light duty diesel vehicles were assigned the values for medium and large automobiles, and light duty diesel trucks were assigned the values for 3-S2 trucks in Appendices H-1 and H-2. Heavy duty diesel vehicles were assigned values for 3-S2 semi-trucks. Motorcycles use values for small automobiles. These assignments are consistent throughout the analysis for all four phases of the TDM project. A diagram showing the correlation between FHWA vehicle classes as provided in Appendices H-1 and H-2 is shown in Appendix H-3. An additional adjustment was made to the fuel consumption data. The fuel consumption data in Appendices H-1 and H-2 represents data for the calendar year 1980. Since 1980, a dramatic increase in the fuel efficiency of the United States vehicle fleet has occurred. An adjustment to consumption values to account for the increased fuel efficiency was effected by linearly regressing mile per gallon data for passenger cars on numerical values of calendar years over the domain of calendar years 1980 through 1990 inclusive. Data were available for those calendar years. To obtain mile per gallon data for 1993, the year of the TDM project, the line obtained from the regression was extrapolated to yield a mile per gallon value for 1993. A graphical depiction of the actual and regressed data is shown in Figure

3 in Appendix A. The extrapolated 1993 mile per gallon value was divided into the 1980 mile per gallon value to obtain an adjustment factor that was globally applied to fuel consumption data in Appendices H-1 and H-2. Resulting gallons per 1000 miles values were consequently lowered to reflect increased fuel efficiency in the United States vehicle fleet by multiplying them by the derived fuel consumption adjustment factor of .685. Mile per gallon data and results of the linear regression are provided in Appendix H-4. The derived daily fuel consumption data by roadway link and vehicle type is presented in Appendices D-5, E-5, F-5, and G-5. In addition to gallons of fuel consumed, total Btu's of heat energy consumed were calculated based on 127,650 Btu/gallon of gasoline and 135,100 Btu/gallon of diesel fuel (Marks, 1987). These data are presented for each highway link and vehicle type in Appendices D-6, E-6, F-6, and G-6.

Carbon dioxide emissions were calculated on the basis of 100 percent theoretical combustion of the fuel burned to carbon dioxide and water. Density of the fuel (6.152 lb/gal. for gasoline, and 6.819 lb/gal. for diesel) and carbon content of the fuel (84.9% for gasoline and 87% for diesel) were obtained from Mark's Mechanical Engineering Handbook (Mark's, 1987). These values were multiplied by the gallons of fuel burned by each vehicle type, to yield the total pounds of carbon in the fuel that was burned. Assuming all the carbon burns to carbon dioxide, leads to emission factors of 3.67 lbm (44/12) CO₂ per lbm carbon burned, 19.1 lbm CO₂ per gallon of gasoline burned, and 21.7 lbm CO₂ per gallon of diesel fuel burned. These factors were used to calculate CO₂ emissions which are presented for each highway link by fuel type burned in Appendices D-7, E-7, F-7, and G-7. The assumption of 100 percent conversion of carbon to carbon dioxide will tend to overpredict CO₂ emissions to a slight degree; as some of the carbon emissions are in the form of carbon monoxide (CO). However, due to the technique

employed of focusing analysis on incremental changes in greenhouse gas emissions over the various phases of the TDM project this approximation is not judged to introduce significant errors into the results of the analysis.

Greenhouse Gas Emissions

To determine the global warming potential (GWP) of all the greenhouse gases emitted in the study area, each greenhouse gas quantity emitted was adjusted by a factor known as the global warming potential factor. This factor expresses the global warming effect of a unit mass of greenhouse gas as an equivalent mass of CO₂. Different authors have reported different adjustment factors for different pollutants (NAS, 1983 and Wuebbles, 1991). The adjustment factors used for this study were values published by the Intergovernmental Panel on Climate Change (IPCC, 1990) based on the equivalent impact on climate of each pollutant over a 20 year period. For CO, methane, and nonmethane hydrocarbons, part of the impact is due to the fact that these pollutants are eventually oxidized in the atmosphere to carbon dioxide (and hence behave identically to CO₂) and part of the impact is due to the effect the pollutants have on tropospheric ozone. In the case of NO_x, it does not oxidize to CO₂, it's impact is due to its effect on tropospheric ozone. For CO, NO_x, NMHC, MHC, and CO₂, the global warming potential factors are 7, 150, 5, 37, and 1 gram CO₂/gram greenhouse gas, respectively, based on the IPCC factors. By multiplying the emissions of each pollutant by its appropriate adjustment factor, total greenhouse gas emissions were calculated in terms of equivalent carbon dioxide emissions. These results are presented in Appendices D-8, E-8, F-8, G-8.

The results of the pre-construction emissions analysis are shown in Appendices D-5, D-6, D-9, and D-10. Appendix D-5 shows that a total of 22,720 gallons of fuel is

consumed each day as a result of vehicle operations within the study area. This equates to a total heating value of 2930 Million Btu's / day as shown in Appendix D-6. Total emissions of greenhouse gases is given in Appendix D-9 as 518,440 lbm CO₂, 28,005 lbm CO, 4,094 lbm NO_x, 3,383 lbm NMHC, and 89 lbm methane per day. When the global warming potential of each pollutant is taken into account the total CO₂ equivalent emissions per day is 674 tons CO₂ equivalent. The influence of NO_x emissions is especially surprising considering that the emissions of NO_x are much lower than CO₂, and the influence of NO_x is only due to its impact on tropospheric ozone. Should NO_x not be considered as a greenhouse gas (many global warming studies do not consider NO_x) the GWP contribution of NO_x would be ignored and the effects of NO_x on total GWP would be subtracted from the results of the analysis. GWP with and without NO_x is analyzed in subsequent sections of this report.

Microscale CO Concentration Modeling

To investigate the microscale consequences of emission changes due to TDM's, microscale modeling of CO concentrations at a selected intersection was performed. The most congested intersection, Franklin at Old Hickory Boulevard was selected. Traffic signal cycle times were measured on September 10, 1993 and were used as a basis for the modeling. Receptors were placed at the right-of-way edge, one in each of the four corners of the intersection, along major roadways, and in a grid pattern in areas away from the roadways. The microscale modeling was performed using the CAL3QHC Model (EPA, 1992a). The model used is the current Version 2.0 which is a modification to the original CALINE3 model developed by California DOT (Benson, 1979). CAL3QHC handles intersections, accounting for free flow traffic and queuing. The procedures used

to do the microscale modeling follow EPA guidelines published in the "Guideline on Air Quality Models" (EPA, 1986) and "Guideline for Modeling Carbon Monoxide From Roadway Intersections" (EPA, 1992c). Only 1-hour average concentrations of CO were predicted under "worst case" meteorological conditions. Worst case meteorological conditions included 1.0 meter/second wind speed, D atmospheric stability for an urban area, a roughness factor of 100 cm, and a mixing height of 1000 meters. Emission factors for CO were taken from the MOBILE5 modeling described previously. Where roadway grade was other than zero, CO emission factors were adjusted upward and downward in the same proportions as were fuel consumption values derived for CO₂ analysis described previously. Queuing emissions were calculated using the MOBILE5 model at a speed of 2.5 mph. Emissions given in grams/mile were multiplied by 2.5 miles/hour to convert them to grams per hour.

The results of the microscale modeling are shown in the computer printout given in appendices L-1 and L-2 for the pre-construction and full-TDM phases respectively. A comparison of concentrations at 204 receptor points for the pre-construction phase and full-TDM phase is provided in Appendix L-3. The effects of the TDM phases on CO concentrations from the pre-construction phase and full-TDM phase are further discussed in the subsequent sections on results and conclusions.

4. RESULTS AND DISCUSSION OF GREENHOUSE GAS EMISSIONS

ANALYSIS

Differences in Emissions Between Project Phases

Appendix I-1 contains matrices that show the corridor total greenhouse gas emissions changes between all pairings of project phases. The results are presented in absolute terms (tons CO₂ equivalent/day) and in relative terms (percent change between each element of project phase pairings). Along the top of each matrix are the aggregate emissions in CO₂ equivalents (tons CO₂ equivalent/day) for the four phases of the project. For example, to read the matrices and obtain the change in emissions between the pre-construction phase and full-TDM phase find the row corresponding to the pre-construction phase and move from the pre-construction label to the right to the full-TDM column. The absolute change in this case is 134.7 tons CO₂ equivalent/day. All other matrices presented in the appendices are read in the same manner.

Appendix I-1 shows an increase in greenhouse gas GWP emissions from the pre-construction phase to the full-TDM phase. As explained in the example above, GWP increases by 134.7 tons CO₂ equivalent/day - 20.0 percent. This is a surprising result, considering that TDM implementation was expected to reduce greenhouse gas emissions.

The remainder of the study of GWP emissions will focus on explaining the apparent reasons for the GWP emissions increase.

Evaluation of the Changes in Greenhouse Gas Emissions from Pre-Construction Phase to Full-TDM Phase

Appendix I-2 shows changes in corridor VMT among the project phases. Further discussion will focus on the changes from the pre-construction phase to the full-TDM phase. From pre-construction to full-TDM, VMT increases by 47,960 miles/day. This is a 7.3 percent increase in VMT. Franklin Road, Old Hickory Boulevard, and I-65 experience VMT increases of 21,864, 19,776, and 5,111 vehicle miles per day respectively (21.1%, 15.5%, 1.4%). Appendix J-19 shows the VMT's and VMT changes for these roadways.

This increase explains part of the 20.0 percent increase in corridor GWP emissions from pre-construction to full-TDM. Clearly, other factors are at work in the GWP increase. A clue to the nature of these factors is provided by examining the GWP emissions changes of the constituent greenhouse gases: CO, CO₂, NO_x, MHC, and NMHC. Appendix I-3 shows these changes for CO₂. These changes have units of lbm/day for CO₂ (which is the same as lbm CO₂ equivalent/day for CO₂; as CO₂ is obviously equivalent to itself). Units of lbm CO₂ equivalent/day are used for the other greenhouse gases considered. CO₂ emissions increase by 93,496 lbm/day or 18.0 percent, which aligns well with the overall GWP increase. CO and NO_x GWP emissions increase by 21,819 and 151,293 lbm CO₂ equivalent/day, respectively - increases of 11.2 percent and 24.6 percent. Appendices I-4 and I-5 show these changes. MHC and NMHC also increase. The increases in those gases are 1,041 and 1,479 lbm CO₂ equivalent/day. Appendices I-6 and I-7 depict the GWP emissions and GWP emissions changes for MHC and NMHC. These increases are relatively small, as are the amounts of GWP emissions

of MHC and NMHC in each of the project phases. Considering the quantities of emissions and emissions changes involved with MHC and NMHC, MHC and NMHC contribute little to understanding the overall increase in corridor GWP emissions. Except for graphical depiction of these gas emissions as a function of vehicle speed, their effect on GWP emissions will not be further considered.

The effects CO_2 , CO, and NO_x are therefore left to be considered. Examination of Appendices I-3, I-4, and I-5, reveals the relative magnitudes of GWP emissions of these gases. CO_2 and NO_x GWP emissions are of the same magnitude and are each approximately three times as large as GWP emissions of CO. CO_2 and NO_x also experience the largest percentage increase in GWP emissions 18.0 and 24.6 percent respectively. CO GWP increases by 11.2 percent. Comparing these percent increases with the percent increase in corridor VMT (7.3 percent), still leaves unexplained a substantial portion of the gases' GWP emissions increases.

Greenhouse gas emissions as a function of vehicle speed are often non-linear (EPA, 1992a). Factors that may be involved in the GWP increase are the effects of vehicle speed changes from the pre-construction phase and full-TDM phase (as well as among other phase pairings). Indeed, there are changes in average corridor speeds among the phases of the project. Appendices J-1 through J-4 show the data from which the corridor average speeds are obtained for the pre-construction phase through the full-TDM phase. Corridor average speed is actually a VMT weighted average speed. Total VMT for each roadway link is multiplied by the speed for the respective roadway link. The sum of the VMT - speed products is divided by total corridor VMT and the corridor average speed

is found. Appendix J-5 shows the matrix for average corridor speeds and corridor speed changes. From pre-construction to full-TDM, average corridor speed increases from 47 miles per hour (mph) to 51 mph - an increase of 8.5 percent. Roadway average speeds for each phase of the project for I-65, Franklin Road, and Old Hickory Boulevard are shown in Appendices J-17 and J-18. Average speeds increase for all of these roadways, with I-65 experiencing an increase in speed from 53 mph to 60 mph, Franklin Road going from 39 mph to 43 mph, and Old Hickory Boulevard experiencing a smaller than one mile per hour increase.

As shown, there is a corridor average speed increase from pre-construction to full-TDM. To find the specific effects of this change on GWP emissions, a more detailed analysis of speed changes is obtained by considering the effects of vehicle speed on the emissions of CO₂, CO, and NO_x individually. As well, an analysis is made on the speed effects on emissions of these gases by vehicle type (to determine the effects of individual vehicle types on greenhouse emissions).

The analysis is significantly simplified if only three vehicle types are considered for their effects on greenhouse gases GWP emissions increases. Appendix D-6 shows the corridor energy consumption by vehicle type for the pre-construction phase. In decreasing order of energy consumption (fuel burned) are LDGV, LDGT-1, and LDGT-2, and HDDV. Combined, these vehicle types account for approximately 97 percent of corridor energy consumption. Furthermore LDGT-1 and LDGT-2 are combined to a new vehicle type for speed and greenhouse gas emissions analysis - LDGT (referred to on graphs as LDGT1&2). LDGT is a composite vehicle consisting of a weighted average of LDGT-1

and LDGT-2 emissions. The weighting is determined by VMT of LDGT-1 and LDGT-2 for each project phase considered. Appendix J-6 shows totals of VMT by vehicle type for the pre-construction phase. The VMT of LDGT-1 is 148,483 and the VMT of LDGT-2 is 12,897. Consequently, for the pre-construction phase, the respective weights of LDGT-1 and LDGT-2 are approximately .92 and .08. Also, utilizing Appendix D-6 to obtain LDGT-1 and LDGT-2 weightings based on vehicle type corridor energy consumption yields the same weightings. Therefore, for the pre-construction phase, any emission for LDGT would be obtained by multiplying the emission factor for LDGT-1 by .92 and multiplying the emission factor for LDGT-2 by .08 and summing the two products. By approaching the problem in this manner, the number of vehicle types are significantly reduced, analysis is simplified, and very little accuracy is lost.

In a manner similar to that described for obtaining corridor average speeds, corridor average speeds by vehicle type (LDGV, LDGT, and HDDV) are obtained. Appendices J-10, J-11, and J-12 show matrices of corridor average speeds and speed changes for LDGV's, LDGT's, and HDDV's respectively. The corridor average speeds for LDGV's and LDGT's in pre-construction are both 47 mph. Average speeds for these two vehicle types increase to 51 mph in the full-TDM phase. HDDV's experience an average corridor speed change from 51 mph to 57 mph. It is probably not surprising that HDDV's have higher average speeds, as these vehicles represent semi-trucks and would have more of their VMT on I-65 where average speeds would be expected to be higher than on other arterial roadways defined in the modeling.

For each of the three vehicle types, LDGV, LDGT, and HDDV emission factors in

grams/vehicle mile for each gas are plotted as a function of the speed of that vehicle type. CO₂ emission factors as a function of vehicle speeds are shown for each of the three vehicle types in Figures 4 through 6 in Appendix A. Similarly, emission factors for CO, NO_x, MHC, and NMHC are shown by Figures 7 through 10 respectively. The emission factors plotted are those for the pre-construction phase. It is judged that for purposes of determining relationships between gas emissions and vehicle speeds to arrive at an explanation for corridor GWP increases between project phases, using data from any phase of the project will not result in a significant loss of validity. For this analysis pre-construction data was used.

The graphs show that emission factors do change to varying degrees with changes in vehicle speeds. Changes in specific gas emission factors vary with vehicle type. HDDV's do not experience significant CO₂ emission factor changes with changes in speeds (Figure 6). However, CO₂ emission factors for LDGV's and LDGT's increase over the domain of LDGV and LDGT average corridor speeds from pre-construction to full-TDM (47 mph to 51 mph). Also, CO emissions (Figure 7) for the HDDV vehicle type are relatively unaffected over the HDDV average speed domain from pre-construction to full-TDM (51 mph to 57 mph) and the LDGV and LDGT vehicle types average speed domain (47 mph to 51 mph). However, NO_x emissions (Figure 8) increase dramatically for HDDV's as average speed goes from 51 mph to 57 mph. MHC (Figure 9) emissions experience an erratic pattern as speed changes, but MHC are insignificant in the analysis. The curves for NMHC (Figure 10) are smoother, but NMHC also contributes little to the analysis so it is ignored.

Ultimately, to compare the contributions of each gas and each vehicle type to GWP as a function of speed, the emission factors depicted in Figures 4 through 10 are converted to GWP emission factors having units of grams of CO₂ equivalent/vehicle mile. By vehicle type, these emission factors are shown in Figures 11, 12, and 13 for LDGV's, LDGT's, and HDDV's respectively. For LDGV's to LDGT's, the only appreciable GWP emission factor increase from 47 mph to 51 mph is attributed to CO₂ (and that is quite low). HDDV's experience little CO₂ emission factor increase over their average speed domain of 51 mph to 57 mph, a moderate CO emission factor increase, and a large NO_x emission factor increase.

Figure 14 shows the overall GWP emission factor changes (including the effects of NO_x) as a function of vehicle speeds. The overall GWP emission factor is the sum of the five individual emission factors for the five greenhouse gases studied. Overall GWP emission factors increase slightly for the LDGV and LDGT vehicle types for the speed range of 47 mph to 51 mph. HDDV's experience a significant overall GWP emission factor increase from 51 mph to 57 mph. Figure 15 shows the situation for overall GWP emission factors as a function of vehicle speeds for LDGV's, LDGT's, and HDDV's without including NO_x in the analysis. The data derived for the graphs is derived by simply subtracting out the respective NO_x GWP emission factors for each vehicle type and each speed. Utilizing this technique, overall GWP emission factors still show increases over their respective vehicles' average corridor speed domains. Appendix J-13 contains the matrix depicting total corridor GWP emissions and changes for the four project phases without factoring in the effects of NO_x emissions. This analysis was done because some

scientists believe that NO_x does not have immediate effects on GWP and should not be included in the greenhouse gas category (OECD/IEA, 1993). The percent increase is still larger than the percent increase in VMT shown in Appendix I-2. As in the case of total GWP increases taking into account NO_x emissions, GWP increases for the no-NO_x case still exhibit a speed effect.

Further insight into the causes of corridor GWP increases from the pre-construction phase to the full-TDM phase is obtained by breaking down the corridor VMT increase into VMT increases of LDGV's, LDGT's, and HDDV's. Appendices J-14 through J-16 present VMT's and VMT changes for these vehicles for the four project phases. LDGV VMT shows a slight percent increase (2.5 percent) and a moderate absolute increase (11,439 miles/day). LDGT's experience a larger increase in percent and absolute terms (19.5 percent and 31,465 miles/day). HDDV VMT increases by 12.3 percent and 3,359 miles/day.

Corridor energy consumption also experiences variations over the four project phases. Appendix K-1 contains the energy consumption and energy consumption change matrix over the project phases. Energy consumption increases by 3,483 million btu/day (18.8 percent). The increase is attributable to increases in corridor VMT (7.3 percent) and corridor average speed (47 mph to 51 mph). Corridor energy consumption corresponds closely with corridor CO₂ emissions (Appendix I-3).

From the pre-construction phase to full-TDM phase, total daily GWP emissions increase by 135 tons of CO₂ equivalent per day. This increase can be broken down to show increases in GWP by the three vehicle types. Appendix K-2 shows GWP emission

factors by speed and vehicle types. As previously shown, LDGV and LDGT corridor average speed increases from 47 mph to 51 mph. HDDV corridor average speed increases from 51 mph to 57 mph. Emission factors for these speeds and vehicle type are interpolated from the data in Appendix K-2. The interpolated values are shown in Appendix K-3. Vehicle VMT's from Appendices J-14 through J-16 are also shown in Appendix K-3. GWP daily emissions by vehicle type are derived by multiplying emission factors by VMT for each vehicle type for the pre-construction phase and full-TDM phase. The results are summarized in Appendix K-4. The sum of GWP emissions by vehicle type is 99.6 tons of CO₂ equivalent per day. This is approximately 74 percent of the previously derived change of 135 tons per day as shown in Appendix I-1 (accounts for 74 percent of value from Appendix I-1).

Effects on Emissions from Van Pooling

Additional calculations were made to determine the effects of vehicle occupancy rates. Data for vehicle occupancy rates are provided in Appendix B. No significant effects were found from variations in vehicle occupancy rates over the four project phases. However, estimates of potential emission changes from changes in vehicle occupancy rates arising from van pooling were made using generous assumptions, having the effect of overpredicting emissions reduction. Appendix K-5 shows a summary of GWP reduction in the full-TDM phase with van pooling implemented. During the project, several van pooling programs were implemented by area employers. A total of 30 vans were purchased to be used by employees to commute to and from work. The calculations

assume an average van roundtrip length of 20 miles, 30 vans used in the van pooling program, and one van driver and seven commuter passengers (with the result of a removal of seven private cars from the traffic flow for each van addition). The GWP emission factor used for vans was the LDGT GWP emission factor at the LDGT corridor average speed of 51 mph for the full-TDM phase. Similarly, the GWP emission factor used for private cars was LDGV GWP emission factor for the LDGV corridor average speed of 51 mph for the full-TDM phase. Appendix K-5 shows that for the preceding assumptions, GWP increased by 1,188 lbm/day of CO₂ equivalent from the introduction of 30 vans. GWP emissions decreased by 5,712 lbm/day of CO₂ equivalent as a result of the removal of 210 private cars from the daily traffic flow. The net GWP change was minus 4,524 lbm/day of CO₂ equivalent, which represents a 0.28% decrease in GWP emissions for the study corridor. Since GWP daily emissions increase between 16 and 20 percent (depending on whether NO_x is considered), 57 to 71 groupings of additions of thirty vans and reductions of 210 private automobiles would be required to mitigate the apparent GWP increase to the pre-construction level (16/.28, 20/.28 for no-NO_x and NO_x cases respectively). This would involve an addition of 1,710 to 2,130 vans in a van pooling program and consequent removal of 11,970 to 14,910 private automobiles, based on the assumptions used in the van pooling analysis. Again, these assumptions are judged to be quite generous to a favorable GWP mitigation outcome, yet still lead to a disappointing result as to the utility of van pooling in significantly reducing GWP emissions in the corridor.

Scale of VMT Reduction Required to Achieve a Pre-Construction Level of GWP Emissions in the Full-TDM Phase

A perspective to the significance of the GWP increase from the pre-construction phase to the full-TDM phase can be achieved by calculating the size of VMT reduction from the VMT levels in the full-TDM phase to arrive back at the pre-construction level of GWP emissions while maintaining full-TDM corridor average speeds. Full-TDM GWP emissions are 809.1 tons of CO₂ equivalent/day with a corresponding VMT value of 704,654 vehicle-miles/day. To arrive at the pre-construction level of GWP emissions and maintaining the same full-TDM corridor average speed and vehicle mix, VMT must be reduced by 17 percent ($1 - (656,704/704,654)$). For the case where NO_x is not considered, the required VMT reduction is approximately 14 percent. Since corridor VMT increases by 7.3 percent from the pre-construction phase to the full-TDM phase the required VMT is a VMT that is 11 percent less than the pre-construction phase VMT ($1.074 \times (1 - 0.17) = 0.89$ - an 11 percent reduction). For the no-NO_x case, the required VMT is approximately eight percent less than the pre-construction VMT.

The NO_x Dilemma and Attracted Trips

The analysis presented above illustrates the dilemma encountered when TDM's and TCM's result in increased roadway utilization. In the case presented for the transportation corridor, the TDM's and TCM's resulted in increased corridor average speeds and increased corridor VMT's. The required VMT reduction to achieve the same pre-construction daily GWP emissions was between 14 percent and 17 percent. Yet, VMT increased by approximately seven percent from the pre-construction phase to the full-

TDM implementation phase. To maintain pre-construction daily GWP emissions while achieving an average corridor speed increase, the net VMT change would have to be negative. This is one way of viewing the price paid for higher speeds due to increased GWP emissions, including or excluding NO_x. The dilemma, then, is that TDM's and TCM's can increase roadway utilization by effecting increases in VMT's and by increases in corridor average speeds. From the motorists point of view this is desirable and results in a greater propensity for motorists to use the affected roadways and, consequently, in more traffic. Therefore, on the margin, more vehicles are attracted to the corridor (attracted trips). The net result from a GWP emissions perspective is a net decrease in utility. This dilemma is commonly recognized for NO_x (the "NO_x dilemma") (EPA, 1992a), but in the Brentwood case, the dilemma apparently extends to the effects of the other "greenhouse gases" analyzed in this study.

Possibly, increasing the size of the study area, may lessen the aggregate effects of attracted traffic (attracted traffic to one portion of the corridor would be offset by some degree of corresponding reduction in another portion of the corridor if the corridor area studied was large enough). However, speed effects on GWP emissions may still result in increased GWP emissions.

Determining CO Concentrations

Carbon Monoxide concentrations at the intersection of Franklin Road and Old Hickory Boulevard were predicted for the pre-construction and full-TDM phases. A total of 204 receptor points were placed in a rectangular grid pattern around the intersection.

Predicted concentrations ranged from 0.4 ppm to 13.8 ppm for the pre-construction phase and 0.5 ppm to 13.8 ppm for the full-TDM phase. Changes in concentrations from the pre-construction phase to the full-TDM phase at respective receptors ranged from -0.3 ppm to 3.1 ppm (-23% and 124% respectively). Average CO concentrations over the respective phases' arrays increased by 17.5 percent from the pre-construction to the full-TDM phases.

5. CONCLUSIONS

Changes in Emissions, Emission Factors, and Roadway Utilization between the Pre-Construction and the Full-TDM Implementation Phases

GWP emissions vary between different phases of the Brentwood TDM Project. Emissions increase from the pre-construction phase to full TDM implementation. Taking into account NO_x emissions, GWP increases 20 percent. Without NO_x in the analysis, GWP increases by approximately 16 percent. Corridor VMT increases by 7.4 percent which accounts for only part of the GWP increase. An increase also arises in terms of emissions per vehicle mile traveled. This is a result of increased corridor average speeds. Corridor average speed increases from 47 mph to 51 mph aggregately. LDGV and LDGT corridor average speed goes from 47 mph to 51 mph. HDDV corridor average speed increases from 51 mph to 57 mph. Appendix K-6 shows approximate percent increases in GWP emission factors and VMT for the three simplified vehicle types used throughout the analysis. LDGV's have 8.4 percent more GWP emissions. The increase results from a 2.5 percent increase in VMT and a 5.7 percent increase in GWP emission factor. Thirty two percent of the GWP increase for LDGV's is attributable to VMT increase and 68 percent of LDGV GWP increase comes from an increase in the GWP emission factor. Similarly, increases for LDGT's are 27.7 percent total increase, with 6.8 percent from emission factor increase and 19.5 percent from increase in VMT (a 25%/75% mix). HDDV increase is 28.6 percent. Fourteen and a half percent comes from GWP emission factor increase (NO_x included - the prevalent emission factor for HDDV's) and 12.3 percent results from increased VMT (an approximate 50%/50% split). Because of

increased VMT and increased GWP emission factors for these vehicle types arising from the speed increases, GWP emissions actually increase significantly.

In this study GWP emissions increased due to increased VMT and increased corridor average speeds (resulting in increased emission factors because in the speed ranges obtained from pre-construction to full-TDM emission factor curves were increasing). However, as Figure 14 shows, at slower speeds (below approximately 30 mph), aggregate GWP emission factors are decreasing. In a congested area where average speeds are low (as in central city areas), increasing average corridor speeds could actually lower emission factors. More VMT could be obtained while maintaining constant GWP emissions (or VMT may remain the same and GWP emissions could be reduced).

Average roadway speeds for I-65, Franklin Road, and Old Hickory Boulevard increase by 7 mph, 4 mph, and less than one mile per hour respectively from the pre-construction phase to the full-TDM phase. VMT's increase for Franklin Road, Old Hickory Boulevard, and I-65 by 21.1, 15.5, and 1.4 percent respectively. These apparent increases may be attributed to TDM and TCM measures if no changes to the transportation corridor other than the ones specified in the study occurred. The speed and VMT change for I-65 would therefore be attributable to the TCM implemented for that roadway - the addition of one HOV lane and one non-HOV lane in each direction of travel and the implementation of the disabled vehicle removal program. Franklin Road's VMT increase and speed increase are apparently attributable to the resequenced signalization implemented on that roadway. Old Hickory Boulevard may also be affected by the resequenced signalization.

Recommended Future Research

A surprising result of this study was that the traffic measurement before and after implementation of the TDM's and TCM's showed an increase in GWP emissions. It was expected that TDM's would reduce trips and VMT's, and that TDM's and TCM's would reduce congestion and emissions. The traffic measurements, however, indicated that after TDM and TCM implementation there were higher VMT (more trips in the corridor) and higher speeds, which both lead to higher CO₂ and NO_x emissions. CO₂ and NO_x are the major GWP pollutants. It is believed that development may have occurred in or near the Brentwood transportation corridor and could account for some of the VMT increase observed. Also, the addition of traffic lanes to I-65 at the beginning of the project could account for some VMT increase. However, no data were collected or available to support these possibilities.

A problem exists in actually attributing specific effects of TDM's and TCM's to the changes in GWP emissions. An assumption must be made that the only changes to the transportation corridor were the changes of VMT, vehicle mix, and link speeds that are the inputs for the analysis. No data were available which would specifically isolate the effects of the TDM's and TCM's. The best that can be accomplished using the data available for this study is to attribute by default and in a very general and non-discrete way the effects of the TDM's and TCM's to the GWP emissions results (Assume that GWP emission changes are totally a result of the TDM's and TCM's).

Even if the above assumption could reasonably be made, an additional, crucial factor should be considered. No determination could be made as to whether the changes in

GWP, speed, VMT, and other factors are real changes or are instead, manifestations of statistical noise in the sampling. For any input variable to the GWP analysis, many observations must be made in order to determine a confidence interval for that variable. Using statistical techniques, the confidence interval of the final result can be found. This confidence interval is a measure of the magnitude of the random variability expected in results of any measurement of that variable. Without the confidence interval information, no opportunity exists for determining whether results obtained are statistically significant.

This is the situation in this study. Input observations of ADT, roadway speed, and vehicle mix are observations at one point in time. For any input variable, they are not the multiple observations required to arrive at a measure of noise (Essentially for any input variable, such as ADT; for example, we have only one observation per project phase). Consequently, conclusions concerning changes in GWP, corridor speeds, VMT and the causes of apparent changes can not be rigorously made.

The commentary above also applies to conclusions concerning changes in CO concentrations. Two of the inputs to the CAL3QHC model that are affected by the same statistical consideration are CO emission factors and values of vehicles per hour (derived from ADT). The resulting concentrations from the model will therefore need to be tested against a confidence interval to determine if concentration changes derived from the analysis are significant. As in the case of the GWP emissions, not enough data have been provided to determine a confidence interval against which CO concentration changes can be gauged.

Because of the consideration of statistical significance, future researchers may want

to collect more traffic data so statistical confidence limits for changing traffic parameters may be determined.

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LIST OF REFERENCES

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APPENDICES

APPENDIX A

FIGURES

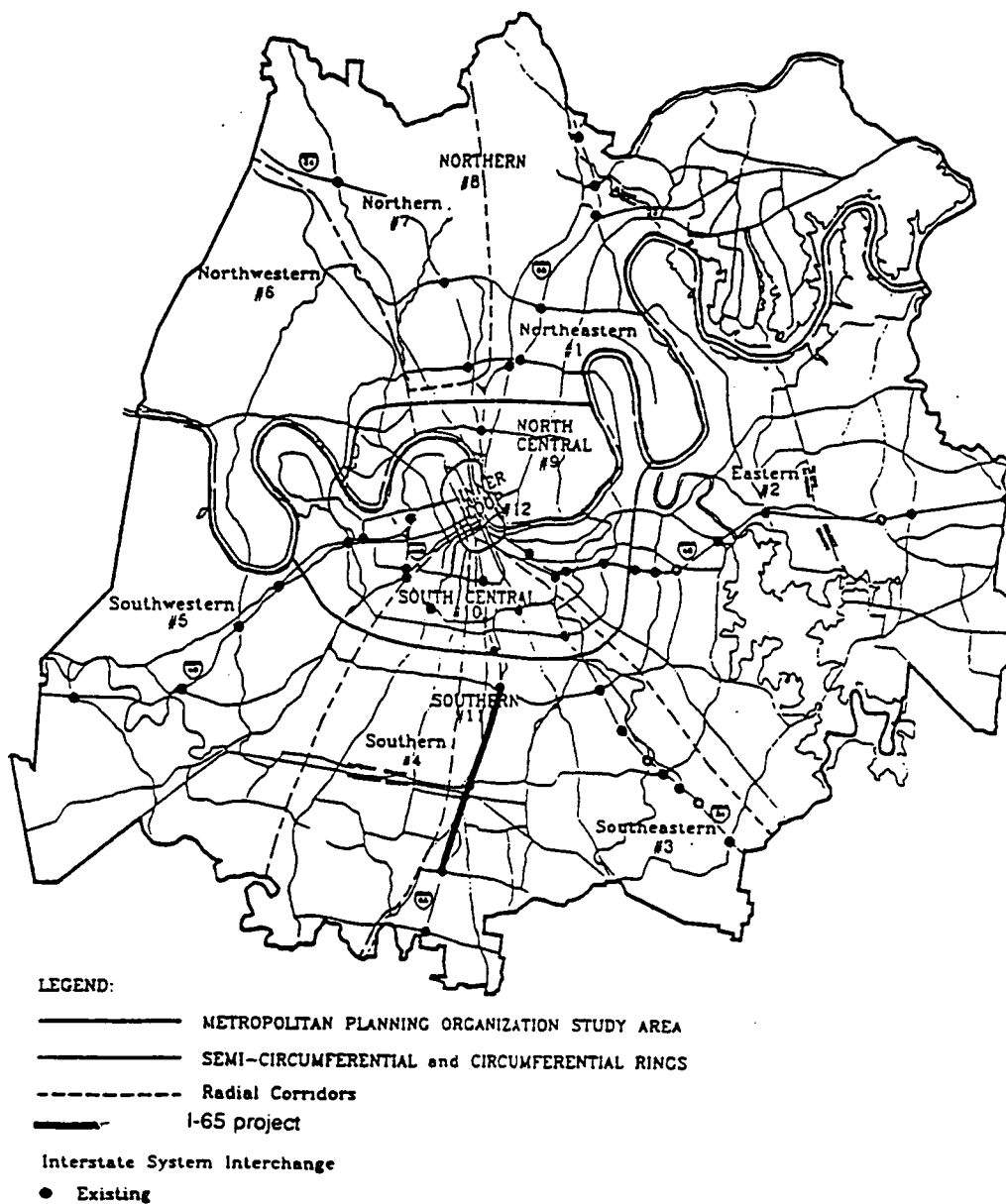


FIGURE 1
LOCATION OF BRENTWOOD STUDY CORRIDOR IN THE NASHVILLE
METROPOLITAN AREA

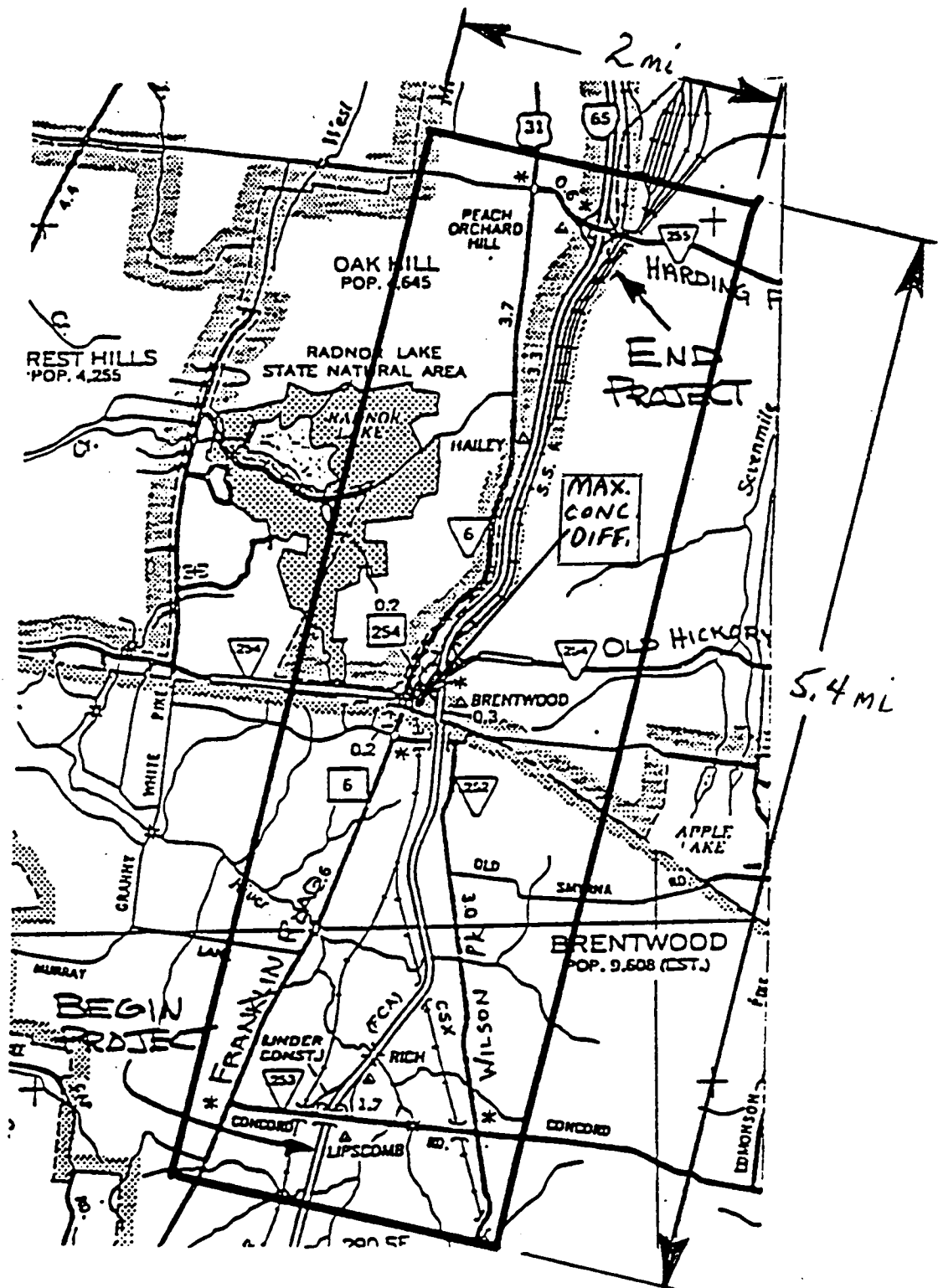


FIGURE 2
BRENTWOOD, TENNESSE I-65 TRANSPORTATION CORRIDOR

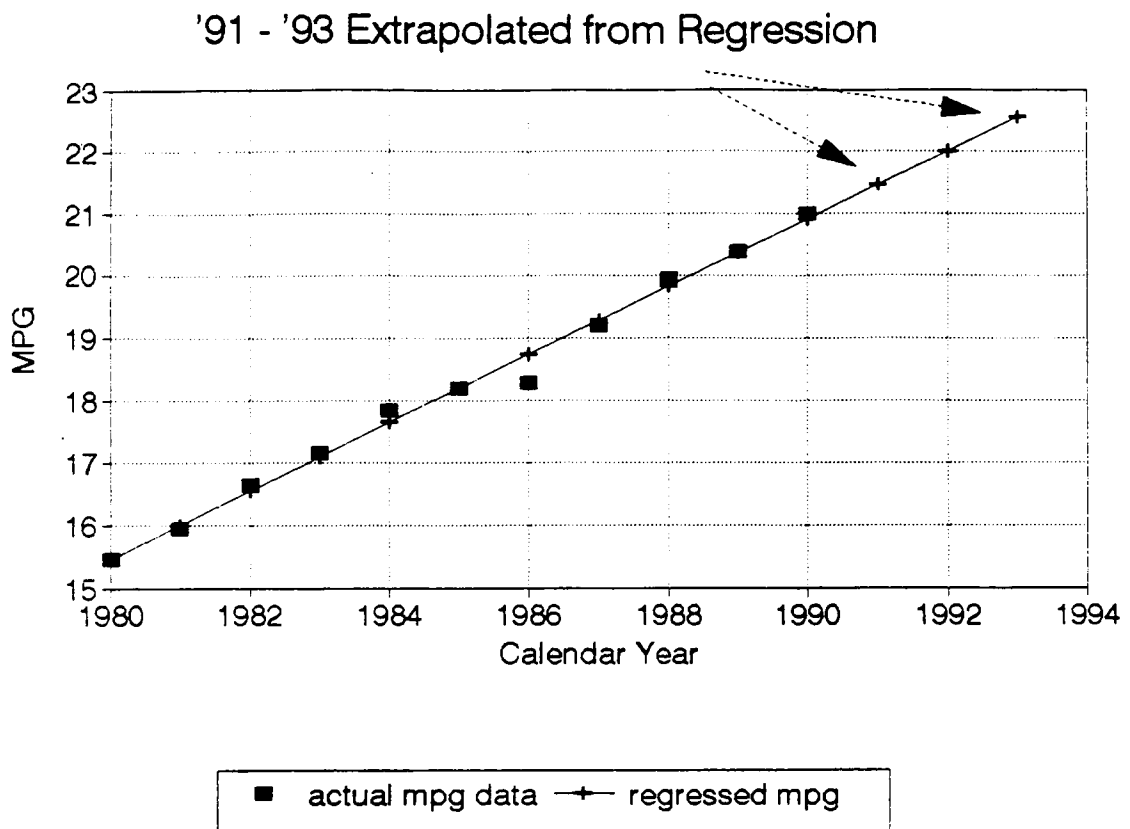
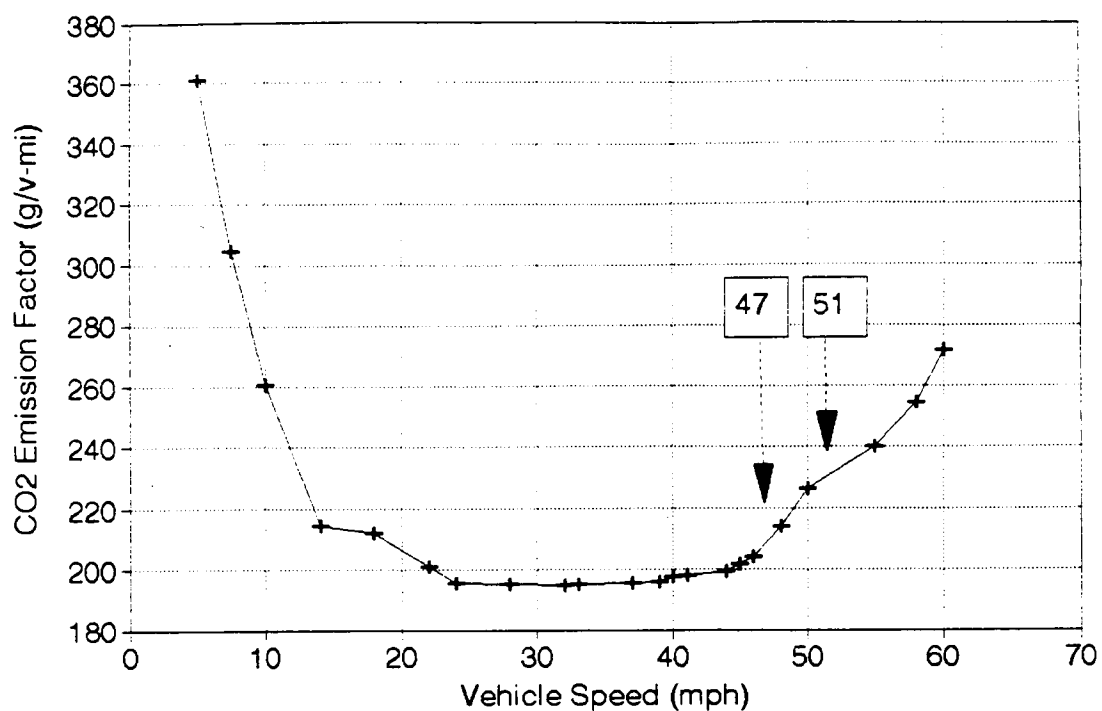
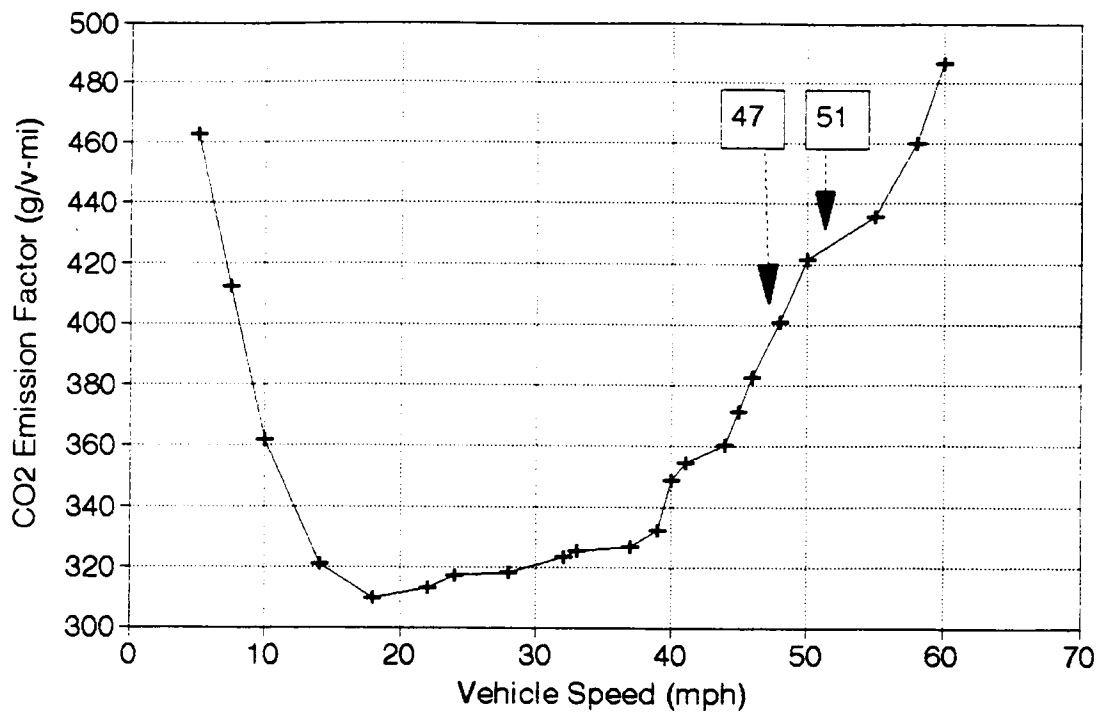


FIGURE 3
U.S. CAR MPG 1980-1993



CO2 emission factor increases for average speed increase from 47 to 51 mph

FIGURE 4
CO₂ EMISSION FACTOR for LDGV vs SPEED



CO2 emission factor increases for average speed increase from 47 to 51 mph

FIGURE 5
CO₂ EMISSION FACTOR for LDGT vs SPEED

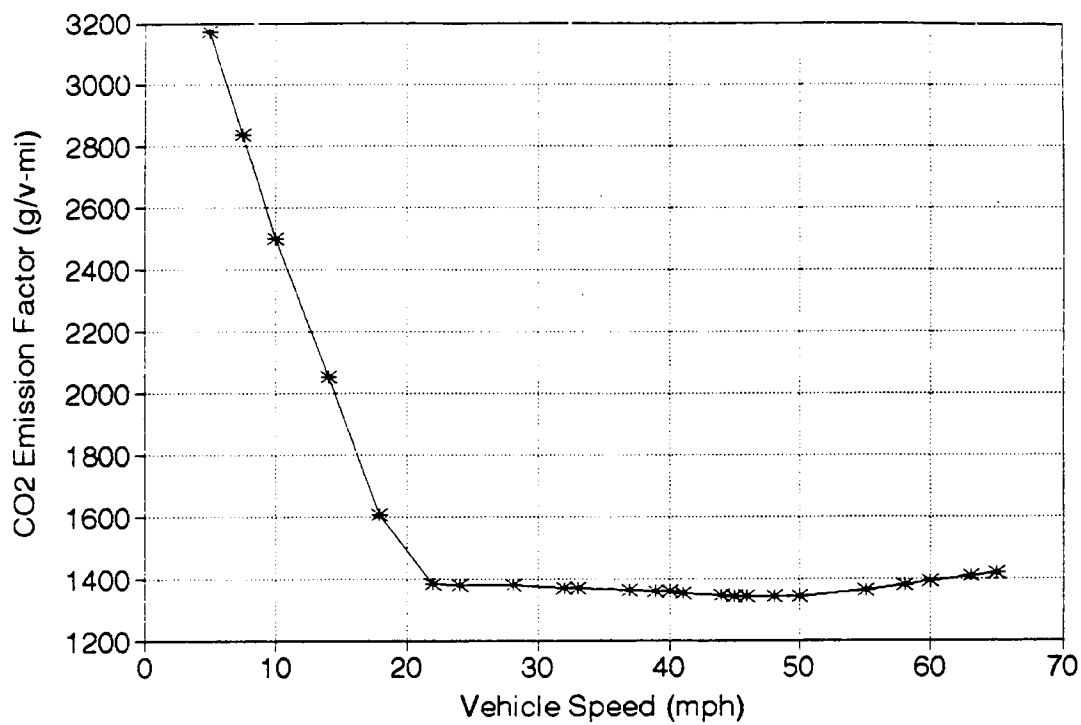


FIGURE 6
CO₂ EMISSION FACTOR for HDDV vs SPEED

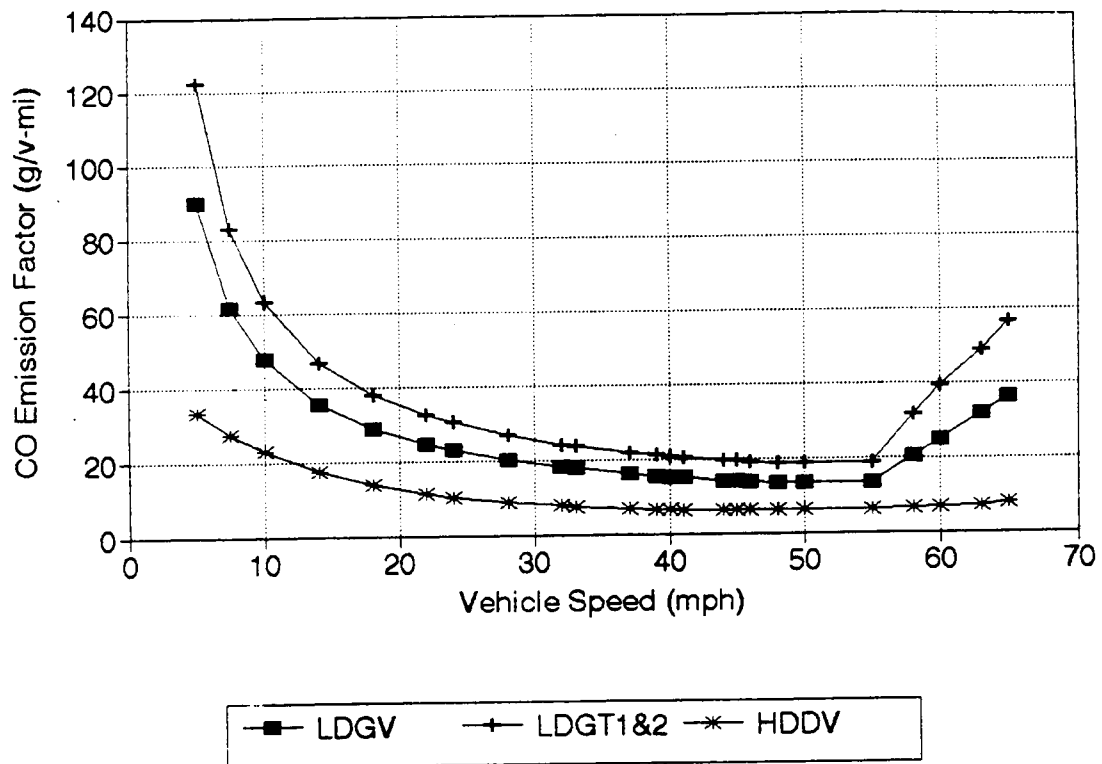


FIGURE 7
CO EMISSION FACTOR by VEHICLE TYPE vs SPEED

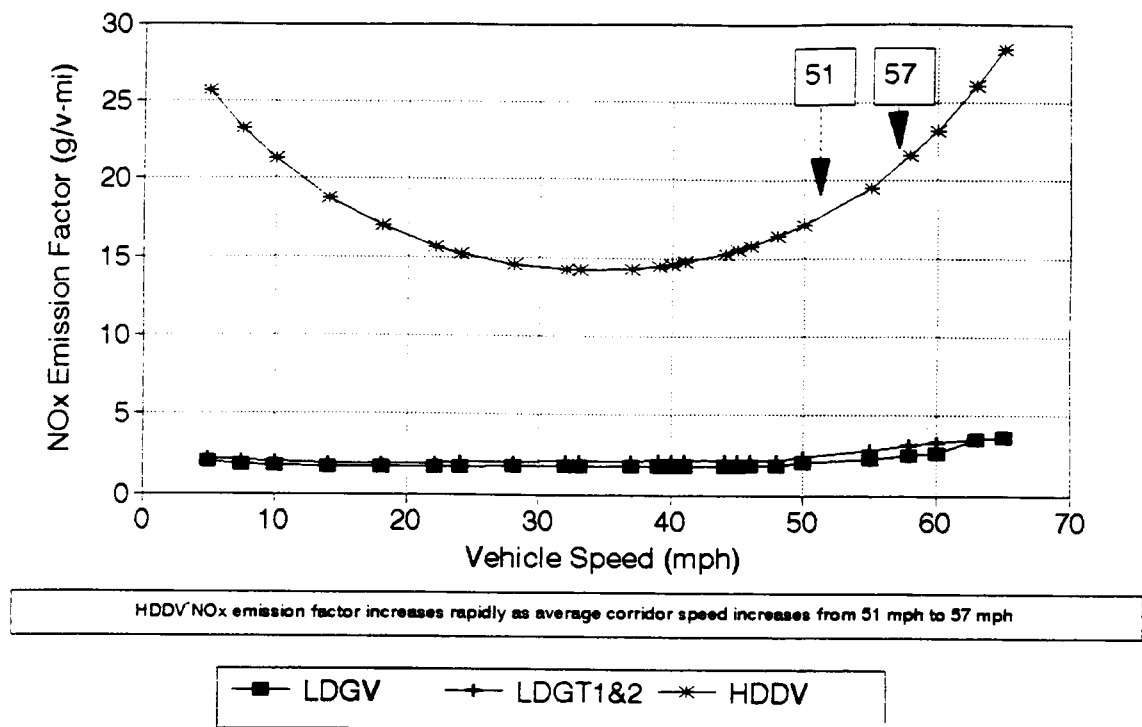


FIGURE 8
NO_x EMISSION FACTOR by VEHICLE TYPE vs SPEED

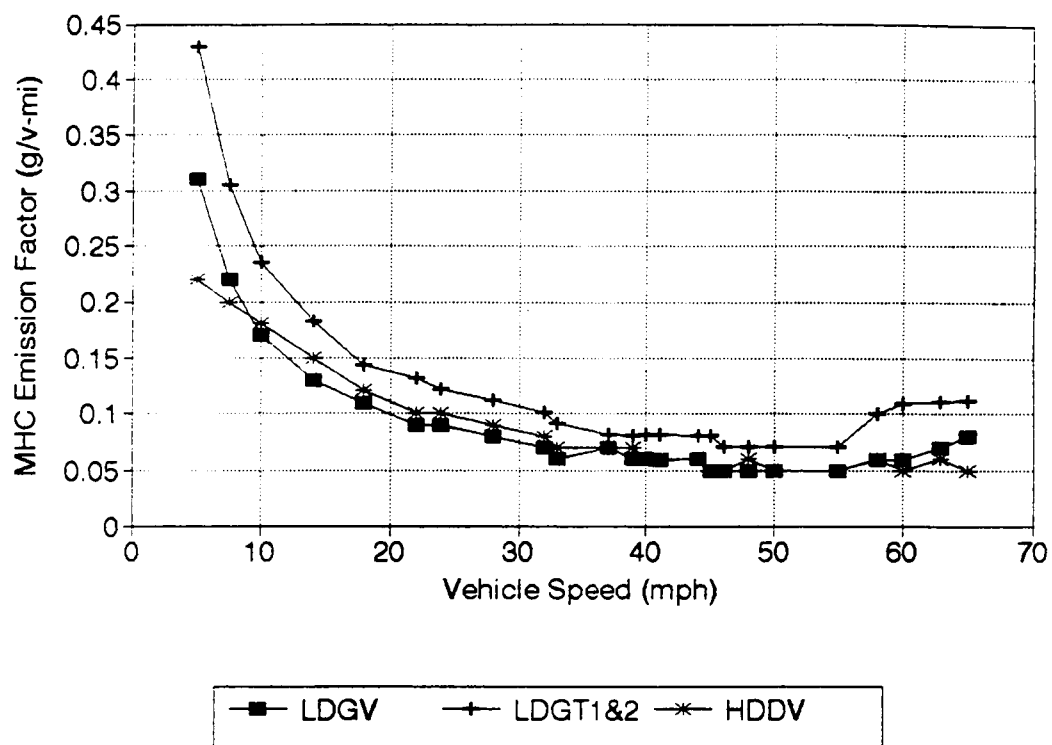


FIGURE 9
MHC EMISSION FACTOR by VEHICLE TYPE vs SPEED

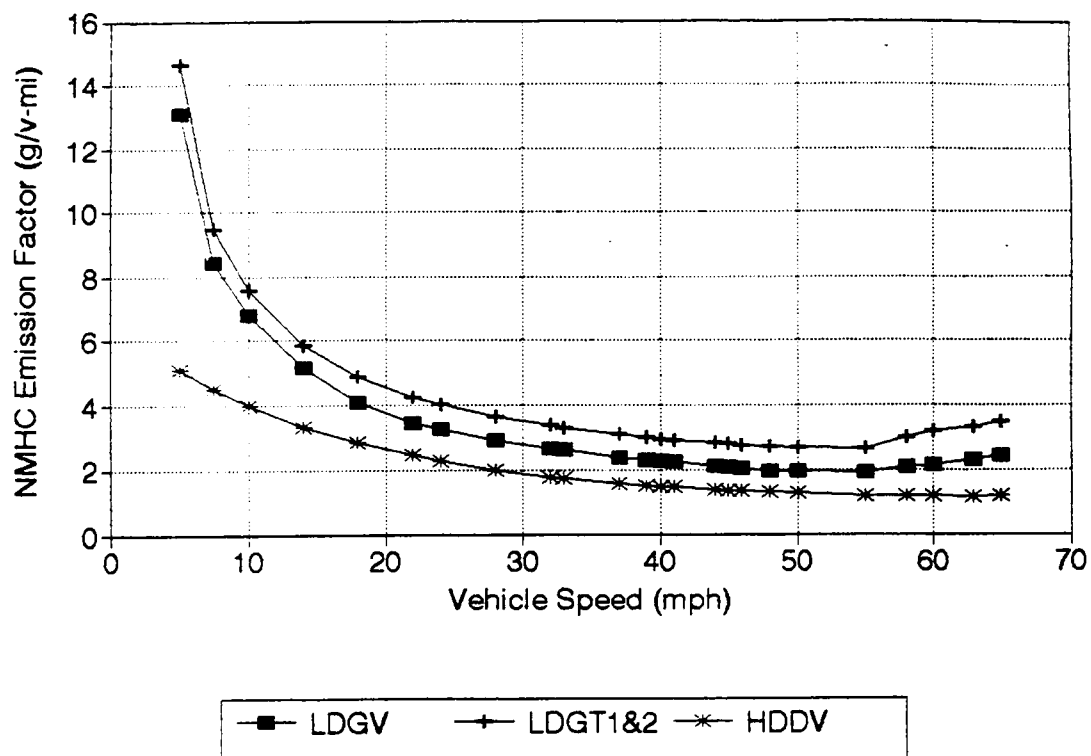
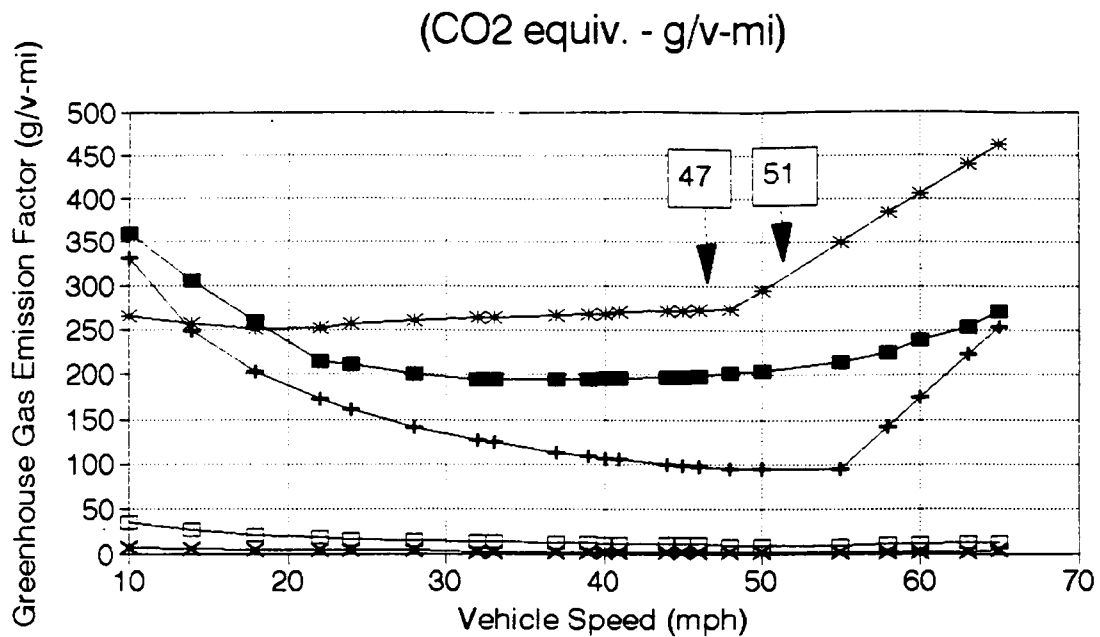


FIGURE 10
NMHC EMISSION FACTOR by VEHICLE TYPE vs SPEED



NO_x emission factor increases as average speed increases from 47 to 51 mph

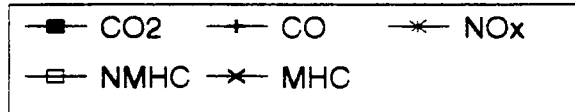


FIGURE 11
LDGV GWP GREENHOUSE GAS EMISSION FACTOR vs SPEED

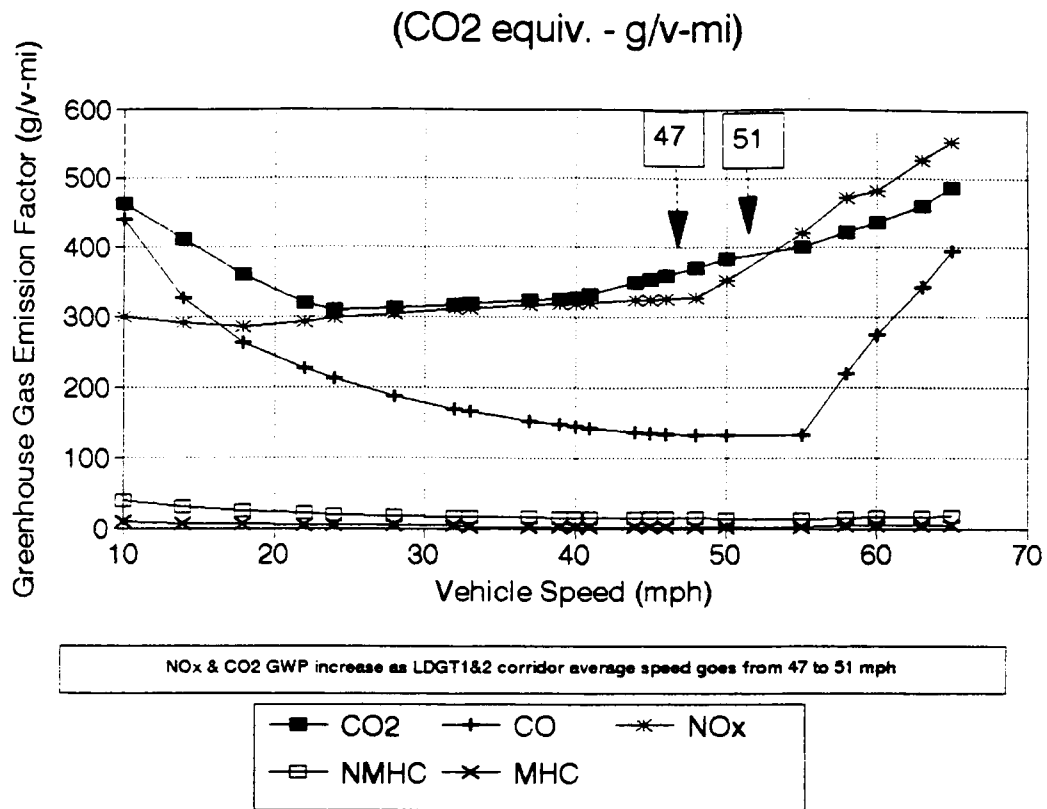
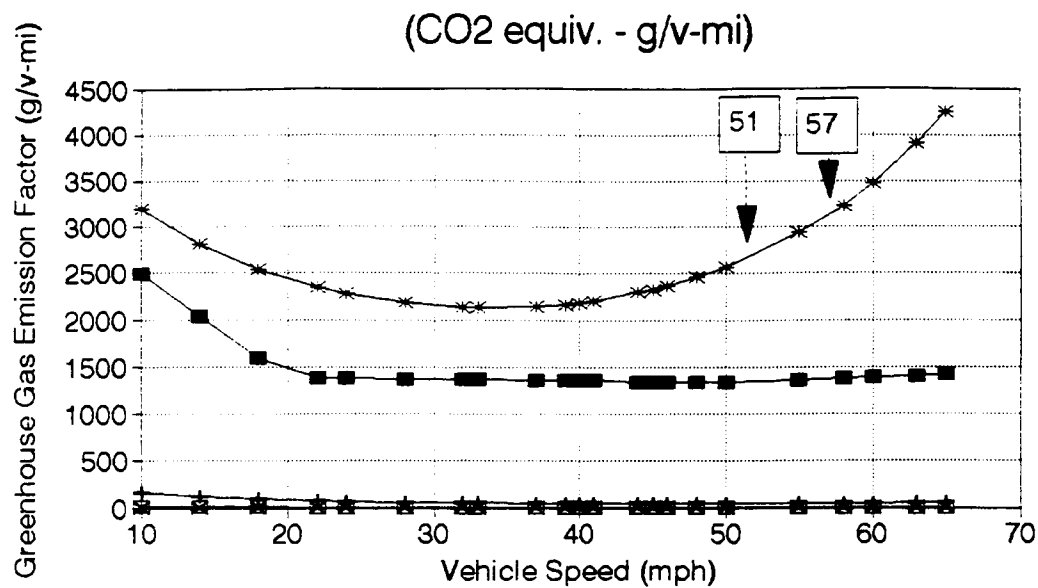


FIGURE 12
LDGT1 & LDGT2 GWP GREENHOUSE GAS EMISSION FACTOR vs SPEED



NOx GWP emission factor increases as HDDV corridor average speed increases from 51 mph to 57 mph

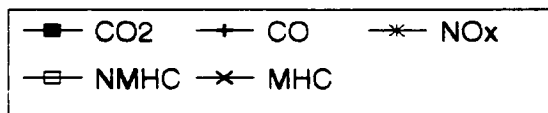


FIGURE 13
HDDV GWP GREENHOUSE GAS EMISSION FACTOR vs SPEED

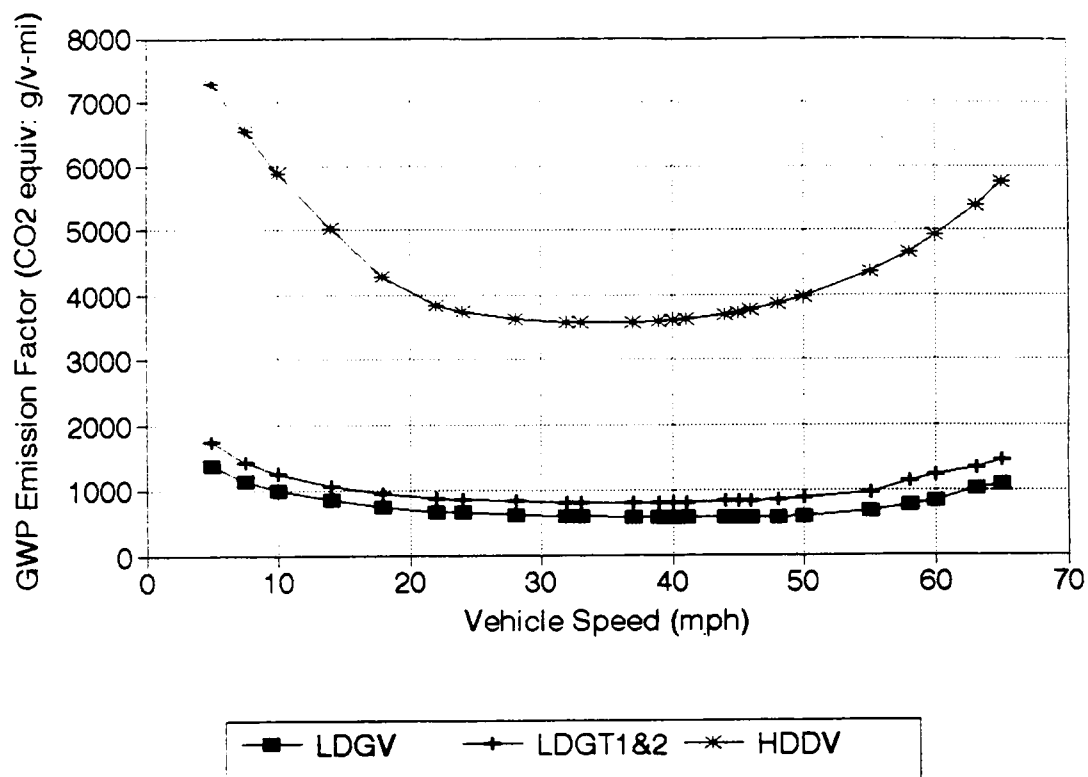


FIGURE 14
GWP EMISSION FACTOR by VEHICLE TYPE: TOTAL CO₂ EQUIVALENT
(incl. NO_x) vs SPEED

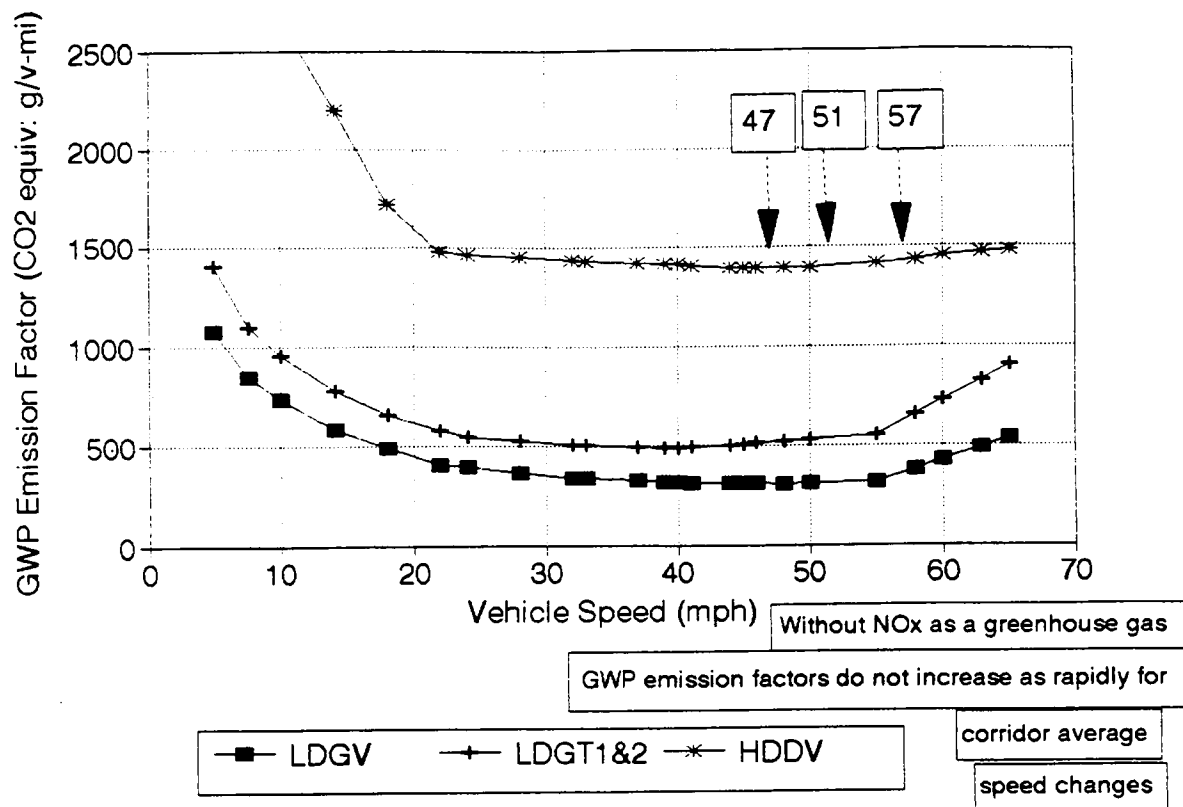


FIGURE 15
GWP EMISSION FACTOR by VEHICLE TYPE: TOTAL CO₂ EQUIVALENT
(w/o NO_x) vs SPEED

APPENDIX B

TRAFFIC DATA

**LINK DISTANCE OF ROADWAYS
FOR THE I-65 CORRIDOR**

	LINK DISTANCE (IN FT.)
Franklin Rd., Harding Place to Old Hickory Blvd.	18,700
Franklin Rd., Old Hickory Blvd. to Murray Lane	9,760
Franklin Rd., Murray Lane to Concord Road	5,650
I-65, Harding Place to Old Hickory Blvd.	17,000
I-65, Old Hickory Blvd. to Concord Road	16,100
Wilson Pike, Church Street to Concord Road	13,900
Old Hickory Blvd., Franklin Rd. to Stonebrook Drive	2,370
Concord Road, Franklin Rd. to Wilson Pk.	9,050
Maryland Way, Granny White Pike to Franklin Rd.	8,890
Old Hickory Blvd., Franklin Rd. to Granny White Pike	9,020
Old Hickory Blvd., Stonebrook Drive to Nolensville Rd.	21,000
Harding Place, I-65 to Franklin Rd.	3,250
Sources: TDOT & RPM & Associates.	

**AVERAGE ROUTE SPEED
FOR THE I-65 CORRIDOR
(IN MPH)**

	DIRECTION	PRIOR CONSTRUCTION	FULL-TERM TDM
Franklin Rd., Harding Place to Old Hickory Blvd.	N/B S/B	44 43	47 47
Franklin Rd., Old Hickory Blvd. to Murray Lane	N/B S/B	28 32	32 35
Franklin Rd., Murray Lane to Concord Road	N/B S/B	-- --	50 50
I-65, Harding Place to Old Hickory Blvd.	N/B S/B	65 50	65 55
I-65, Old Hickory Blvd. to Concord Road	N/B S/B	46 48	63 63
Wilson Pike, Church Street to Concord Road	N/B S/B	40 41	40 42
Old Hickory Blvd., Franklin Rd. to Stonebrook Drive	E/B W/B	33 24	38 24
Concord Road, Franklin Rd. to Wilson Pk.	E/B W/B	39 37	36 36

Sources: TDOT & RPM & Associates.

**FUNCTIONAL CLASSIFICATIONS & VEHICLE TYPES
PRIOR TO I-65 WIDENING PROJECT
(BASED ON 1990 MPO DATA)**

RATIOS FOR ROADWAYS						
VEHICLE TYPE	I-65	FRANKLIN ROAD	OLD HICKORY BLVD.	HARDING ROAD	CONCORD ROAD	WILSON PIKE
1. LDGV	.657	.771	.771	.771	.605	.605
2. LDGT-1	.241	.186	.186	.186	.308	.308
3. LDGT-2	.021	.016	.016	.016	.027	.027
4. HDGV	.003	.001	.001	.001	.002	.002
5. LDDV	.010	.012	.012	.012	.009	.009
6. LDDT	.004	.003	.003	.003	.005	.005
7. HDDV	.063	.010	.010	.010	.043	.043
8. MC	.001	.001	.001	.001	.001	.001
TOTAL:	1.000	1.000	1.000	1.000	1.000	1.000

Source: Metropolitan Planning Organization (MPO), 1990.

**AVERAGE DAILY TRAFFIC COUNTS
FOR I-65 CORRIDOR**

	PRIOR CONSTRUCTION	MID-TERM TDM	FULL-TERM TDM
Franklin Rd., Harding Place to Old Hickory Blvd.	10,600	11,762	15,645
Franklin Rd., Old Hickory Blvd. to Murray Lane	25,220	26,402	24,941
Franklin Rd., Murray Lane to Concord Road	18,380	24,032	---
I-65, Harding Place to Old Hickory Blvd.	63,510	68,369	---
I-65, Old Hickory Blvd. to Concord Road	50,610	53,010	---
Wilson Pike, Church Street to Concord Road	4,310	4,874	5,445
Old Hickory Blvd., Franklin Rd. to Stonebrook Drive	37,790	37,874	---
Concord Road, Franklin Rd. to Wilson Pk.	12,360	11,564	11,116

Sources: TDOT & RPM & Associates.

**AVERAGE DAILY TRAFFIC COUNTS
PRIOR CONSTRUCTION FOR THE I-65 CORRIDOR**

	ADT
Franklin Rd., Harding Place to Old Hickory Blvd.	10,600
Franklin Rd., Old Hickory Blvd. to Murray Lane	25,220
Franklin Rd., Murray Lane to Concord Road	18,380
I-65, Harding Place to Old Hickory Blvd.	63,510
I-65, Old Hickory Blvd. to Concord Road	50,610
Wilson Pike, Church Street to Concord Road	4,310
Old Hickory Blvd., Franklin Rd. to Stonebrook Drive	37,790
Concord Road, Franklin Rd. to Wilson Pk.	12,360
Maryland Way, Granny White Pike to Franklin Rd.	12,650
Old Hickory Blvd., Franklin Rd. to Granny White Pike	27,400
Old Hickory Blvd., Stonebrook Drive to Nolensville Rd.	16,000
Harding Place, I-65 to Franklin Rd.	19,670
Sources: TDOT & RPM & Associates.	

**VEHICLE-MILES TRAVELED
PRIOR CONSTRUCTION FOR THE I-65 CORRIDOR**

	VMT
Franklin Rd., Harding Place to Old Hickory Blvd.	37,540
Franklin Rd., Old Hickory Blvd. to Murray Lane	46,620
Franklin Rd., Murray Lane to Concord Road	19,670
I-65, Harding Place to Old Hickory Blvd.	204,480
I-65, Old Hickory Blvd. to Concord Road	154,320
Wilson Pike, Church Street to Concord Road	11,350
Old Hickory Blvd., Franklin Rd. to Stonebrook Drive	16,960
Concord Road, Franklin Rd. to Wilson Pk.	21,190
Maryland Way, Granny White Pike to Franklin Rd.	21,300
Old Hickory Blvd., Franklin Rd. to Granny White Pike	46,810
Old Hickory Blvd., Stonebrook Drive to Nolensville Rd.	63,640
Harding Place, I-65 to Franklin Rd.	12,110

**INTERSECTION TRAFFIC VOLUME COUNTS
PRIOR CONSTRUCTION OF THE I-65 WIDENING PROJECT**

Intersection	Peak Hour	S/B			N/B			W/B			E/B			TOTAL
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Franklin Rd./ Maryland Way	AM	233	644	97	334	768	62	96	442	144	69	89	132	3,110
	PM	310	875	36	243	623	111	112	138	117	216	293	425	3,499
Concord Rd./ Wilson Pk.	AM	14	19	104	151	90	16	27	418	93	86	178	29	1,225
	PM	102	51	71	53	31	50	27	272	20	74	384	41	1,176

**VEHICLE OCCUPANCY PERCENTAGES
PRIOR CONSTRUCTION FOR THE I-65 CORRIDOR**

	Peak Hour	1	2	3	4	>4	Bus	Van- pool	Truck	Motor- Cycle	Other
Franklin Rd., Old Hickory Blvd. to Murray Ln.	AM	82.8	11.6	2.5	0.8	0.3	0.1	0	1.8	0	0.1
	PM	79.9	15.2	2.7	0.7	0	0.1	0	1.2	0	0.2

**AVERAGE ROUTE SPEED
PRIOR TDM FOR THE I-65 CORRIDOR
(IN MPH)**

	DIRECTION	AVG. SPEED
Franklin Rd., Harding Place to Old Hickory Blvd.	N/B S/B	45 44
Franklin Rd., Old Hickory Blvd. to Murray Lane	N/B S/B	28 32
Franklin Rd., Murray Lane to Concord Road	N/B S/B	49 48
I-65, Harding Place to Old Hickory Blvd.	N/B S/B	63 50
I-65, Old Hickory Blvd. to Concord Road	N/B S/B	47 49
Wilson Pike, Church Street to Concord Road	N/B S/B	40 40
Old Hickory Blvd., Franklin Rd. to Stonebrook Drive	E/B W/B	32 24
Concord Road, Franklin Rd. to Wilson Pk.	E/B W/B	40 39
Maryland Way, Granny White Pike to Franklin Rd.	E/B W/B	40 40
Old Hickory Blvd., Franklin Rd. to Granny White Pike	E/B W/B	45 45
Old Hickory Blvd., Stonebrook Drive to Nolensville Rd.	E/B W/B	45 45
Harding Place, I-65 to Franklin Rd.	E/B W/B	33 33

Sources: TDOT & RPM & Associates.

**FUNCTIONAL CLASSIFICATIONS & VEHICLE TYPES
PRIOR TO TDM OF THE I-65 WIDENING PROJECT
(AM PEAK)**

RATIOS FOR ROADWAYS

VEHICLE TYPE	I-65	FRANKLIN ROAD	OLD HICKORY BLVD.	HARDING PLACE	CONCORD ROAD	WILSON PIKE	MARYLAND WAY
1. LDGV	.700	.780	.766	.771	.673	.712	.605
2. LDGT-1	.224	.184	.197	.186	.269	.242	.308
3. LDGT-2	.019	.017	.017	.016	.022	.015	.027
4. HDGV	.002	.001	.001	.001	.007	.002	.002
5. LDDV	.005	.006	.006	.012	.005	.004	.009
6. LDDT	.002	.002	.002	.003	.002	.003	.005
7. HDDV	.047	.009	.010	.010	.022	.022	.043
8. MC	.001	.001	.001	.001	.000	.000	.001
TOTAL:	1.000	1.000	1.000	1.000	1.000	1.000	1.000

**FUNCTIONAL CLASSIFICATIONS & VEHICLE TYPES
PRIOR TO TDM OF THE I-65 WIDENING PROJECT
(MID-DAY PEAK)**

RATIOS FOR ROADWAYS

VEHICLE TYPE	I-65	FRANKLIN ROAD	OLD HICKORY BLVD.	HARDING PLACE	CONCORD ROAD	WILSON PIKE	MARYLAND WAY
1. LDGV	.671	.779	.782	.771	.615	.680	.605
2. LDGT-1	.212	.188	.182	.186	.312	.263	.308
3. LDGT-2	.031	.019	.018	.016	.036	.028	.027
4. HDGV	.002	.001	.001	.001	.001	.001	.002
5. LDDV	.005	.005	.007	.012	.004	.004	.009
6. LDDT	.002	.001	.003	.003	.003	.003	.005
7. HDDV	.077	.006	.006	.010	.029	.021	.043
8. MC	.000	.001	.001	.001	.000	.000	.001
TOTAL:	1.000	1.000	1.000	1.000	1.000	1.000	1.000

**FUNCTIONAL CLASSIFICATIONS & VEHICLE TYPES
PRIOR TO TDM OF THE I-65 WIDENING PROJECT
(PM PEAK)**

RATIOS FOR ROADWAYS

VEHICLE TYPE	I-65	FRANKLIN ROAD	OLD HICKORY BLVD.	HARDING PLACE	CONCORD ROAD	WILSON PIKE	MARYLAND WAY
1. LDGV	.669	.785	.797	.771	.684	.719	.605
2. LDGT-1	.239	.190	.178	.186	.262	.230	.308
3. LDGT-2	.023	.012	.010	.016	.020	.021	.027
4. HDGV	.002	.001	.001	.001	.002	.001	.002
5. LDDV	.005	.006	.007	.012	.005	.005	.009
6. LDDT	.002	.002	.002	.003	.003	.002	.005
7. HDDV	.060	.004	.005	.010	.023	.021	.043
8. MC	.000	.000	.000	.001	.001	.001	.001
TOTAL:	1.000	1.000	1.000	1.000	1.000	1.000	1.000

**VEHICLE OCCUPANCY PERCENTAGES
PRIOR TDM FOR THE I-65 CORRIDOR**

	Peak Hour	1	2	3	4	>4	Bus	Van- pool	Truck	Motor- Cycle	Other
Franklin Rd., Old Hickory Blvd. to Murray Ln.	AM	82.3	13.3	2.0	0.6	0.1	0.2	0.1	1.4	0	0
	PM	80.7	15.8	2.0	0.5	0.1	0	0.1	0.8	0	0

**VEHICLE OCCUPANCY COUNTS
PRIOR TDM FOR THE I-65 CORRIDOR**

Direction	Peak Hour	1	2	3	4	>4	Bus	Van- pool	Truck	Motor- Cycle	Other
Franklin Rd., Old Hickory Blvd. to Murray Ln.	N/B AM	962	231	38	14	1	2	3	17	0	0
	N/B PM	931	194	24	4	1	0	1	13	0	0
	S/B AM	965	81	9	1	0	2	0	15	0	0
	S/B PM	967	177	24	8	0	0	2	6	0	0

**INTERSECTION TRAFFIC VOLUME COUNTS
PRIOR TDM OF THE I-65 WIDENING PROJECT**

Intersection	Peak Hour	S/B			N/B			W/B			E/B			TOTAL
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Franklin Rd./Old Hickory Blvd.	AM	302	499	409	108	471	410	588	1098	270	201	757	94	5,207
	Mid-day	276	360	210	135	330	466	538	490	148	192	730	120	3,995
	PM	272	665	212	152	430	551	590	690	112	274	1195	103	5,246
Franklin Rd./ Concord Rd.	AM	212	271	--	--	915	195	101	--	710	--	--	--	2,404
	PM	528	783	--	--	477	103	172	--	274	--	--	--	2,337
Franklin Rd./ Maryland Way	AM	213	579	113	376	781	58	141	525	168	92	114	132	3,292
	Mid-day	319	715	91	361	671	138	185	301	140	135	273	339	3,668
	PM	298	819	40	274	634	101	165	164	136	229	358	429	3,647
Concord Rd./ Wilson Pk.	AM	13	16	103	183	90	18	24	442	64	70	158	35	1,216
	Mid-day	29	29	44	27	30	32	25	184	31	41	166	19	657
	PM	103	60	72	62	27	52	21	235	27	76	392	41	1,168

**AVERAGE DAILY TRAFFIC COUNTS
PRIOR TDM FOR THE I-65 CORRIDOR**

	ADT
Franklin Rd., Harding Place to Old Hickory Blvd.	15,630
Franklin Rd., Old Hickory Blvd. to Murray Lane	25,980
Franklin Rd., Murray Lane to Concord Road	22,910
I-65, Harding Place to Old Hickory Blvd.	61,980*
I-65, Old Hickory Blvd. to Concord Road	49,390
Wilson Pike, Church Street to Concord Road	4,760
Old Hickory Blvd., Franklin Rd. to Stonebrook Drive	33,880
Concord Road, Franklin Rd. to Wilson Pk.	11,270
Maryland Way, Granny White Pike to Franklin Rd.	12,900
Old Hickory Blvd., Franklin Rd. to Granny White Pike	26,310
Old Hickory Blvd., Stonebrook Drive to Nolensville Rd.	16,200*
Harding Place, I-65 to Franklin Rd.	19,950

* Estimated Values

**VEHICLE-MILES TRAVELED
PRIOR TDM FOR THE I-65 CORRIDOR**

	VMT
Franklin Rd., Harding Place to Old Hickory Blvd.	55,360
Franklin Rd., Old Hickory Blvd. to Murray Lane	48,020
Franklin Rd., Murray Lane to Concord Road	24,520
I-65, Harding Place to Old Hickory Blvd.	199,560
I-65, Old Hickory Blvd. to Concord Road	150,600
Wilson Pike, Church Street to Concord Road	12,530
Old Hickory Blvd., Franklin Rd. to Stonebrook Drive	15,210
Concord Road, Franklin Rd. to Wilson Pk.	19,320
Maryland Way, Granny White Pike to Franklin Rd.	21,720
Old Hickory Blvd., Franklin Rd. to Granny White Pike	44,950
Old Hickory Blvd., Stonebrook Drive to Nolensville Rd.	64,430
Harding Place, I-65 to Franklin Rd.	12,280

Sources: TDOT & RPM & Associates.

**AVERAGE ROUTE SPEED
DURING MID-TERM TDM FOR THE I-65 CORRIDOR
(IN MPH)**

	DIRECTION	AVG. SPEED
Franklin Rd., Harding Place to Old Hickory Blvd.	N/B S/B	44 43
Franklin Rd., Old Hickory Blvd. to Murray Lane	N/B S/B	28 32
Franklin Rd., Murray Lane to Concord Road	N/B S/B	50 50
I-65, Harding Place to Old Hickory Blvd.	N/B S/B	65 50
I-65, Old Hickory Blvd. to Concord Road	N/B S/B	46 48
Wilson Pike, Church Street to Concord Road	N/B S/B	40 41
Old Hickory Blvd., Franklin Rd. to Stonebrook Drive	E/B W/B	33 24
Concord Road, Franklin Rd. to Wilson Pk.	E/B W/B	39 37
Maryland Way, Granny White Pike to Franklin Rd.	E/B W/B	40 40
Old Hickory Blvd., Franklin Rd. to Granny White Pike	E/B W/B	45 45
Old Hickory Blvd., Stonebrook Drive to Nolensville Rd.	E/B W/B	45 45
Harding Place, I-65 to Franklin Rd.	E/B W/B	33 33

Sources: TDOT & RPM & Associates.

**FUNCTIONAL CLASSIFICATIONS & VEHICLE TYPES
DURING MID-TERM TDM OF THE I-65 WIDENING PROJECT
(AM PEAK)**

RATIOS FOR ROADWAYS

VEHICLE TYPE	I-65	FRANKLIN ROAD	OLD HICKORY BLVD.	HARDING PLACE	CONCORD ROAD	WILSON PIKE	MARYLAND WAY
1. LDGV	.743	.790	.760	.771	.741	.818	.605
2. LDGT-1	.207	.182	.207	.186	.229	.176	.308
3. LDGT-2	.017	.018	.018	.016	.017	.002	.027
4. HDGV	.001	.002	.002	.001	.011	.002	.002
5. LDDV	.000	.000	.001	.012	.000	.000	.009
6. LDDT	.000	.000	.002	.003	.000	.000	.005
7. HDDV	.031	.008	.010	.010	.002	.002	.043
8. MC	.001	.000	.000	.001	.000	.000	.001
TOTAL:	1.000	1.000	1.000	1.000	1.000	1.000	1.000

**FUNCTIONAL CLASSIFICATIONS & VEHICLE TYPES
DURING MID-TERM TDM OF THE I-65 WIDENING PROJECT
(MID-DAY PEAK)**

RATIOS FOR ROADWAYS

VEHICLE TYPE	I-65	FRANKLIN ROAD	OLD HICKORY BLVD.	HARDING PLACE	CONCORD ROAD	WILSON PIKE	MARYLAND WAY
1. LDGV	.684	.786	.792	.771	.625	.755	.605
2. LDGT-1	.182	.189	.178	.186	.315	.217	.308
3. LDGT-2	.040	.022	.020	.016	.045	.028	.027
4. HDGV	.001	.001	.001	.001	.000	.000	.002
5. LDDV	.000	.000	.002	.012	.000	.000	.009
6. LDDT	.000	.000	.004	.003	.000	.000	.005
7. HDDV	.093	.002	.002	.010	.014	.000	.043
8. MC	.000	.000	.001	.001	.001	.000	.001
TOTAL:	1.000	1.000	1.000	1.000	1.000	1.000	1.000

FUNCTIONAL CLASSIFICATIONS & VEHICLE TYPES
DURING MID-TERM TDM OF THE I-65 WIDENING PROJECT
(PM PEAK)

RATIOS FOR ROADWAYS

VEHICLE TYPE	I-65	FRANKLIN ROAD	OLD HICKORY BLVD.	HARDING PLACE	CONCORD ROAD	WILSON PIKE	MARYLAND WAY
1. LDGV	.681	.798	.822	.771	.762	.833	.605
2. LDGT-1	.236	.193	.169	.186	.215	.151	.308
3. LDGT-2	.025	.008	.004	.016	.012	.014	.027
4. HDGV	.001	.000	.000	.001	.003	.000	.002
5. LDDV	.000	.000	.002	.012	.000	.000	.009
6. LDDT	.000	.000	.000	.003	.000	.000	.005
7. HDDV	.056	.001	.002	.010	.007	.000	.043
8. MC	.001	.000	.001	.001	.001	.002	.001
TOTAL:	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Sources: MPO and RPM & Associates.

**AVERAGE DAILY TRAFFIC COUNTS
DURING MID-TERM TDM FOR THE I-65 CORRIDOR**

	ADT
Franklin Rd., Harding Place to Old Hickory Blvd.	11,760
Franklin Rd., Old Hickory Blvd. to Murray Lane	26,400
Franklin Rd., Murray Lane to Concord Road	24,030
I-65, Harding Place to Old Hickory Blvd.	68,370
I-65, Old Hickory Blvd. to Concord Road	53,010
Wilson Pike, Church Street to Concord Road	4,870
Old Hickory Blvd., Franklin Rd. to Stonebrook Drive	37,870
Concord Road, Franklin Rd. to Wilson Pk.	11,560
Maryland Way, Granny White Pike to Franklin Rd.	12,900
Old Hickory Blvd., Franklin Rd. to Granny White Pike	25,550
Old Hickory Blvd., Stonebrook Drive to Nolensville Rd.	20,780
Harding Place, I-65 to Franklin Rd.	20,070
Sources: TDOT & RPM & Associates.	

**VEHICLE-MILES TRAVELED
DURING MID-TERM TDM FOR THE I-65 CORRIDOR**

	VMT
Franklin Rd., Harding Place to Old Hickory Blvd.	41,650
Franklin Rd., Old Hickory Blvd. to Murray Lane	48,800
Franklin Rd., Murray Lane to Concord Road	25,710
I-65, Harding Place to Old Hickory Blvd.	220,130
I-65, Old Hickory Blvd. to Concord Road	161,640
Wilson Pike, Church Street to Concord Road	12,820
Old Hickory Blvd., Franklin Rd. to Stonebrook Drive	17,000
Concord Road, Franklin Rd. to Wilson Pk.	19,810
Maryland Way, Granny White Pike to Franklin Rd.	21,720
Old Hickory Blvd., Franklin Rd. to Granny White Pike	43,650
Old Hickory Blvd., Stonebrook Drive to Nolensville Rd.	82,650
Harding Place, I-65 to Franklin Rd.	12,350

Sources: TDOT & RPM & Associates.

**FUNCTIONAL CLASSIFICATION OF VEHICLE TYPES
DURING MID-TERM TDM OF THE I-65 WIDENING PROJECT**

	DIRECTION	PEAK HOUR	VEHICLE TYPE							
			1	2	3	4	5	6	7	8
Franklin Road, near Old Hickory Blvd.	N/B	AM	586	134	18	4	0	0	2	0
		MID-DAY	1002	238	26	0	0	0	2	0
		PM	998	232	16	0	0	0	2	0
	S/B	AM	974	226	16	0	0	0	14	0
		MID-DAY	1014	246	34	2	0	0	2	0
		PM	1146	288	6	0	0	0	0	0
I-65, at Old Hickory Blvd.	N/B	AM	2706	594	24	2	0	0	74	2
		MID-DAY	1246	278	68	0	0	0	170	0
		PM	1438	516	54	2	0	0	152	2
	S/B	AM	1078	462	64	2	0	0	84	0
		MID-DAY	1186	370	74	4	0	0	162	0
		PM	1740	584	64	2	0	0	108	2
Wilson Pike, at Hood Place	N/B	AM	315	53	1	0	0	0	1	0
		MID-DAY	95	36	4	0	0	0	0	0
		PM	176	30	5	0	0	0	0	0
	S/B	AM	80	32	0	1	0	0	0	0
		MID-DAY	121	26	4	0	0	0	0	0
		PM	298	56	3	0	0	0	0	1
Concord Road, near Twin Springs Drive	W/B	AM	568	146	6	4	0	0	0	0
		MID-DAY	216	113	15	0	0	0	3	0
		PM	370	98	8	1	0	0	6	1
	E/B	AM	211	95	12	7	0	0	2	0
		MID-DAY	202	98	15	0	0	0	6	1
		PM	414	123	5	2	0	0	1	0

**AVERAGE ROUTE SPEED
DURING FULL-TERM TDM FOR THE I-65 CORRIDOR
(IN MPH)**

	DIRECTION	AVG. SPEED
Franklin Rd., Harding Place to Old Hickory Blvd.	N/B S/B	47 47
Franklin Rd., Old Hickory Blvd. to Murray Lane	N/B S/B	32 35
Franklin Rd., Murray Lane to Concord Road	N/B S/B	50 50
I-65, Harding Place to Old Hickory Blvd.	N/B S/B	65 55
I-65, Old Hickory Blvd. to Concord Road	N/B S/B	63 63
Wilson Pike, Church Street to Concord Road	N/B S/B	40 42
Old Hickory Blvd., Franklin Rd. to Stonebrook Drive	E/B W/B	38 24
Concord Road, Franklin Rd. to Wilson Pk.	E/B W/B	36 36
Maryland Way, Granny White Pike to Franklin Rd.	E/B W/B	40 40
Old Hickory Blvd., Franklin Rd. to Granny White Pike	E/B W/B	45 45
Old Hickory Blvd., Stonebrook Drive to Nolensville Rd.	E/B W/B	45 45
Harding Place, I-65 to Franklin Rd.	E/B W/B	30 30

Sources: TDOT & RPM & Associates.

**FUNCTIONAL CLASSIFICATIONS & VEHICLE TYPES
DURING FULL-TERM TDM OF THE I-65 WIDENING PROJECT
(AM PEAK)**

RATIOS FOR ROADWAYS

VEHICLE TYPE	I-65	FRANKLIN ROAD	OLD HICKORY BLVD.	HARDING PLACE	CONCORD ROAD	WILSON PIKE	MARYLAND WAY
1. LDGV	.657	.695	.669	.771	.553	.654	.605
2. LDGT-1	.248	.265	.302	.186	.372	.327	.308
3. LDGT-2	.004	.006	.006	.016	.009	.000	.027
4. HDGV	.002	.001	.001	.001	.009	.000	.002
5. LDDV	.001	.006	.003	.012	.000	.009	.009
6. LDDT	.013	.020	.010	.003	.041	.005	.005
7. HDDV	.075	.006	.009	.010	.016	.000	.043
8. MC	.000	.001	.000	.001	.000	.005	.001

**FUNCTIONAL CLASSIFICATIONS & VEHICLE TYPES
DURING FULL-TERM TDM OF THE I-65 WIDENING PROJECT
(PM PEAK)**

RATIOS FOR ROADWAYS

VEHICLE TYPE	I-65	FRANKLIN ROAD	OLD HICKORY BLVD.	HARDING PLACE	CONCORD ROAD	WILSON PIKE	MARYLAND WAY
1. LDGV	.629	.765	.809	.771	.665	.643	.605
2. LDGT-1	.277	.208	.183	.186	.311	.315	.308
3. LDGT-2	.008	.002	.001	.016	.009	.005	.027
4. HDGV	.004	.001	.000	.001	.004	.000	.002
5. LDDV	.005	.006	.004	.012	.003	.004	.009
6. LDDT	.014	.010	.002	.003	.004	.024	.005
7. HDDV	.062	.007	.001	.010	.002	.005	.043
8. MC	.001	.001	.000	.001	.002	.004	.001

**FUNCTIONAL CLASSIFICATIONS & VEHICLE TYPES
DURING FULL-TERM TDM OF THE I-65 WIDENING PROJECT
(MID-DAY PEAK)**

RATIOS FOR ROADWAYS

VEHICLE TYPE	I-65	FRANKLIN ROAD	OLD HICKORY BLVD.	HARDING PLACE	CONCORD ROAD	WILSON PIKE	MARYLAND WAY
1. LDGV	.507	.676	.700	.771	.524	.571	.605
2. LDGT-1	.308	.285	.269	.186	.421	.379	.308
3. LDGT-2	.012	.001	.004	.016	.002	.007	.027
4. HDGV	.002	.002	.001	.001	.008	.000	.002
5. LDDV	.003	.009	.003	.012	.007	.000	.009
6. LDDT	.023	.015	.010	.003	.028	.037	.005
7. HDDV	.145	.010	.012	.010	.007	.006	.043
8. MC	.000	.002	.001	.001	.003	.000	.001

**AVERAGE DAILY TRAFFIC COUNTS
DURING FULL-TERM TDM FOR THE I-65 CORRIDOR**

	ADT
Franklin Rd., Harding Place to Old Hickory Blvd.	15,650
Franklin Rd., Old Hickory Blvd. to Murray Lane	24,900
Franklin Rd., Murray Lane to Concord Road	22,660*
I-65, Harding Place to Old Hickory Blvd.	65,170*
I-65, Old Hickory Blvd. to Concord Road	50,530*
Wilson Pike, Church Street to Concord Road	5,450
Old Hickory Blvd., Franklin Rd. to Stonebrook Drive	35,980
Concord Road, Franklin Rd. to Wilson Pk.	11,120
Maryland Way, Granny White Pike to Franklin Rd.	12,550
Old Hickory Blvd., Franklin Rd. to Granny White Pike	27,800
Old Hickory Blvd., Stonebrook Drive to Nolensville Rd.	21,000
Harding Place, I-65 to Franklin Rd.	20,800

* Estimated Values

**VEHICLE-MILES TRAVELED
DURING FULL-TERM TDM FOR THE I-65 CORRIDOR**

	VMT
Franklin Rd., Harding Place to Old Hickory Blvd.	55,430
Franklin Rd., Old Hickory Blvd. to Murray Lane	46,030
Franklin Rd., Murray Lane to Concord Road	24,250
I-65, Harding Place to Old Hickory Blvd.	209,830
I-65, Old Hickory Blvd. to Concord Road	154,080
Wilson Pike, Church Street to Concord Road	14,350
Old Hickory Blvd., Franklin Rd. to Stonebrook Drive	16,150
Concord Road, Franklin Rd. to Wilson Pk.	19,060
Maryland Way, Granny White Pike to Franklin Rd.	21,130
Old Hickory Blvd., Franklin Rd. to Granny White Pike	47,490
Old Hickory Blvd., Stonebrook Drive to Nolensville Rd.	83,520
Harding Place, I-65 to Franklin Rd.	12,800

Sources: TDOT & RPM & Associates.

**FUNCTIONAL CLASSIFICATION OF VEHICLE TYPES
DURING FULL-TERM TDM OF THE
I-65 WIDENING PROJECT**

	DIRECTION	PEAK HOUR	VEHICLE TYPE							
			1	2	3	4	5	6	7	8
Franklin Rd., Old Hickory Blvd. to Harding Pl.	N/B	AM	622	228	0	0	8	4	4	0
		MID-DAY	296	144	0	2	8	2	12	0
		PM	526	130	0	2	4	4	0	0
	S/B	AM	640	258	2	0	8	12	0	0
		MID-DAY	388	184	0	4	6	2	2	0
		PM	706	258	2	0	6	4	0	2
	N/B	AM	534	192	0	2	2	12	4	0
		MID-DAY	568	268	0	0	8	22	8	0
		PM	624	170	4	2	2	12	4	2
Franklin Rd., Old Hickory Blvd. to Murray Ln.	S/B	AM	712	286	10	0	8	24	6	2
		MID-DAY	668	252	2	4	8	6	10	4
		PM	916	248	0	0	10	8	10	0
	N/B	AM	1142	380	2	0	4	12	6	2
		MID-DAY	396	246	0	2	4	14	2	0
		PM	454	220	6	4	8	8	2	4
	S/B	AM	358	144	0	10	0	12	4	2
		MID-DAY	428	280	6	0	0	14	2	2
		PM	758	302	8	8	0	6	2	0
I-65, Old Hickory Blvd. to Harding Pl.	N/B	AM	4074	1272	14	2	36	24	114	0
		MID-DAY	1156	674	24	4	6	66	146	2
		PM	1686	390	22	6	2	76	186	10
	S/B	AM	1558	698	22	4	2	34	102	4
		MID-DAY	938	442	8	2	10	44	182	8
		PM	2230	954	28	2	22	12	172	2
	N/B	AM	2052	660	6	6	6	44	166	0
		MID-DAY	662	432	14	2	2	32	166	0
		PM	1136	514	20	12	10	36	204	2
I-65, Old Hickory Blvd. to Concord Rd.	S/B	AM	864	440	12	4	2	14	166	0
		MID-DAY	648	364	16	4	6	28	210	0
		PM	1660	716	14	6	12	24	76	2

**FUNCTIONAL CLASSIFICATION OF VEHICLE TYPES
DURING FULL-TERM TDM OF THE
I-65 WIDENING PROJECT
(continued)**

	DIRECTION	PEAK HOUR	VEHICLE TYPE							
			1	2	3	4	5	6	7	8
Wilson Pk., Church St. to Concord Rd.	N/B	AM	206	86	0	0	4	0	0	0
		MID-DAY	102	62	0	0	0	6	0	0
		PM	192	80	0	0	2	6	0	0
	S/B	AM	74	54	0	0	0	2	0	2
		MID-DAY	82	60	2	0	0	6	2	0
		PM	82	54	2	0	0	4	2	2
Old Hickory Blvd., Franklin Rd. to Stonebrook Dr.	W/B	AM	724	338	8	2	6	12	8	0
		MID-DAY	626	238	6	0	2	20	8	2
		PM	898	298	4	0	6	2	2	0
	E/B	AM	516	222	4	0	0	6	8	0
		MID-DAY	850	330	2	2	4	0	18	0
		PM	2270	420	0	0	10	4	4	0
Concord Rd., Franklin Rd. to Wilson Pk.	W/B	AM	328	158	4	6	0	12	4	0
		MID-DAY	230	182	0	4	2	2	4	2
		PM	250	152	6	4	4	0	0	0
	E/B	AM	162	172	4	2	0	24	10	0
		MID-DAY	188	154	2	2	4	20	2	0
		PM	452	176	4	0	0	4	2	2

**VEHICLE OCCUPANCY PERCENTAGES
DURING MID-TERM TDM FOR THE I-65 CORRIDOR**

	Peak Hour	1	2	3	4	>4	Bus	Van- pool	Truck	Motor- Cycle	Other
I-65, Harding Pl. to Old Hickory Blvd.	AM	85.1	7.9	0.8	0.3	0	0.2	0.2	5.5	0	0
	PM	75.9	14.3	1.0	0.5	0	0.2	0.3	7.7	0	0.1

**INTERSECTION TRAFFIC VOLUME COUNTS
DURING MID-TERM TDM OF THE I-65 WIDENING PROJECT**

Intersection	Peak Hour	S/B			N/B			W/B			E/B			TOTAL
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Franklin Rd./Old Hickory Blvd.	AM	239	370	303	114	501	393	698	1302	320	187	693	86	5,206
	Mid-day	208	284	164	144	348	496	637	562	172	176	686	111	3,988
	PM	252	413	187	193	366	647	698	751	202	216	1153	71	5,149
Franklin Rd./ Concord Rd.	AM	244	289	--	--	962	194	109	--	781	--	--	--	2,579
	PM	526	892	--	--	491	104	175	--	331	--	--	--	2,524
Franklin Rd./ Maryland Way	AM	244	650	108	369	757	68	107	482	120	82	110	144	3,241
	Mid-day	314	711	93	365	668	136	174	300	137	141	272	337	3,648
	PM	308	907	60	235	695	116	147	149	124	218	336	378	3,673
Concord Rd./ Wilson Pk.	AM	11	44	105	166	98	19	39	424	63	89	189	45	1,292
	Mid-day	20	24	44	47	29	30	25	176	22	46	177	30	672
	PM	65	68	74	43	38	49	37	244	35	67	313	54	1,087

APPENDIX C

MOBILE5 OUTPUT

1 MOBILE5 RUN FOR NASHVILLE AREA : Preconstruction Total Hydrocarbons

MOBILES (4-Dec-92)

OTotal HC emission factors include evaporative HC emission factors.

0

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

025 MPH U/INT

Minimum Temp: 68. (F)

Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		
VTM Mix:	0.657	0.241	0.021		0.003	0.010	0.004	0.063	0.001	

OCComposite Emission Factors (Gm/Mile)

Total HC:	32.68	35.27	51.33	36.56	81.46	1.58	2.40	6.02	15.95	31.714
Exhaust HC:	12.13	15.81	22.91	16.38	24.50	1.58	2.40	6.02	11.19	12.753
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.691	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	19.79	18.50	27.23	19.20	50.96				18.188	
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.083	
Exhaust CO:	171.28	224.06	333.46	232.83	482.72	5.51	6.61	40.74	185.46	177.814
Exhaust NOX:	2.44	2.67	3.09	2.71	4.54	2.91	3.42	28.51	0.85	4.162

OEvaporative Emissions by Component

Weathered RVP: 8.9

Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

050 MPH U/INT

Minimum Temp: 68. (F)

Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds:	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		
VTM Mix:	0.657	0.241	0.021		0.003	0.010	0.004	0.063	0.001	

OCComposite Emission Factors (Gm/Mile)

Total HC:	13.38	14.57	20.72	15.06	38.93	1.39	2.11	5.29	11.73	13.224
Exhaust HC:	6.45	8.60	12.39	8.91	19.53	1.39	2.11	5.29	6.97	6.991
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.691	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	6.18	5.00	7.14	5.18	13.41				5.459	
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.083	
Exhaust CO:	89.68	117.80	174.20	122.32	385.70	4.50	5.40	33.26	106.84	94.392
Exhaust NOX:	2.00	2.20	2.59	2.23	4.66	2.62	3.08	25.63	0.76	3.566

OEvaporative Emissions by Component

Weathered RVP: 8.9

Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

075 MPH U/INT

Minimum Temp: 68. (F)

Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds:	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5		
VTM Mix:	0.657	0.241	0.021		0.003	0.010	0.004	0.063	0.001	

OCComposite Emission Factors (Gm/Mile)

Total HC:	8.67	9.47	13.19	9.77	28.31	1.23	1.86	4.68	9.66	8.667
Exhaust HC:	4.48	5.99	8.51	6.20	15.72	1.23	1.86	4.68	4.90	4.935
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.691	

Refuel L HC:	0.00	0.00	0.00	0.00	0.00						0.000
Running L HC:	3.44	2.51	3.50	2.59	6.58						2.958
Rating L HC:	0.09	0.09	0.08	0.09	0.15						0.44 0.083
Exhaust CO:	61.53	79.96	115.88	82.84	312.45	3.72	4.45	27.46	70.40	64.923	
Exhaust NOX:	1.85	2.05	2.42	2.08	4.78	2.38	2.79	23.24	0.71	3.273	

OEvaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14						16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61						21.16
Multiple	18.53	24.22	28.07	25.40	59.20						
Crankcase	0.01	0.02	0.03	0.02	0.04						0.00
Refuel	4.58	4.58	4.58	4.58	4.58						
Resting	0.11	0.10	0.10	0.10	0.15						0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

010 MPH U/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)
Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		
VMT Mix:	0.657	0.241	0.021		0.003	0.010	0.004	0.063	0.001	

OComposite Emission Factors (Gm/Mile)

Total HC:	6.97	7.56	10.39	7.78	23.81	1.09	1.66	4.16	8.54	6.980
Exhaust HC:	3.50	4.67	6.54	4.82	12.79	1.09	1.66	4.16	3.77	3.881
Evaporat HC:	0.66	0.87	1.11	0.89	5.85					4.32 0.691
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	2.73	1.92	2.66	1.98	5.02					2.325
Rating L HC:	0.09	0.09	0.08	0.09	0.15					0.44 0.083
Exhaust CO:	47.45	61.09	86.51	63.13	256.61	3.10	3.72	22.93	51.33	50.025
Exhaust NOX:	1.77	1.97	2.34	2.00	4.90	2.17	2.55	21.26	0.69	3.076

OEvaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14						16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61						21.16
Multiple	18.53	24.22	28.07	25.40	59.20						
Crankcase	0.01	0.02	0.03	0.02	0.04						0.00
Refuel	4.58	4.58	4.58	4.58	4.58						
Resting	0.11	0.10	0.10	0.10	0.15						0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

014 MPH U/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)
Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0		
VMT Mix:	0.657	0.241	0.021		0.003	0.010	0.004	0.063	0.001	

OComposite Emission Factors (Gm/Mile)

Total HC:	5.31	5.87	7.95	6.04	18.96	0.91	1.39	3.48	7.59	5.372
Exhaust HC:	2.65	3.56	4.88	3.66	9.40	0.91	1.39	3.48	2.83	2.968
Evaporat HC:	0.66	0.87	1.11	0.89	5.85					4.32 0.691
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	1.91	1.35	1.88	1.39	3.56					1.630
Rating L HC:	0.09	0.09	0.08	0.09	0.15					0.44 0.083
Exhaust CO:	35.52	45.34	61.97	46.67	192.70	2.38	2.86	17.60	35.78	37.323
Exhaust NOX:	1.71	1.91	2.29	1.94	5.09	1.92	2.25	18.78	0.70	2.859

OEvaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14						16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61						21.16
Multiple	18.53	24.22	28.07	25.40	59.20						
Crankcase	0.01	0.02	0.03	0.02	0.04						0.00
Refuel	4.58	4.58	4.58	4.58	4.58						
Resting	0.11	0.10	0.10	0.10	0.15						0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

018 MPH U/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)

VTM Mix:	0.657	0.241	0.021		0.003	0.010	0.004	0.063	0.001
OComposite Emission Factors (Gm/Mile)									
Total HC:	4.20	4.87	6.57	5.01	15.74	0.78	1.18	2.95	7.11 4.324
Exhaust HC:	2.19	2.94	3.98	3.03	7.09	0.78	1.18	2.95	2.34 2.453
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.691
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000
Running L HC:	1.26	0.97	1.39	1.00	2.65				1.097
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.083
Exhaust CO:	28.96	36.76	48.75	37.72	149.90	1.88	2.26	13.91	27.79 30.295
Exhaust NOX:	1.68	1.89	2.26	1.92	5.28	1.74	2.04	16.98	0.74 2.716
OE vaporative Emissions by Component									
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)		
					Resting Loss Temp: 83.9 (F)		Running Loss Temp: 92.2 (F)		
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16	
Multiple	18.53	24.22	28.07	25.40	59.20				
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00	
Refuel	4.58	4.58	4.58	4.58	4.58				
Resting	0.11	0.10	0.10	0.10	0.15			0.19	

OEmission factors are as of July 1st of the indicated calendar year.

O Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

022 MPH U/INT									
					Minimum Temp: 68. (F)		Maximum Temp: 96. (F)		
					Period 1 RVP: 9.5		Period 2 RVP: 9.5		Period 2 Start Yr: 1990
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC All Veh
+									
Veh. Speeds:	22.0	22.0	22.0	22.0	22.0	22.0	22.0		
VTM Mix:	0.657	0.241	0.021		0.003	0.010	0.004	0.063	0.001
OComposite Emission Factors (Gm/Mile)									
Total HC:	3.53	4.26	5.72	4.38	13.60	0.67	1.01	2.54	6.80 3.686
Exhaust HC:	1.86	2.54	3.43	2.61	5.49	0.67	1.01	2.54	2.04 2.096
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.691
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000
Running L HC:	0.92	0.76	1.10	0.78	2.11				0.816
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.083
Exhaust CO:	24.62	31.64	41.59	32.44	120.78	1.53	1.84	11.31	22.79 25.793
Exhaust NOX:	1.69	1.92	2.31	1.96	5.47	1.60	1.88	15.70	0.80 2.653
OE vaporative Emissions by Component									
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)		
					Resting Loss Temp: 83.9 (F)		Running Loss Temp: 92.2 (F)		
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16	
Multiple	18.53	24.22	28.07	25.40	59.20				
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00	
Refuel	4.58	4.58	4.58	4.58	4.58				
Resting	0.11	0.10	0.10	0.10	0.15			0.19	

OEmission factors are as of July 1st of the indicated calendar year.

O Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

046 MPH R/INT									
					Minimum Temp: 68. (F)		Maximum Temp: 96. (F)		
					Period 1 RVP: 9.5		Period 2 RVP: 9.5		Period 2 Start Yr: 1990
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC All Veh
+									
Veh. Speeds:	46.0	46.0	46.0	46.0	46.0	46.0	46.0		
VTM Mix:	0.657	0.241	0.021		0.003	0.010	0.004	0.063	0.001
OComposite Emission Factors (Gm/Mile)									
Total HC:	2.10	2.77	3.69	2.84	9.02	0.37	0.55	1.39	6.01 2.250
Exhaust HC:	1.02	1.46	1.98	1.51	2.08	0.37	0.55	1.39	1.24 1.166
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.691
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000
Running L HC:	0.32	0.35	0.51	0.36	0.95				0.309
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.083
Exhaust CO:	13.90	18.62	25.06	19.14	69.21	0.82	0.98	6.04	10.32 14.754
Exhaust NOX:	1.82	2.13	2.57	2.16	6.60	1.62	1.90	15.80	1.05 2.801
OE vaporative Emissions by Component									
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)		
					Resting Loss Temp: 83.9 (F)		Running Loss Temp: 92.2 (F)		
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16	
Multiple	18.53	24.22	28.07	25.40	59.20				
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00	
Refuel	4.58	4.58	4.58	4.58	4.58				

Resting 0.11 0.10 0.10 0.10 0.15 0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

048 MPH R/INT										
Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990				
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0		
VTM Mix:	0.657	0.241	0.021	0.003	0.010	0.004	0.063	0.001		
0Composite Emission Factors (Gm/Mile)										
Total HC:	2.03	2.72	3.61	2.79	8.89	0.36	0.54	1.36	5.99	2.190
Exhaust HC:	0.99	1.43	1.93	1.47	2.00	0.36	0.54	1.36	1.23	1.135
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.691	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.29	0.33	0.49	0.34	0.89				0.281	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.083	
Exhaust CO:	13.53	18.27	24.55	18.77	69.96	0.81	0.98	6.01	10.01	14.417
Exhaust NOX:	1.83	2.14	2.59	2.17	6.70	1.68	1.97	16.41	1.07	2.849
0Evaporative Emissions by Component										
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
								Running Loss Temp: 92.2 (F)		
								Resting Loss Temp: 83.9 (F)		
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

050 MPH U/INT										
Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990				
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0		
VTM Mix:	0.657	0.241	0.021	0.003	0.010	0.004	0.063	0.001		
0Composite Emission Factors (Gm/Mile)										
Total HC:	2.01	2.69	3.58	2.76	8.76	0.35	0.53	1.32	5.99	2.166
Exhaust HC:	0.99	1.43	1.93	1.47	1.94	0.35	0.53	1.32	1.23	1.133
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.691	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.27	0.30	0.45	0.31	0.82				0.260	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.083	
Exhaust CO:	13.53	18.27	24.55	18.77	71.35	0.82	0.98	6.03	10.01	14.422
Exhaust NOX:	1.97	2.31	2.81	2.35	6.79	1.75	2.06	17.13	1.13	3.039
0Evaporative Emissions by Component										
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
								Running Loss Temp: 92.2 (F)		
								Resting Loss Temp: 83.9 (F)		
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

055 MPH U/INT										
Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990				
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0		
VTM Mix:	0.657	0.241	0.021	0.003	0.010	0.004	0.063	0.001		
0Composite Emission Factors (Gm/Mile)										
Total HC:	1.97	2.64	3.50	2.71	8.52	0.33	0.50	1.27	5.99	2.118
Exhaust HC:	0.99	1.43	1.93	1.47	1.84	0.33	0.50	1.27	1.23	1.129
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.691	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.22	0.25	0.37	0.26	0.68				0.216	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.083	
Exhaust CO:	13.53	18.27	24.55	18.77	77.87	0.85	1.02	6.26	10.01	14.457

Exhaust NOx: 2.34 2.75 3.37 2.80 7.03 2.00 2.35 19.56 1.31 3.555
 OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14					
WtDiurnal	7.55	11.58	16.87	13.20	54.61					
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15					0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

025 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5
 VMT Mix: 0.771 0.186 0.016 0.001 0.012 0.003 0.010 0.001

OCComposite Emission Factors (Gm/Mile)

Total HC:	32.68	35.27	51.33	36.54	81.46	1.58	2.40	6.02	15.95	32.762
Exhaust HC:	12.13	15.81	22.91	16.37	24.50	1.58	2.40	6.02	11.19	12.785
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.701
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	19.79	18.50	27.23	19.19	50.96					19.189
Rating L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.088
Exhaust CO:	171.28	224.06	333.46	232.72	482.72	5.51	6.61	40.74	185.46	180.230
Exhaust NOx:	2.44	2.67	3.09	2.71	4.54	2.91	3.42	28.51	0.85	2.760

OE vapourative Emissions by Component

Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14					
WtDiurnal	7.55	11.58	16.87	13.20	54.61					
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15					0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

024 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 24.0 24.0 24.0 24.0 24.0 24.0 24.0 24.0
 VMT Mix: 0.771 0.186 0.016 0.001 0.012 0.003 0.010 0.001

OCComposite Emission Factors (Gm/Mile)

Total HC:	3.33	4.03	5.41	4.14	12.82	0.62	0.94	2.37	6.68	3.454
Exhaust HC:	1.73	2.37	3.20	2.44	4.88	0.62	0.94	2.37	1.92	1.865
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.701
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	0.85	0.69	1.01	0.72	1.93					0.800
Rating L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.088
Exhaust CO:	22.92	29.60	38.97	30.34	109.85	1.40	1.67	10.32	20.85	24.052
Exhaust NOx:	1.71	1.95	2.35	1.98	5.56	1.56	1.83	15.22	0.83	1.900

OE vapourative Emissions by Component

Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14					
WtDiurnal	7.55	11.58	16.87	13.20	54.61					
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

028 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 28.0 28.0 28.0 28.0 28.0 28.0 28.0 28.0

Total HC:	2.99	3.66	4.90	3.75	11.59	0.55	0.83	2.09	6.48	3.111
Exhaust HC:	1.52	2.10	2.84	2.16	3.94	0.55	0.83	2.09	1.72	1.640
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.701
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	0.72	0.60	0.87	0.62	1.66					0.682
Rating L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.088
Exhaust CO:	20.20	26.23	34.75	26.90	93.31	1.19	1.42	8.77	17.65	21.223
Exhaust NOX:	1.74	2.00	2.41	2.03	5.75	1.49	1.75	14.56	0.89	1.924
0Evaporative Emissions by Component										
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)		
						Resting Loss Temp: 83.9 (F)		Running Loss Temp: 92.2 (F)		
Hot Soak	3.46	4.35	6.35	4.96	21.14				16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61				21.16	
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04				0.00	
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15				0.19	

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

032 MPH U MA/ART										
Period 1 RVP: 9.5				Minimum Temp: 68. (F)			Maximum Temp: 96. (F)			
Period 2 RVP: 9.5				Period 2 Start Yr: 1990						
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0		
VMT Mix:	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001		

0Composite Emission Factors (Gm/Mile)										
Total HC:	2.72	3.37	4.51	3.46	10.70	0.49	0.74	1.86	6.32	2.841
Exhaust HC:	1.35	1.89	2.56	1.94	3.26	0.49	0.74	1.86	1.55	1.468
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.701
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	0.61	0.52	0.76	0.54	1.44					0.584
Rating L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.088
Exhaust CO:	18.13	23.60	31.51	24.23	82.10	1.04	1.24	7.67	15.11	19.060
Exhaust NOX:	1.76	2.04	2.45	2.07	5.94	1.46	1.71	14.25	0.95	1.945

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14				16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61				21.16	
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04				0.00	
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15				0.19	

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

033 MPH U MA/ART										
Period 1 RVP: 9.5					Minimum Temp: 68. (F)		Maximum Temp: 96. (F)			
Period 2 RVP: 9.5					Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0		
VMT Mix:	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001		

0Composite Emission Factors (Gm/Mile)										
Total HC:	2.66	3.30	4.42	3.39	10.52	0.48	0.72	1.81	6.28	2.782
Exhaust HC:	1.32	1.84	2.50	1.89	3.12	0.48	0.72	1.81	1.52	1.431
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.701
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	0.59	0.50	0.74	0.52	1.39					0.562
Rating L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.088

Exhaust NOX: 1.76 2.05 2.46 2.08 5.99 1.45 1.71 14.23 0.96 1.951
0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14				16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61				21.16	
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04				0.00	
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15				0.19	

Reformulated Gas: No											
044 MPH U MA/ART			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)					
Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh	
+											
Veh. Speeds:	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0			
VTM Mix:	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001			
OComposite Emission Factors (Gm/Mile)											
Total HC:	2.17	2.83	3.77	2.90	9.17	0.38	0.57	1.44	6.03	2.293	
Exhaust HC:	1.05	1.50	2.03	1.54	2.17	0.38	0.57	1.44	1.26	1.149	
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.701	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000	
Runing L HC:	0.36	0.36	0.54	0.38	1.00					0.355	
Rating L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.088	
Exhaust CO:	14.30	19.03	25.64	19.55	69.07	0.83	0.99	6.12	10.69	15.131	
Exhaust NOX:	1.81	2.12	2.56	2.15	6.51	1.57	1.84	15.31	1.04	2.014	
OEvaportive Emissions by Component											
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)			
						Resting Loss Temp: 83.9 (F)		Running Loss Temp: 92.2 (F)			
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37			
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16			
Multiple	18.53	24.22	28.07	25.40	59.20						
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00			
Refuel	4.58	4.58	4.58	4.58	4.58						
Resting	0.11	0.10	0.10	0.10	0.15			0.19			

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

050 MPH U MA/ART											
Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990			Maximum Temp: 96. (F)		
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh	
+											
Veh. Speeds:	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0			
VMT Mix:	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001			
0Composite Emission Factors (Gm/Mile)											
Total HC:	2.01	2.69	3.58	2.76	8.76	0.35	0.53	1.32	5.99	2.142	
Exhaust HC:	0.99	1.43	1.93	1.47	1.94	0.35	0.53	1.32	1.23	1.084	
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.701	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000	
Runing L HC:	0.27	0.30	0.45	0.31	0.82					0.270	
Rating L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.088	
Exhaust CO:	13.53	18.27	24.55	18.76	71.35	0.82	0.98	6.03	10.01	14.376	
Exhaust NOX:	1.97	2.31	2.81	2.35	6.79	1.75	2.06	17.13	1.13	2.203	
0Evaporative Emissions by Component											
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)			
						Resting Loss Temp: 83.9 (F)		Running Loss Temp: 92.2 (F)			
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37			
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16			
Multiple	18.53	24.22	28.07	25.40	59.20						
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00			
Refuel	4.58	4.58	4.58	4.58	4.58						
Resting	0.11	0.10	0.10	0.10	0.15			0.19			

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

045 MPH U MA/ART											
Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh	
+											
Veh. Speeds:	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0			
VTM Mix:	0.771	0.186	0.016		0.001	0.012	0.003	0.010	0.001		
OComposite Emission Factors (Gm/Mile)											
Total HC:	2.13	2.80	3.73	2.87	9.09	0.37	0.56	1.41	6.02	2.259	
Exhaust HC:	1.04	1.48	2.01	1.52	2.12	0.37	0.56	1.41	1.25	1.131	
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.701	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000	
Runing L HC:	0.34	0.35	0.53	0.37	0.97					0.339	
Rating L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.088	
Exhaust CO:	14.09	18.81	25.34	19.33	69.07	0.82	0.99	6.08	10.50	14.925	
Exhaust NOX:	1.81	2.12	2.57	2.16	6.55	1.59	1.87	15.54	1.04	2.021	
OEvaportive Emissions by Component											
						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)			

	3.46	4.35	6.35	4.96	21.14	Resting Loss Temp: 83.9 (F)
Hot Sock						16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61	21.16
Multiple	18.53	24.22	28.07	25.40	59.20	
Crankcase	0.01	0.02	0.03	0.02	0.04	0.00
Refuel	4.58	4.58	4.58	4.58	4.58	
Resting	0.11	0.10	0.10	0.10	0.15	0.19

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

	0.002	0.003	0.005	0.045	0.001					
Composite Emission Factors (Gm/Mile)										
Total HC:	32.68	35.27	51.33	36.56	81.46	1.58	2.40	6.02	15.95	32.485
Exhaust HC:	12.13	15.81	22.91	16.38	24.50	1.58	2.40	6.02	11.19	13.175
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.716	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	19.79	18.50	27.23	19.20	50.96				18.510	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.085	
Exhaust CO:	171.28	224.06	333.46	232.87	482.72	5.51	6.61	40.74	185.46	184.624
Exhaust NOx:	2.44	2.67	3.09	2.71	4.54	2.91	3.42	28.51	0.85	3.659

0Emission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

	0.002	0.009	0.003	0.045	0.001
Composite Emission Factors (Gm/Mile)					
Total HC:	2.46	3.09	4.13	3.18	9.90
Exhaust HC:	1.20	1.69	2.29	1.74	2.67
Evaporat HC:	0.66	0.87	1.11	0.89	5.85
Refuel L HC:	0.00	0.00	0.00	0.00	0.00
Running L HC:	0.50	0.45	0.65	0.46	1.23
Restart L HC:	0.09	0.09	0.08	0.09	0.15
Exhaust CO:	16.18	21.16	28.47	21.75	73.51
Exhaust NOx:	1.78	2.08	2.50	2.11	6.18

Anti-Iam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

98

Total HC:	2.37	3.00	4.01	3.09	9.65	0.41	0.63	1.58	6.11	2.564
Exhaust HC:	1.15	1.62	2.20	1.67	2.50	0.41	0.63	1.58	1.35	1.339
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.716
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Runing L HC:	0.46	0.42	0.62	0.44	1.16					0.425
Resting L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.085
Exhaust CO:	15.56	20.42	27.51	20.99	71.43	0.88	1.06	6.51	12.01	16.893
Exhaust NOX:	1.79	2.09	2.52	2.12	6.27	1.48	1.74	14.49	1.01	2.452
OE vaporative Emissions by Component										
					Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Running Loss Temp: 92.2 (F)					
					Resting Loss Temp: 83.9 (F)					
Hot Soak	3.46	4.35	6.35	4.96	21.14				16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61				21.16	
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04				0.00	
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15				0.19	

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

040 MPH R LOCAL										
					Minimum Temp: 68. (F)			Maximum Temp: 96. (F)		
					Period 1 RVP: 9.5			Period 2 RVP: 9.5		
					Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0		
VMT Mix:	0.605	0.308	0.027		0.002	0.009	0.005	0.043	0.001	
OComposite Emission Factors (Gm/Mile)										
Total HC:	2.32	2.96	3.96	3.04	9.54	0.41	0.61	1.54	6.09	2.523
Exhaust HC:	1.13	1.60	2.17	1.64	2.42	0.41	0.61	1.54	1.32	1.314
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.716
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Runing L HC:	0.44	0.41	0.60	0.42	1.12					0.409
Resting L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.085
Exhaust CO:	15.28	20.09	27.08	20.65	70.64	0.87	1.04	6.41	11.69	16.602
Exhaust NOX:	1.79	2.09	2.53	2.13	6.32	1.49	1.75	14.61	1.02	2.462
OE vaporative Emissions by Component										
					Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Running Loss Temp: 92.2 (F)					
					Resting Loss Temp: 83.9 (F)					
Hot Soak	3.46	4.35	6.35	4.96	21.14				16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61				21.16	
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04				0.00	
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15				0.19	

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

041 MPH R LOCAL										
					Minimum Temp: 68. (F)			Maximum Temp: 96. (F)		
					Period 1 RVP: 9.5			Period 2 RVP: 9.5		
					Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0		
VMT Mix:	0.605	0.308	0.027		0.002	0.009	0.005	0.043	0.001	
OComposite Emission Factors (Gm/Mile)										
Total HC:	2.28	2.93	3.91	3.01	9.44	0.40	0.60	1.51	6.07	2.484
Exhaust HC:	1.11	1.57	2.13	1.61	2.35	0.40	0.60	1.51	1.31	1.291
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.716
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Runing L HC:	0.42	0.40	0.58	0.41	1.09					0.393
Resting L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.085
Exhaust CO:	15.01	19.78	26.68	20.34	70.01	0.85	1.02	6.32	11.41	16.332
Exhaust NOX:	1.80	2.10	2.54	2.13	6.36	1.51	1.77	14.75	1.02	2.473
OE vaporative Emissions by Component										
					Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Running Loss Temp: 92.2 (F)					
					Resting Loss Temp: 83.9 (F)					
Hot Soak	3.46	4.35	6.35	4.96	21.14				16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61				21.16	
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04				0.00	
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15				0.19	

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

058 MPH R LOCAL			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)				
Period 1 RVP: 9.5			Period 2 RVP: 9.5		Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0		
VTMT Mix:	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001		
0Composite Emission Factors (Gm/Mile)										
Total HC:	2.12	2.90	3.87	2.97	8.44	0.33	0.50	1.25	6.26	2.361
Exhaust HC:	1.17	1.71	2.34	1.76	1.83	0.33	0.50	1.25	1.49	1.360
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.716	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.20	0.23	0.34	0.23	0.61				0.201	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.085	
Exhaust CO:	20.37	29.16	40.12	30.04	84.26	0.89	1.06	6.55	17.25	22.867
Exhaust NOX:	2.56	3.01	3.71	3.06	7.17	2.20	2.59	21.55	1.41	3.551
0Evaporative Emissions by Component										
					Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Running Loss Temp: 92.2 (F)					
					Resting Loss Temp: 83.9 (F)					
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

060 MPH R LOCAL			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)				
Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990				
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0		
VMT Mix:	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001		
0Composite Emission Factors (Gm/Mile)										
Total HC:	2.22	3.07	4.12	3.15	8.40	0.33	0.49	1.24	6.43	2.483
Exhaust HC:	1.28	1.89	2.61	1.95	1.83	0.33	0.49	1.24	1.67	1.495
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.716	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.19	0.21	0.31	0.22	0.57				0.188	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.085	
Exhaust CO:	24.93	36.42	50.50	37.55	89.80	0.92	1.10	6.80	22.07	28.169
Exhaust NOX:	2.71	3.18	3.93	3.24	7.26	2.37	2.78	23.15	1.48	3.771
0Evaporative Emissions by Component										
					Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Running Loss Temp: 92.2 (F)					
					Resting Loss Temp: 83.9 (F)					
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

065 MPH R LOCAL										
Minimum Temp: 68. (F)			Maximum Temp: 96. (F)							
Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990				
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0		
VTM Mix:	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001		
0Composite Emission Factors (Gm/Mile)										

1 MOBILE5 RUN FOR NASHVILLE AREA : Preconstruction Non-Methane Hydrocarbons

MOBILE5 (4-Dec-92)

0Non-methane HC emission factors include evaporative HC emission factors.

0

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

025 MPH U/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds: 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5
VMT Mix: 0.657 0.241 0.021 0.003 0.010 0.004 0.063 0.001

0Composite Emission Factors (Gm/Mile)

Non-Meth HC: 32.09 34.50 50.36 35.78 79.82 1.56 2.36 5.77 14.76 31.102

Exhaust HC: 11.55 15.05 21.93 15.60 22.86 1.56 2.36 5.77 10.00 12.141

Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.691

Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000

Running L HC: 19.79 18.50 27.23 19.20 50.96 18.188

Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.083

Exhaust CO: 171.28 224.06 333.46 232.83 482.72 5.51 6.61 40.74 185.46 177.814

Exhaust NOX: 2.44 2.67 3.09 2.71 4.54 2.91 3.42 28.51 0.85 4.162

0Evaporative Emissions by Component

Weathered RVP: 8.9

Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)

Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37

WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16

Multiple 18.53 24.22 28.07 25.40 59.20

Crankcase 0.01 0.02 0.03 0.02 0.04 0.00

Refuel 4.58 4.58 4.58 4.58 4.58

Resting 0.11 0.10 0.10 0.10 0.15 0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

050 MPH U/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds: 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0
VMT Mix: 0.657 0.241 0.021 0.003 0.010 0.004 0.063 0.001

0Composite Emission Factors (Gm/Mile)

Non-Meth HC: 13.07 14.15 20.19 14.63 37.63 1.37 2.07 5.07 10.99 12.886

Exhaust HC: 6.13 8.19 11.86 8.48 18.22 1.37 2.07 5.07 6.23 6.654

Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.691

Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000

Running L HC: 6.18 5.00 7.14 5.18 13.41 5.459

Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.083

Exhaust CO: 89.68 117.80 174.20 122.32 385.70 4.50 5.40 33.26 106.84 94.392

Exhaust NOX: 2.00 2.20 2.59 2.23 4.66 2.62 3.08 25.63 0.76 3.566

0Evaporative Emissions by Component

Weathered RVP: 8.9

Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)

Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37

WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16

Multiple 18.53 24.22 28.07 25.40 59.20

Crankcase 0.01 0.02 0.03 0.02 0.04 0.00

Refuel 4.58 4.58 4.58 4.58 4.58

Resting 0.11 0.10 0.10 0.10 0.15 0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

075 MPH U/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds: 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5
VMT Mix: 0.657 0.241 0.021 0.003 0.010 0.004 0.063 0.001

0Composite Emission Factors (Gm/Mile)

Non-Meth HC: 8.45 9.17 12.83 9.47 27.26 1.21 1.83 4.48 9.14 8.427

Exhaust HC: 4.26 5.70 8.14 5.90 14.67 1.21 1.83 4.48 4.38 4.696

Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.691

Refuel L HC:	0.00	0.00	0.00	0.00	0.00						0.000
Running L HC:	3.44	2.51	3.50	2.59	6.58						2.958
Rating L HC:	0.09	0.09	0.08	0.09	0.15						0.44 0.083
Exhaust CO:	61.53	79.96	115.88	82.84	312.45	3.72	4.45	27.46	70.40	64.923	
Exhaust NOX:	1.85	2.05	2.42	2.08	4.78	2.38	2.79	23.24	0.71	3.273	
OE vapourative Emissions by Component											
						Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)											
						Running Loss Temp: 92.2 (F)					
						Resting Loss Temp: 83.9 (F)					
Hot Soak	3.46	4.35	6.35	4.96	21.14						16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61						21.16
Multiple	18.53	24.22	28.07	25.40	59.20						
Crankcase	0.01	0.02	0.03	0.02	0.04						0.00
Refuel	4.58	4.58	4.58	4.58	4.58						
Resting	0.11	0.10	0.10	0.10	0.15						0.19

OEmission factors are as of July 1st of the indicated calendar year.

O Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

010 MPH U/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0
 VMT Mix: 0.657 0.241 0.021 0.003 0.010 0.004 0.063 0.001
 OComposite Emission Factors (Gm/Mile)
 Non-Meth HC: 6.80 7.33 10.10 7.55 22.96 1.08 1.63 3.98 8.13 6.791
 Exhaust HC: 3.32 4.44 6.26 4.59 11.94 1.08 1.63 3.98 3.37 3.692
 Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.691
 Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
 Running L HC: 2.73 1.92 2.66 1.98 5.02 2.325
 Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.083
 Exhaust CO: 47.45 61.09 86.51 63.13 256.61 3.10 3.72 22.93 51.33 50.025
 Exhaust NOX: 1.77 1.97 2.34 2.00 4.90 2.17 2.55 21.26 0.69 3.076
 OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)
 Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
 WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
 Multiple 18.53 24.22 28.07 25.40 59.20
 Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
 Refuel 4.58 4.58 4.58 4.58 4.58
 Resting 0.11 0.10 0.10 0.10 0.15 0.19

OEmission factors are as of July 1st of the indicated calendar year.

O Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

014 MPH U/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 14.0 14.0 14.0 14.0 14.0 14.0 14.0 14.0
 VMT Mix: 0.657 0.241 0.021 0.003 0.010 0.004 0.063 0.001
 OComposite Emission Factors (Gm/Mile)
 Non-Meth HC: 5.18 5.69 7.74 5.86 18.33 0.90 1.36 3.33 7.29 5.225
 Exhaust HC: 2.52 3.38 4.67 3.48 8.77 0.90 1.36 3.33 2.53 2.822
 Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.691
 Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
 Running L HC: 1.91 1.35 1.88 1.39 3.56 1.630
 Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.083
 Exhaust CO: 35.52 45.34 61.97 46.67 192.70 2.38 2.86 17.60 35.78 37.323
 Exhaust NOX: 1.71 1.91 2.29 1.94 5.09 1.92 2.25 18.78 0.70 2.859
 OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)
 Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
 WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
 Multiple 18.53 24.22 28.07 25.40 59.20
 Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
 Refuel 4.58 4.58 4.58 4.58 4.58
 Resting 0.11 0.10 0.10 0.10 0.15 0.19

OEmission factors are as of July 1st of the indicated calendar year.

O Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

018 MPH U/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)

0 Veh. Type:	Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990			HDDV	MC	All Veh
	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT					
Veh. Speeds:	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0				
VMT Mix:	0.657	0.241	0.021	0.003	0.010	0.004	0.063	0.001				
0Composite Emission Factors (Gm/Mile)												
Non-Meth HC:	4.09	4.73	6.39	4.86	15.27	0.76	1.16	2.83	6.86	4.202		
Exhaust HC:	2.08	2.80	3.81	2.88	6.62	0.76	1.16	2.83	2.09	2.331		
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.691		
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000		
Runing L HC:	1.26	0.97	1.39	1.00	2.65					1.097		
Rating L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.083		
Exhaust CO:	28.96	36.76	48.75	37.72	149.90	1.88	2.26	13.91	27.79	30.295		
Exhaust NOX:	1.68	1.89	2.26	1.92	5.28	1.74	2.04	16.98	0.74	2.716		
0Evaporative Emissions by Component												
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)				
						Resting Loss Temp: 83.9 (F)		Running Loss Temp: 92.2 (F)				
Hot Soak	3.46	4.35	6.35	4.96	21.14					16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61					21.16		
Multiple	18.53	24.22	28.07	25.40	59.20							
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00		
Refuel	4.58	4.58	4.58	4.58	4.58							
Resting	0.11	0.10	0.10	0.10	0.15					0.19		

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

022 MPH U/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)

0 Veh. Type:	Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990			HDDV	MC	All Veh
	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT					
Veh. Speeds:	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0				
VMT Mix:	0.657	0.241	0.021	0.003	0.010	0.004	0.063	0.001				
0Composite Emission Factors (Gm/Mile)												
Non-Meth HC:	3.44	4.13	5.57	4.25	13.23	0.66	1.00	2.44	6.59	3.581		
Exhaust HC:	1.76	2.42	3.28	2.49	5.13	0.66	1.00	2.44	1.82	1.992		
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.691		
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000		
Runing L HC:	0.92	0.76	1.10	0.78	2.11					0.816		
Rating L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.083		
Exhaust CO:	24.62	31.64	41.59	32.44	120.78	1.53	1.84	11.31	22.79	25.793		
Exhaust NOX:	1.69	1.92	2.31	1.96	5.47	1.60	1.88	15.70	0.80	2.653		
0Evaporative Emissions by Component												
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)				
						Resting Loss Temp: 83.9 (F)		Running Loss Temp: 92.2 (F)				
Hot Soak	3.46	4.35	6.35	4.96	21.14					16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61					21.16		
Multiple	18.53	24.22	28.07	25.40	59.20							
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00		
Refuel	4.58	4.58	4.58	4.58	4.58							
Resting	0.11	0.10	0.10	0.10	0.15					0.19		

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

046 MPH R/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)

0 Veh. Type:	Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990			HDDV	MC	All Veh
	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT					
Veh. Speeds:	46.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0				
VMT Mix:	0.657	0.241	0.021	0.003	0.010	0.004	0.063	0.001				
0Composite Emission Factors (Gm/Mile)												
Non-Meth HC:	2.05	2.70	3.60	2.77	8.88	0.36	0.55	1.34	5.88	2.192		
Exhaust HC:	0.97	1.39	1.89	1.43	1.94	0.36	0.55	1.34	1.11	1.108		
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.691		
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000		
Runing L HC:	0.32	0.35	0.51	0.36	0.95					0.309		
Rating L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.083		
Exhaust CO:	13.90	18.62	25.06	19.14	69.21	0.82	0.98	6.04	10.32	14.754		
Exhaust NOX:	1.82	2.13	2.57	2.16	6.60	1.62	1.90	15.80	1.05	2.801		
0Evaporative Emissions by Component												
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)				
						Resting Loss Temp: 83.9 (F)		Running Loss Temp: 92.2 (F)				
Hot Soak	3.46	4.35	6.35	4.96	21.14					16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61					21.16		
Multiple	18.53	24.22	28.07	25.40	59.20							

Crankcase	0.01	0.02	0.03	0.02	0.04	0.00
Refuel	4.58	4.58	4.58	4.58	4.58	
Resting	0.11	0.10	0.10	0.10	0.15	0.19

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

048 MPH R/INT			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)				
Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990				
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0		
VMT Mix:	0.657	0.241	0.021	0.003	0.010	0.004	0.063	0.001		
OComposite Emission Factors (Gm/Mile)										
Non-Meth HC:	1.98	2.65	3.53	2.72	8.76	0.35	0.53	1.30	5.86	2.134
Exhaust HC:	0.94	1.36	1.85	1.40	1.86	0.35	0.53	1.30	1.10	1.079
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.691	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.29	0.33	0.49	0.34	0.89				0.281	
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.083	
Exhaust CO:	13.53	18.27	24.55	18.77	69.96	0.81	0.98	6.01	10.01	14.417
Exhaust NOX:	1.83	2.14	2.59	2.17	6.70	1.68	1.97	16.41	1.07	2.849
OEvaporative Emissions by Component					Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Resting Loss Temp: 83.9 (F)			Running Loss Temp: 92.2 (F)		
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

050 MPH U/INT			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)				
Period 1 RVP: 9.5			Period 2 RVP: 9.5		Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0		
VMT Mix:	0.657	0.241	0.021	0.003	0.010	0.004	0.063	0.001		
OComposite Emission Factors (Gm/Mile)										
Non-Meth HC:	1.96	2.62	3.49	2.69	8.63	0.34	0.52	1.27	5.86	2.110
Exhaust HC:	0.94	1.36	1.85	1.40	1.81	0.34	0.52	1.27	1.10	1.076
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.691	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.27	0.30	0.45	0.31	0.82				0.260	
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.083	
Exhaust CO:	13.53	18.27	24.55	18.77	71.35	0.82	0.98	6.03	10.01	14.422
Exhaust NOX:	1.97	2.31	2.81	2.35	6.79	1.75	2.06	17.13	1.13	3.039
OEvaporative Emissions by Component					Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Resting Loss Temp: 83.9 (F)			Running Loss Temp: 92.2 (F)		
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

055 MPH U/INT			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)				
			Period 1 RVP: 9.5		Period 2 RVP: 9.5		Period 2 Start Yr: 1990			
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0		
VMT Mix:	0.657	0.241	0.021	0.003	0.010	0.004	0.063	0.001		
OComposite Emission Factors (Gm/Mile)										
Non-Meth HC:	1.92	2.57	3.42	2.64	8.40	0.33	0.50	1.21	5.86	2.062
Exhaust HC:	0.94	1.36	1.85	1.40	1.72	0.33	0.50	1.21	1.10	1.072
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.691	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.22	0.25	0.37	0.26	0.68				0.216	

Rsing L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.083
Exhaust CO:	13.53	18.27	24.55	18.77	77.87	0.85	1.02	6.26	10.01 14.457
Exhaust NOX:	2.34	2.75	3.37	2.80	7.03	2.00	2.35	19.56	1.31 3.555
0Evaporative Emissions by Component						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)	
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Running Loss Temp: 92.2 (F)			
						Resting Loss Temp: 83.9 (F)			
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16	
Multiple	18.53	24.22	28.07	25.40	59.20				
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00	
Refuel	4.58	4.58	4.58	4.58	4.58				
Resting	0.11	0.10	0.10	0.10	0.15			0.19	

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

025 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		
VMT Mix:	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001		

0Composite Emission Factors (Gm/Mile)

Non-Meth HC:	32.09	34.50	50.36	35.76	79.82	1.56	2.36	5.77	14.76	32.146
Exhaust HC:	11.55	15.05	21.93	15.59	22.86	1.56	2.36	5.77	10.00	12.169
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.701	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	19.79	18.50	27.23	19.19	50.96				19.189	
Rsing L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.088	
Exhaust CO:	171.28	224.06	333.46	232.72	482.72	5.51	6.61	40.74	185.46	180.230
Exhaust NOX:	2.44	2.67	3.09	2.71	4.54	2.91	3.42	28.51	0.85	2.760

0Evaporative Emissions by Component

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16	
Multiple	18.53	24.22	28.07	25.40	59.20				
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00	
Refuel	4.58	4.58	4.58	4.58	4.58				
Resting	0.11	0.10	0.10	0.10	0.15			0.19	

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

024 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0		
VMT Mix:	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001		

0Composite Emission Factors (Gm/Mile)

Non-Meth HC:	3.24	3.91	5.27	4.02	12.49	0.61	0.93	2.27	6.48	3.360
Exhaust HC:	1.64	2.26	3.06	2.32	4.56	0.61	0.93	2.27	1.71	1.771
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.701	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.85	0.69	1.01	0.72	1.93				0.800	
Rsing L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.088	
Exhaust CO:	22.92	29.60	38.97	30.34	109.85	1.40	1.67	10.32	20.85	24.052
Exhaust NOX:	1.71	1.95	2.35	1.98	5.56	1.56	1.83	15.22	0.83	1.900

0Evaporative Emissions by Component

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16	

1 MOBILE5 RUN FOR NASHVILLE AREA : Pre-TDM Total Hydrocarbons

MOBILE5 (4-Dec-92)

0Total HC emission factors include evaporative HC emission factors.

0

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

025 MPH U MA/ART		Minimum Temp: 68. (F)					Maximum Temp: 96. (F)				
		Period 1 RVP: 9.5		Period 2 RVP: 9.5		Period 2 Start Yr: 1990					
0 Veh. Type:		LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+											
Veh. Speeds:		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		
VMT Mix:		0.780	0.184	0.017	0.001	0.006	0.002	0.009	0.001		
0Composite Emission Factors (Gm/Mile)											
Total HC:		32.68	35.27	51.33	36.63	81.46	1.58	2.40	6.02	15.95	33.019
Exhaust HC:		12.13	15.81	22.91	16.41	24.50	1.58	2.40	6.02	11.19	12.867
Evaporat HC:		0.66	0.87	1.11	0.89	5.85			4.32	0.706	
Refuel L HC:		0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:		19.79	18.50	27.23	19.24	50.96				19.357	
Resting L HC:		0.09	0.09	0.08	0.09	0.15			0.44	0.089	
Exhaust CO:		171.28	224.06	333.46	233.31	482.72	5.51	6.61	40.74	185.46	181.577
Exhaust NOX:		2.44	2.67	3.09	2.71	4.54	2.91	3.42	28.51	0.85	2.730
0Evaporative Emissions by Component											
						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)			
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Running Loss Temp: 92.2 (F)					
						Resting Loss Temp: 83.9 (F)					
Hot Soak		3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal		7.55	11.58	16.87	13.20	54.61			21.16		
Multiple		18.53	24.22	28.07	25.40	59.20					
Crankcase		0.01	0.02	0.03	0.02	0.04			0.00		
Refuel		4.58	4.58	4.58	4.58	4.58					
Resting		0.11	0.10	0.10	0.10	0.15			0.19		

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

045 MPH U MA/ART				Minimum Temp: 68. (F)			Maximum Temp: 96. (F)					
Period 1 RVP: 9.5		Period 2 RVP: 9.5			Period 2 Start Yr: 1990							
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh		
+												
Veh. Speeds:	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0				
VMT Mix:	0.780	0.184	0.017	0.001	0.006	0.002	0.009	0.001				
0Composite Emission Factors (Gm/Mile)												
Total HC:	2.13	2.80	3.73	2.88	9.09	0.37	0.56	1.41	6.02	2.272		
Exhaust HC:	1.04	1.48	2.01	1.53	2.12	0.37	0.56	1.41	1.25	1.135		
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.706			
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000			
Running L HC:	0.34	0.35	0.53	0.37	0.97				0.342			
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.089			
Exhaust CO:	14.09	18.81	25.34	19.37	69.07	0.82	0.99	6.08	10.50	15.027		
Exhaust NOX:	1.81	2.12	2.57	2.16	6.55	1.59	1.87	15.54	1.04	2.009		
0Evaporative Emissions by Component												
						Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)			
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)									Running Loss Temp: 92.2 (F)			
						Resting Loss Temp: 83.9 (F)						
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37				
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16				
Multiple	18.53	24.22	28.07	25.40	59.20							
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00				
Refuel	4.58	4.58	4.58	4.58	4.58							
Resting	0.11	0.10	0.10	0.10	0.15			0.19				

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

043 MPH U MA/ART		Minimum Temp: 68. (F)			Maximum Temp: 96. (F)			Period 2 Start Yr: 1990				
		Period 1 RVP: 9.5			Period 2 RVP: 9.5							
0 Veh. Type:		LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh	
+												
Veh. Speeds:		43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0			
VMT Mix:		0.780	0.184	0.017	0.001	0.006	0.002	0.009	0.001			
0Composite Emission Factors (Gm/Mile)												
Total HC:		2.20	2.86	3.81	2.94	9.25	0.38	0.58	1.46	6.04	2.342	
Exhaust HC:		1.07	1.52	2.06	1.57	2.22	0.38	0.58	1.46	1.27	1.171	
Evaporat HC:		0.66	0.87	1.11	0.89	5.85			4.32	0.706		

Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Runing L HC:	0.38	0.37	0.55	0.39	1.03					0.375
Rating L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.089
Exhaust CO:	14.53	19.26	25.96	19.82	69.23	0.84	1.00	6.17	10.91	15.457
Exhaust NOX:	1.80	2.11	2.55	2.15	6.46	1.54	1.81	15.10	1.03	1.996
0Evaporative Emissions by Component										
					Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)										
					Running Loss Temp: 92.2 (F)			Resting Loss Temp: 83.9 (F)		
Hot Soak	3.46	4.35	6.35	4.96	21.14					16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61					21.16
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15					0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

028 MPH U MA/ART			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)				
Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990				
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0		
VMT Mix:	0.780	0.184	0.017	0.001	0.006	0.002	0.009	0.001		
0Composite Emission Factors (Gm/Mile)										
Total HC:	2.99	3.66	4.90	3.76	11.59	0.55	0.83	2.09	6.48	3.129
Exhaust HC:	1.52	2.10	2.84	2.16	3.94	0.55	0.83	2.09	1.72	1.646
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.706
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Runing L HC:	0.72	0.60	0.87	0.62	1.66					0.688
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.089	
Exhaust CO:	20.20	26.23	34.75	26.95	93.31	1.19	1.42	8.77	17.65	21.370
Exhaust NOX:	1.74	2.00	2.41	2.04	5.75	1.49	1.75	14.56	0.89	1.913
0Evaporative Emissions by Component										
					Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)			
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)							Running Loss Temp: 92.2 (F)			
					Resting Loss Temp: 83.9 (F)					
Hot Soak	3.46	4.35	6.35	4.96	21.14					16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61					21.16
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

032 MPH U MA/ART			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)				
Period 1 RVP: 9.5			Period 2 RVP: 9.5		Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0		
VMT Mix:	0.780	0.184	0.017		0.001	0.006	0.002	0.009	0.001	
0Composite Emission Factors (Gm/Mile)										
Total HC:	2.72	3.37	4.51	3.46	10.70	0.49	0.74	1.86	6.32	2.858
Exhaust HC:	1.35	1.89	2.56	1.94	3.26	0.49	0.74	1.86	1.55	1.473
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.706
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Runing L HC:	0.61	0.52	0.76	0.54	1.44					0.589
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.089	
Exhaust CO:	18.13	23.60	31.51	24.27	82.10	1.04	1.24	7.67	15.11	19.192
Exhaust NOX:	1.76	2.04	2.45	2.07	5.94	1.46	1.71	14.25	0.95	1.935
0Evaporative Emissions by Component						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Running Loss Temp: 92.2 (F)				
						Resting Loss Temp: 83.9 (F)				
Hot Soak	3.46	4.35	6.35	4.96	21.14					16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61					21.16
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

049 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990										
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0		
VMT Mix:	0.780	0.184	0.017	0.001	0.006	0.002	0.009	0.001		
0Composite Emission Factors (Gm/Mile)										
Total HC:	2.02	2.70	3.60	2.78	8.82	0.35	0.53	1.34	5.99	2.166
Exhaust HC:	0.99	1.43	1.93	1.47	1.97	0.35	0.53	1.34	1.23	1.088
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.706	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.28	0.31	0.47	0.33	0.86				0.283	
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.089	
Exhaust CO:	13.53	18.27	24.55	18.80	70.57	0.81	0.98	6.02	10.01	14.473
Exhaust NOX:	1.90	2.23	2.70	2.27	6.74	1.71	2.01	16.75	1.10	2.110
0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)										
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)										
Resting Loss Temp: 83.9 (F)										
Hot Soak	3.46	4.35	6.35	4.96	21.14				16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61				21.16	
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04				0.00	
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15				0.19	

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

048 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990										
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0		
VMT Mix:	0.780	0.184	0.017	0.001	0.006	0.002	0.009	0.001		
0Composite Emission Factors (Gm/Mile)										
Total HC:	2.03	2.72	3.61	2.79	8.89	0.36	0.54	1.36	5.99	2.177
Exhaust HC:	0.99	1.43	1.93	1.47	2.00	0.36	0.54	1.36	1.23	1.088
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.706	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.29	0.33	0.49	0.34	0.89				0.294	
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.089	
Exhaust CO:	13.53	18.27	24.55	18.80	69.96	0.81	0.98	6.01	10.01	14.472
Exhaust NOX:	1.83	2.14	2.59	2.18	6.70	1.68	1.97	16.41	1.07	2.031
0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)										
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)										
Resting Loss Temp: 83.9 (F)										
Hot Soak	3.46	4.35	6.35	4.96	21.14				16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61				21.16	
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04				0.00	
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15				0.19	

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

040 MPH R LOCAL Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990										
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0		
VMT Mix:	0.712	0.242	0.015	0.002	0.004	0.003	0.022	0.000		
0Composite Emission Factors (Gm/Mile)										
Total HC:	2.32	2.96	3.96	3.02	9.54	0.41	0.61	1.54	6.09	2.487
Exhaust HC:	1.13	1.60	2.17	1.63	2.42	0.41	0.61	1.54	1.32	1.267
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.711	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.44	0.41	0.60	0.42	1.12				0.422	
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.087	
Exhaust CO:	15.28	20.09	27.08	20.49	70.64	0.87	1.04	6.41	0.00	16.434
Exhaust NOX:	1.79	2.09	2.53	2.12	6.32	1.49	1.75	14.61	0.00	2.166
0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)										
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)										
Resting Loss Temp: 83.9 (F)										
Hot Soak	3.46	4.35	6.35	4.96	21.14				16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61				21.16	
Multiple	18.53	24.22	28.07	25.40	59.20					

Crankcase	0.01	0.02	0.03	0.02	0.04	0.00
Refuel	4.58	4.58	4.58	4.58	4.58	
Resting	0.11	0.10	0.10	0.10	0.15	0.19

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

025 MPH R LOCAL			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)				
Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990				
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		
VMT Mix:	0.712	0.242	0.015	0.002	0.004	0.003	0.022	0.000		
OComposite Emission Factors (Gm/Mile)										
Total HC:	32.68	35.27	51.33	36.21	81.46	1.58	2.40	6.02	15.95	32.883
Exhaust HC:	12.13	15.81	22.91	16.23	24.50	1.58	2.40	6.02	11.19	13.004
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.711	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	19.79	18.50	27.23	19.01	50.96				19.080	
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.087	
Exhaust CO:	171.28	224.06	333.46	230.44	482.72	5.51	6.61	40.74	0.00	183.080
Exhaust NOX:	2.44	2.67	3.09	2.70	4.54	2.91	3.42	28.51	0.00	3.085
OEvaporative Emissions by Component					Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Running Loss Temp: 92.2 (F)					
					Resting Loss Temp: 83.9 (F)					
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

025 MPH U MA/ART			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)				
Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990				
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0		
VTM Mix:	0.766	0.197	0.017	0.001	0.006	0.002	0.010	0.001		
OComposite Emission Factors (Gm/Mile)										
Total HC:	2.72	3.37	4.51	3.46	10.70	0.49	0.74	1.86	6.32	2.865
Exhaust HC:	1.35	1.89	2.56	1.94	3.26	0.49	0.74	1.86	1.55	1.481
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.708	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.61	0.52	0.76	0.54	1.44				0.588	
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.089	
Exhaust CO:	18.13	23.60	31.51	24.23	82.10	1.04	1.24	7.67	15.11	19.253
Exhaust NOX:	1.76	2.04	2.45	2.07	5.94	1.46	1.71	14.25	0.95	1.951
OEvaporative Emissions by Component					Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Running Loss Temp: 92.2 (F)					
					Resting Loss Temp: 83.9 (F)					
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

032 MPH U MA/ART			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)				
Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990				
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0		
VTM Mix:	0.766	0.197	0.017	0.001	0.006	0.002	0.010	0.001		
OComposite Emission Factors (Gm/Mile)										
Total HC:	2.72	3.37	4.51	3.46	10.70	0.49	0.74	1.86	6.32	2.865
Exhaust HC:	1.35	1.89	2.56	1.94	3.26	0.49	0.74	1.86	1.55	1.481
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.708	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.61	0.52	0.76	0.54	1.44				0.588	

Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.089
 Exhaust CO: 18.13 23.60 31.51 24.23 82.10 1.04 1.24 7.67 15.11 19.253
 Exhaust NOX: 1.76 2.04 2.45 2.07 5.94 1.46 1.71 14.25 0.95 1.951
 OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)
 Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
 WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
 Multiple 18.53 24.22 28.07 25.40 59.20
 Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
 Refuel 4.58 4.58 4.58 4.58 4.58
 Resting 0.11 0.10 0.10 0.10 0.15 0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

024 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 24.0 24.0 24.0 24.0 24.0 24.0 24.0 24.0
 VMT Mix: 0.766 0.197 0.017 0.001 0.006 0.002 0.010 0.001

OComposite Emission Factors (Gm/Mile)

Total HC: 3.33 4.03 5.41 4.14 12.82 0.62 0.94 2.37 6.68 3.482
 Exhaust HC: 1.73 2.37 3.20 2.44 4.88 0.62 0.94 2.37 1.92 1.881
 Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.708
 Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
 Running L HC: 0.85 0.69 1.01 0.72 1.93 0.804
 Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.089
 Exhaust CO: 22.92 29.60 38.97 30.34 109.85 1.40 1.67 10.32 20.85 24.292
 Exhaust NOX: 1.71 1.95 2.35 1.98 5.56 1.56 1.83 15.22 0.83 1.904

OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
 WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
 Multiple 18.53 24.22 28.07 25.40 59.20
 Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
 Refuel 4.58 4.58 4.58 4.58 4.58
 Resting 0.11 0.10 0.10 0.10 0.15 0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

045 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 45.0 45.0 45.0 45.0 45.0 45.0 45.0 45.0
 VMT Mix: 0.766 0.197 0.017 0.001 0.006 0.002 0.010 0.001

OComposite Emission Factors (Gm/Mile)

Total HC: 2.13 2.80 3.73 2.87 9.09 0.37 0.56 1.41 6.02 2.280
 Exhaust HC: 1.04 1.48 2.01 1.52 2.12 0.37 0.56 1.41 1.25 1.142
 Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.708
 Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
 Running L HC: 0.34 0.35 0.53 0.37 0.97 0.342
 Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.089
 Exhaust CO: 14.09 18.81 25.34 19.33 69.07 0.82 0.99 6.08 10.50 15.081
 Exhaust NOX: 1.81 2.12 2.57 2.16 6.55 1.59 1.87 15.54 1.04 2.027

OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
 WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
 Multiple 18.53 24.22 28.07 25.40 59.20
 Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
 Refuel 4.58 4.58 4.58 4.58 4.58
 Resting 0.11 0.10 0.10 0.10 0.15 0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

025 MPH R MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

Resting 0.11 0.10 0.10 0.10 0.15 0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

025 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+
Veh. Speeds: 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5
VMT Mix: 0.605 0.308 0.027 0.002 0.009 0.005 0.043 0.001

0Composite Emission Factors (Gm/Mile)

Total HC: 32.68 35.27 51.33 36.56 81.46 1.58 2.40 6.02 15.95 32.485
Exhaust HC: 12.13 15.81 22.91 16.38 24.50 1.58 2.40 6.02 11.19 13.175
Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.716
Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
Running L HC: 19.79 18.50 27.23 19.20 50.96 18.510
Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.085
Exhaust CO: 171.28 224.06 333.46 232.87 482.72 5.51 6.61 40.74 185.46 184.624
Exhaust NOX: 2.44 2.67 3.09 2.71 4.54 2.91 3.42 28.51 0.85 3.659

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)
Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
Multiple 18.53 24.22 28.07 25.40 59.20
Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
Refuel 4.58 4.58 4.58 4.58 4.58
Resting 0.11 0.10 0.10 0.10 0.15 0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

040 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+
Veh. Speeds: 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0
VMT Mix: 0.605 0.308 0.027 0.002 0.009 0.005 0.043 0.001

0Composite Emission Factors (Gm/Mile)

Total HC: 2.32 2.96 3.96 3.04 9.54 0.41 0.61 1.54 6.09 2.523
Exhaust HC: 1.13 1.60 2.17 1.64 2.42 0.41 0.61 1.54 1.32 1.314
Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.716
Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
Running L HC: 0.44 0.41 0.60 0.42 1.12 0.409
Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.085
Exhaust CO: 15.28 20.09 27.08 20.65 70.64 0.87 1.04 6.41 11.69 16.602
Exhaust NOX: 1.79 2.09 2.53 2.13 6.32 1.49 1.75 14.61 1.02 2.462

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)
Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
Multiple 18.53 24.22 28.07 25.40 59.20
Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
Refuel 4.58 4.58 4.58 4.58 4.58
Resting 0.11 0.10 0.10 0.10 0.15 0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

025 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+
Veh. Speeds: 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5
VMT Mix: 0.771 0.186 0.016 0.001 0.012 0.003 0.010 0.001

0Composite Emission Factors (Gm/Mile)

Total HC: 32.68 35.27 51.33 36.54 81.46 1.58 2.40 6.02 15.95 32.762
Exhaust HC: 12.13 15.81 22.91 16.37 24.50 1.58 2.40 6.02 11.19 12.785
Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.701
Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
Running L HC: 19.79 18.50 27.23 19.19 50.96 19.189
Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.088
Exhaust CO: 171.28 224.06 333.46 232.72 482.72 5.51 6.61 40.74 185.46 180.230

Exhaust NOX: 2.44 2.67 3.09 2.71 4.54 2.91 3.42 28.51 0.85 2.760
 0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14					
WtDiurnal	7.55	11.58	16.87	13.20	54.61					
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15					0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

033 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 33.0 33.0 33.0 33.0 33.0 33.0 33.0 33.0
 VMT Mix: 0.771 0.186 0.016 0.001 0.012 0.003 0.010 0.001

0Composite Emission Factors (Gm/Mile)

Total HC:	2.66	3.30	4.42	3.39	10.52	0.48	0.72	1.81	6.28	2.782
Exhaust HC:	1.32	1.84	2.50	1.89	3.12	0.48	0.72	1.81	1.52	1.431
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.701
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	0.59	0.50	0.74	0.52	1.39					0.562
Resting L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.088
Exhaust CO:	17.69	23.04	30.82	23.66	79.95	1.01	1.21	7.45	14.57	18.601
Exhaust NOX:	1.76	2.05	2.46	2.08	5.99	1.45	1.71	14.23	0.96	1.951

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14					
WtDiurnal	7.55	11.58	16.87	13.20	54.61					
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15					0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

025 MPH R/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5
 VMT Mix: 0.700 0.224 0.019 0.002 0.005 0.002 0.047 0.001

0Composite Emission Factors (Gm/Mile)

Total HC:	32.68	35.27	51.33	36.52	81.46	1.58	2.40	6.02	15.95	32.227
Exhaust HC:	12.13	15.81	22.91	16.37	24.50	1.58	2.40	6.02	11.19	12.826
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.696
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	19.79	18.50	27.23	19.18	50.96					18.619
Resting L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.085
Exhaust CO:	171.28	224.06	333.46	232.61	482.72	5.51	6.61	40.74	185.46	179.528
Exhaust NOX:	2.44	2.67	3.09	2.71	4.54	2.91	3.42	28.51	0.85	3.733

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14					
WtDiurnal	7.55	11.58	16.87	13.20	54.61					
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15					0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

063 MPH U/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 63.0 63.0 63.0 63.0 63.0 63.0 63.0 63.0

VMT Mix: 0.700 0.224 0.019 0.002 0.005 0.002 0.047 0.001
 OComposite Emission Factors (Gm/Mile)
 Total HC: 2.38 3.33 4.49 3.42 8.38 0.32 0.49 1.24 6.69 2.582
 Exhaust HC: 1.46 2.17 3.02 2.24 1.86 0.32 0.49 1.24 1.93 1.632
 Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.696
 Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
 Running L HC: 0.17 0.19 0.29 0.20 0.52 0.169
 Rasing L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.085
 Exhaust CO: 31.77 47.31 66.07 48.77 100.43 0.99 1.19 7.31 29.30 34.670
 Exhaust NOX: 2.93 3.44 4.26 3.51 7.40 2.66 3.13 26.04 1.59 4.163
 OE vaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)
 Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
 WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
 Multiple 18.53 24.22 28.07 25.40 59.20
 Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
 Refuel 4.58 4.58 4.58 4.58 4.58
 Resting 0.11 0.10 0.10 0.10 0.15 0.19

O Emission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

050 MPH U/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 50.0 50.0 50.0 50.0 50.0 50.0 50.0 50.0
 VMT Mix: 0.700 0.224 0.019 0.002 0.005 0.002 0.047 0.001
 OComposite Emission Factors (Gm/Mile)
 Total HC: 2.01 2.69 3.58 2.76 8.76 0.35 0.53 1.32 5.99 2.167
 Exhaust HC: 0.99 1.43 1.93 1.47 1.94 0.35 0.53 1.32 1.23 1.121
 Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.696
 Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
 Running L HC: 0.27 0.30 0.45 0.31 0.82 0.264
 Rasing L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.085
 Exhaust CO: 13.53 18.27 24.55 18.76 71.35 0.82 0.98 6.03 10.01 14.471
 Exhaust NOX: 1.97 2.31 2.81 2.35 6.79 1.75 2.06 17.13 1.13 2.785
 OE vaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)
 Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
 WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
 Multiple 18.53 24.22 28.07 25.40 59.20
 Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
 Refuel 4.58 4.58 4.58 4.58 4.58
 Resting 0.11 0.10 0.10 0.10 0.15 0.19

O Emission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

047 MPH R/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 47.0 47.0 47.0 47.0 47.0 47.0 47.0 47.0
 VMT Mix: 0.700 0.224 0.019 0.002 0.005 0.002 0.047 0.001
 OComposite Emission Factors (Gm/Mile)
 Total HC: 2.06 2.74 3.65 2.81 8.95 0.36 0.55 1.37 6.00 2.220
 Exhaust HC: 1.01 1.45 1.96 1.49 2.04 0.36 0.55 1.37 1.23 1.138
 Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.696
 Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
 Running L HC: 0.31 0.34 0.50 0.35 0.92 0.301
 Rasing L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.085
 Exhaust CO: 13.71 18.44 24.80 18.93 69.51 0.82 0.98 6.02 10.16 14.635
 Exhaust NOX: 1.82 2.13 2.58 2.17 6.65 1.64 1.93 16.09 1.06 2.584
 OE vaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)
 Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
 WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
 Multiple 18.53 24.22 28.07 25.40 59.20
 Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
 Refuel 4.58 4.58 4.58 4.58 4.58
 Resting 0.11 0.10 0.10 0.10 0.15 0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

049 MPH R/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds: 49.0 49.0 49.0 49.0 49.0 49.0 49.0 49.0 49.0
VMT Mix: 0.700 0.224 0.019 0.002 0.005 0.002 0.047 0.001

0Composite Emission Factors (Gm/Mile)

Total HC:	2.02	2.70	3.60	2.77	8.82	0.35	0.53	1.34	5.99	2.179
Exhaust HC:	0.99	1.43	1.93	1.47	1.97	0.35	0.53	1.34	1.23	1.122
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.696
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	0.28	0.31	0.47	0.33	0.86					0.275
Refueling L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.085
Exhaust CO:	13.53	18.27	24.55	18.76	70.57	0.81	0.98	6.02	10.01	14.468
Exhaust NOX:	1.90	2.23	2.70	2.26	6.74	1.71	2.01	16.75	1.10	2.694

0Evaporative Emissions by Component

Weathered RVP: 8.9

Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)

Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16
Multiple	18.53	24.22	28.07	25.40	59.20			
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00
Refuel	4.58	4.58	4.58	4.58	4.58			
Resting	0.11	0.10	0.10	0.10	0.15			0.19

1

MOBILE5 (4-Dec-92)

0

-M 89 Error:

+ 0 out of bounds for flag PROMPT (1 to 4)

1 MOBILE5 RUN FOR NASHVILLE AREA : Pre-TDM Non-Methane Hydrocarbons

MOBILE5 (4-Dec-92)

0 Non-methane HC emission factors include evaporative HC emission factors.

0

0 Emission factors are as of July 1st of the indicated calendar year.

0 Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

025 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds: 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5
VMT Mix: 0.780 0.184 0.017 0.001 0.006 0.002 0.009 0.001

0 Composite Emission Factors (Gm/Mile)

Non-Meth HC: 32.09 34.50 50.36 35.85 79.82 1.56 2.36 5.77 14.76 32.399
Exhaust HC: 11.55 15.05 21.93 15.63 22.86 1.56 2.36 5.77 10.00 12.247
Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.706
Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
Running L HC: 19.79 18.50 27.23 19.24 50.96 19.357
Resting L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.089
Exhaust CO: 171.28 224.06 333.46 233.31 482.72 5.51 6.61 40.74 185.46 181.577
Exhaust NOX: 2.44 2.67 3.09 2.71 4.54 2.91 3.42 28.51 0.85 2.730

0 Evaporative Emissions by Component

Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)

Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
Multiple 18.53 24.22 28.07 25.40 59.20
Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
Refuel 4.58 4.58 4.58 4.58 4.58
Resting 0.11 0.10 0.10 0.10 0.15 0.19

0 Emission factors are as of July 1st of the indicated calendar year.

0 Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

045 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds: 45.0 45.0 45.0 45.0 45.0 45.0 45.0 45.0
VMT Mix: 0.780 0.184 0.017 0.001 0.006 0.002 0.009 0.001

0 Composite Emission Factors (Gm/Mile)

Non-Meth HC: 2.08 2.72 3.64 2.80 8.95 0.37 0.55 1.36 5.88 2.215
Exhaust HC: 0.98 1.41 1.92 1.45 1.98 0.37 0.55 1.36 1.12 1.078
Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.706
Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
Running L HC: 0.34 0.35 0.53 0.37 0.97 0.342
Resting L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.089
Exhaust CO: 14.09 18.81 25.34 19.37 69.07 0.82 0.99 6.08 10.50 15.027
Exhaust NOX: 1.81 2.12 2.57 2.16 6.55 1.59 1.87 15.54 1.04 2.009

0 Evaporative Emissions by Component

Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)

Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
Multiple 18.53 24.22 28.07 25.40 59.20
Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
Refuel 4.58 4.58 4.58 4.58 4.58
Resting 0.11 0.10 0.10 0.10 0.15 0.19

0 Emission factors are as of July 1st of the indicated calendar year.

0 Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

043 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds: 43.0 43.0 43.0 43.0 43.0 43.0 43.0 43.0
VMT Mix: 0.780 0.184 0.017 0.001 0.006 0.002 0.009 0.001

0 Composite Emission Factors (Gm/Mile)

Non-Meth HC: 2.15 2.78 3.72 2.86 9.10 0.38 0.57 1.40 5.90 2.282
Exhaust HC: 1.02 1.45 1.97 1.49 2.08 0.38 0.57 1.40 1.14 1.112
Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.706

Refuel L HC:	0.00	0.00	0.00	0.00	0.00						0.000
Running L HC:	0.38	0.37	0.55	0.39	1.03						0.375
Rating L HC:	0.09	0.09	0.08	0.09	0.15						0.44 0.089
Exhaust CO:	14.53	19.26	25.96	19.82	69.23	0.84	1.00	6.17	10.91	15.457	
Exhaust NOX:	1.80	2.11	2.55	2.15	6.46	1.54	1.81	15.10	1.03	1.996	

OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14						16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61						21.16
Multiple	18.53	24.22	28.07	25.40	59.20						
Crankcase	0.01	0.02	0.03	0.02	0.04						0.00
Refuel	4.58	4.58	4.58	4.58	4.58						
Resting	0.11	0.10	0.10	0.10	0.15						0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

028 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

	Period 1 RVP: 9.5		Period 2 RVP: 9.5		Period 2 Start Yr: 1990						
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh	
+											
Veh. Speeds:	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0			
VMT Mix:	0.780	0.184	0.017		0.001	0.006	0.002	0.009	0.001		

0Composite Emission Factors (Gm/Mile)

Non-Meth HC:	2.91	3.55	4.77	3.65	11.33	0.54	0.82	2.00	6.30	3.046	
Exhaust HC:	1.44	2.00	2.71	2.06	3.68	0.54	0.82	2.00	1.54	1.563	
Evaporat HC:	0.66	0.87	1.11	0.89	5.85						4.32 0.706
Refuel L HC:	0.00	0.00	0.00	0.00	0.00						0.000
Running L HC:	0.72	0.60	0.87	0.62	1.66						0.688
Rating L HC:	0.09	0.09	0.08	0.09	0.15						0.44 0.089
Exhaust CO:	20.20	26.23	34.75	26.95	93.31	1.19	1.42	8.77	17.65	21.370	
Exhaust NOX:	1.74	2.00	2.41	2.04	5.75	1.49	1.75	14.56	0.89	1.913	

OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14						16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61						21.16
Multiple	18.53	24.22	28.07	25.40	59.20						
Crankcase	0.01	0.02	0.03	0.02	0.04						0.00
Refuel	4.58	4.58	4.58	4.58	4.58						
Resting	0.11	0.10	0.10	0.10	0.15						0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

032 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

	Period 1 RVP: 9.5		Period 2 RVP: 9.5		Period 2 Start Yr: 1990						
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh	
+											
Veh. Speeds:	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0			
VMT Mix:	0.780	0.184	0.017		0.001	0.006	0.002	0.009	0.001		

0Composite Emission Factors (Gm/Mile)

Non-Meth HC:	2.65	3.27	4.39	3.37	10.48	0.48	0.73	1.78	6.15	2.783	
Exhaust HC:	1.29	1.79	2.44	1.85	3.04	0.48	0.73	1.78	1.39	1.399	
Evaporat HC:	0.66	0.87	1.11	0.89	5.85						4.32 0.706
Refuel L HC:	0.00	0.00	0.00	0.00	0.00						0.000
Running L HC:	0.61	0.52	0.76	0.54	1.44						0.589
Rating L HC:	0.09	0.09	0.08	0.09	0.15						0.44 0.089
Exhaust CO:	18.13	23.60	31.51	24.27	82.10	1.04	1.24	7.67	15.11	19.192	
Exhaust NOX:	1.76	2.04	2.45	2.07	5.94	1.46	1.71	14.25	0.95	1.935	

OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14						16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61						21.16
Multiple	18.53	24.22	28.07	25.40	59.20						
Crankcase	0.01	0.02	0.03	0.02	0.04						0.00
Refuel	4.58	4.58	4.58	4.58	4.58						
Resting	0.11	0.10	0.10	0.10	0.15						0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

049 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

0 Veh. Type:	Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990			HDDV	MC	All Veh
	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT					
+												
Veh. Speeds:	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0				
VMT Mix:	0.780	0.184	0.017	0.001	0.006	0.002	0.009	0.001				
OComposite Emission Factors (Gm/Mile)												
Non-Meth HC:	1.97	2.63	3.51	2.71	8.69	0.35	0.52	1.28	5.86	2.111		
Exhaust HC:	0.94	1.36	1.85	1.40	1.83	0.35	0.52	1.28	1.10	1.033		
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.706			
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000			
Running L HC:	0.28	0.31	0.47	0.33	0.86				0.283			
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.089			
Exhaust CO:	13.53	18.27	24.55	18.80	70.57	0.81	0.98	6.02	10.01	14.473		
Exhaust NOX:	1.90	2.23	2.70	2.27	6.74	1.71	2.01	16.75	1.10	2.110		
OEvaporative Emissions by Component												
						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)				
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Resting Loss Temp: 83.9 (F)		Running Loss Temp: 92.2 (F)				
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37				
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16				
Multiple	18.53	24.22	28.07	25.40	59.20							
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00				
Refuel	4.58	4.58	4.58	4.58	4.58							
Resting	0.11	0.10	0.10	0.10	0.15			0.19				

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

048 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

0 Veh. Type:	Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990			HDDV	MC	All Veh
	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT					
+												
Veh. Speeds:	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0				
VMT Mix:	0.780	0.184	0.017	0.001	0.006	0.002	0.009	0.001				
OComposite Emission Factors (Gm/Mile)												
Non-Meth HC:	1.98	2.65	3.53	2.72	8.76	0.35	0.53	1.30	5.86	2.122		
Exhaust HC:	0.94	1.36	1.85	1.40	1.86	0.35	0.53	1.30	1.10	1.033		
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.706			
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000			
Running L HC:	0.29	0.33	0.49	0.34	0.89				0.294			
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.089			
Exhaust CO:	13.53	18.27	24.55	18.80	69.96	0.81	0.98	6.01	10.01	14.472		
Exhaust NOX:	1.83	2.14	2.59	2.18	6.70	1.68	1.97	16.41	1.07	2.031		
OEvaporative Emissions by Component												
						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)				
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Resting Loss Temp: 83.9 (F)		Running Loss Temp: 92.2 (F)				
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37				
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16				
Multiple	18.53	24.22	28.07	25.40	59.20							
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00				
Refuel	4.58	4.58	4.58	4.58	4.58							
Resting	0.11	0.10	0.10	0.10	0.15			0.19				

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

040 MPH R LOCAL Minimum Temp: 68. (F) Maximum Temp: 96. (F)

0 Veh. Type:	Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990			HDDV	MC	All Veh
	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT					
+												
Veh. Speeds:	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0				
VMT Mix:	0.712	0.242	0.015	0.002	0.004	0.003	0.022	0.000				
OComposite Emission Factors (Gm/Mile)												
Non-Meth HC:	2.26	2.88	3.86	2.94	9.38	0.40	0.60	1.48	5.95	2.423		
Exhaust HC:	1.07	1.52	2.07	1.55	2.26	0.40	0.60	1.48	1.18	1.203		
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.711			
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000			
Running L HC:	0.44	0.41	0.60	0.42	1.12				0.422			
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.087			
Exhaust CO:	15.28	20.09	27.08	20.49	70.64	0.87	1.04	6.41	0.00	16.434		
Exhaust NOX:	1.79	2.09	2.53	2.12	6.32	1.49	1.75	14.61	0.00	2.166		
OEvaporative Emissions by Component												
						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)				
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Resting Loss Temp: 83.9 (F)		Running Loss Temp: 92.2 (F)				
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37				
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16				
Multiple	18.53	24.22	28.07	25.40	59.20							

Crankcase	0.01	0.02	0.03	0.02	0.04	0.00
Refuel	4.58	4.58	4.58	4.58	4.58	
Resting	0.11	0.10	0.10	0.10	0.15	0.19

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

025 MPH R LOCAL		Minimum Temp: 68. (F)			Maximum Temp: 96. (F)					
		Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990		
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		
VTM Mix:	0.712	0.242	0.015	0.002	0.004	0.003	0.022	0.000		
0Composite Emission Factors (Gm/Mile)										
Non-Meth HC:	32.09	34.50	50.36	35.43	79.82	1.56	2.36	5.77	14.76	32.257
Exhaust HC:	11.55	15.05	21.93	15.45	22.86	1.56	2.36	5.77	10.00	12.378
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.711	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	19.79	18.50	27.23	19.01	50.96				19.080	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.087	
Exhaust CO:	171.28	224.06	333.46	230.44	482.72	5.51	6.61	40.74	0.00	183.080
Exhaust NOX:	2.44	2.67	3.09	2.70	4.54	2.91	3.42	28.51	0.00	3.085
0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)										
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)										
Resting Loss Temp: 83.9 (F)										
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

025 MPH U MA/ART		Minimum Temp: 68. (F)			Maximum Temp: 96. (F)					
		Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990		
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0		
VTM Mix:	0.766	0.197	0.017	0.001	0.006	0.002	0.010	0.001		
0Composite Emission Factors (Gm/Mile)										
Non-Meth HC:	2.65	3.27	4.39	3.36	10.48	0.48	0.73	1.78	6.15	2.790
Exhaust HC:	1.29	1.79	2.44	1.84	3.04	0.48	0.73	1.78	1.39	1.406
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.708	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.61	0.52	0.76	0.54	1.44				0.588	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.089	
Exhaust CO:	18.13	23.60	31.51	24.23	82.10	1.04	1.24	7.67	15.11	19.253
Exhaust NOX:	1.76	2.04	2.45	2.07	5.94	1.46	1.71	14.25	0.95	1.951
0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)										
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)										
Resting Loss Temp: 83.9 (F)										
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

032 MPH U MA/ART		Minimum Temp: 68. (F)			Maximum Temp: 96. (F)					
		Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990		
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0		
VTM Mix:	0.766	0.197	0.017	0.001	0.006	0.002	0.010	0.001		
0Composite Emission Factors (Gm/Mile)										
Non-Meth HC:	2.65	3.27	4.39	3.36	10.48	0.48	0.73	1.78	6.15	2.790
Exhaust HC:	1.29	1.79	2.44	1.84	3.04	0.48	0.73	1.78	1.39	1.406
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.708	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.61	0.52	0.76	0.54	1.44				0.588	

Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.089
 Exhaust CO: 18.13 23.60 31.51 24.23 82.10 1.04 1.24 7.67 15.11 19.253
 Exhaust NOX: 1.76 2.04 2.45 2.07 5.94 1.46 1.71 14.25 0.95 1.951
 OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)
 Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
 WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
 Multiple 18.53 24.22 28.07 25.40 59.20
 Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
 Refuel 4.58 4.58 4.58 4.58 4.58
 Resting 0.11 0.10 0.10 0.10 0.15 0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

024 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 24.0 24.0 24.0 24.0 24.0 24.0 24.0 24.0
 VMT Mix: 0.766 0.197 0.017 0.001 0.006 0.002 0.010 0.001

OE Composite Emission Factors (Gm/Mile)

Non-Meth HC: 3.24 3.91 5.27 4.02 12.49 0.61 0.93 2.27 6.48 3.387
 Exhaust HC: 1.64 2.26 3.06 2.32 4.56 0.61 0.93 2.27 1.71 1.786
 Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.708
 Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
 Running L HC: 0.85 0.69 1.01 0.72 1.93 0.804
 Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.089
 Exhaust CO: 22.92 29.60 38.97 30.34 109.85 1.40 1.67 10.32 20.85 24.292
 Exhaust NOX: 1.71 1.95 2.35 1.98 5.56 1.56 1.83 15.22 0.83 1.904

OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
 WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
 Multiple 18.53 24.22 28.07 25.40 59.20
 Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
 Refuel 4.58 4.58 4.58 4.58 4.58
 Resting 0.11 0.10 0.10 0.10 0.15 0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

045 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 45.0 45.0 45.0 45.0 45.0 45.0 45.0
 VMT Mix: 0.766 0.197 0.017 0.001 0.006 0.002 0.010 0.001

OE Composite Emission Factors (Gm/Mile)

Non-Meth HC: 2.08 2.72 3.64 2.80 8.95 0.37 0.55 1.36 5.88 2.222
 Exhaust HC: 0.98 1.41 1.92 1.45 1.98 0.37 0.55 1.36 1.12 1.084
 Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.708
 Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
 Running L HC: 0.34 0.35 0.53 0.37 0.97 0.342
 Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.089
 Exhaust CO: 14.09 18.81 25.34 19.33 69.07 0.82 0.99 6.08 10.50 15.081
 Exhaust NOX: 1.81 2.12 2.57 2.16 6.55 1.59 1.87 15.54 1.04 2.027

OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
 WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
 Multiple 18.53 24.22 28.07 25.40 59.20
 Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
 Refuel 4.58 4.58 4.58 4.58 4.58
 Resting 0.11 0.10 0.10 0.10 0.15 0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

025 MPH R MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

Emission factors are as of July 1st of the indicated calendar year.											
OCal. Year: 1993		I/M Program: No		Ambient Temp: 89.3 / 89.3 / 89.3 (F)		Region: Low					
Anti-tan. Program: No		Operating Mode: 20.6 / 27.3 / 20.6		Altitude: 500. Ft.							
Reformulated Gas: No											
039 MPH R MA/ART		Minimum Temp: 68. (F)				Maximum Temp: 96. (F)					
		Period 1 RVP: 9.5		Period 2 RVP: 9.5		Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh	
+											
Veh. Speeds:	39.0	39.0	39.0	39.0	39.0	39.0	39.0				
VMT Mix:	0.673	0.269	0.022	0.007	0.005	0.002	0.022	0.000			
0Composite Emission Factors (Gm/Mile)											
Non-Meth HC:	2.31	2.92	3.92	3.00	9.49	0.41	0.62	1.51	5.97	2.527	
Exhaust HC:	1.09	1.54	2.11	1.59	2.33	0.41	0.62	1.51	1.20	1.251	
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.746		
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000		
Running L HC:	0.46	0.42	0.62	0.43	1.16				0.443		
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.087		
Exhaust CO:	15.56	20.42	27.51	20.95	71.43	0.88	1.06	6.51	0.00	17.219	
Exhaust NOX:	1.79	2.09	2.52	2.12	6.27	1.48	1.74	14.49	0.00	2.195	
0Evaporative Emissions by Component				Weathered RVP: 8.9				Hot Soak Temp: 91.2 (F)			
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)				Running Loss Temp: 92.2 (F)							
				Resting Loss Temp: 83.9 (F)							
Hot Soak	3.46	4.35	6.35	4.96	21.14	16.37					
WtDiurnal	7.55	11.58	16.87	13.20	54.61	21.16					
Multiple	18.53	24.22	28.07	25.40	59.20						
Crankcase	0.01	0.02	0.03	0.02	0.04	0.00					
Refuel	4.58	4.58	4.58	4.58	4.58						

Resting 0.11 0.10 0.10 0.10 0.15 0.19

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

025 MPH U MA/ART			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)				
Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990				
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5			
VTM Mix:	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001		
0Composite Emission Factors (Gm/Mile)										
Non-Meth HC:	32.09	34.50	50.36	35.78	79.82	1.56	2.36	5.77	14.76	31.853
Exhaust HC:	11.55	15.05	21.93	15.60	22.86	1.56	2.36	5.77	10.00	12.542
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.716	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	19.79	18.50	27.23	19.20	50.96				18.510	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.085	
Exhaust CO:	171.28	224.06	333.46	232.87	482.72	5.51	6.61	40.74	185.46	184.624
Exhaust NOX:	2.44	2.67	3.09	2.71	4.54	2.91	3.42	28.51	0.85	3.659
0Evaporative Emissions by Component										
					Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)										
					Resting Loss Temp: 83.9 (F)			Running Loss Temp: 92.2 (F)		
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtdDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

040 MPH U MA/ART			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)				
Period 1 RVP: 9.5			Period 2 RVP: 9.5		Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0		
VTM Mix:	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001		
0Composite Emission Factors (Gm/Mile)										
Non-Meth HC:	2.26	2.88	3.86	2.96	9.38	0.40	0.60	1.48	5.95	2.457
Exhaust HC:	1.07	1.52	2.07	1.56	2.26	0.40	0.60	1.48	1.18	1.248
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.716	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.44	0.41	0.60	0.42	1.12				0.409	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.085	
Exhaust CO:	15.28	20.09	27.08	20.65	70.64	0.87	1.04	6.41	11.69	16.602
Exhaust NOX:	1.79	2.09	2.53	2.13	6.32	1.49	1.75	14.61	1.02	2.462
0Evaporative Emissions by Component					Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)										
Resting Loss Temp: 83.9 (F)										
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

025 MPH U MA/ART										
Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990				
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		
VTM Mix:	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001		
0Composite Emission Factors (Gm/Mile)										
Non-Meth HC:	32.09	34.50	50.36	35.76	79.82	1.56	2.36	5.77	14.76	32.146
Exhaust HC:	11.55	15.05	21.93	15.59	22.86	1.56	2.36	5.77	10.00	12.169
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.701	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	19.79	18.50	27.23	19.19	50.96				19.189	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.088	
Exhaust CO:	171.28	224.06	333.46	232.72	482.72	5.51	6.61	40.74	185.46	180.230

Exhaust NOX: 2.44 2.67 3.09 2.71 4.54 2.91 3.42 28.51 0.85 2.760
 OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14	16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61	21.16
Multiple	18.53	24.22	28.07	25.40	59.20	
Crankcase	0.01	0.02	0.03	0.02	0.04	0.00
Refuel	4.58	4.58	4.58	4.58	4.58	
Resting	0.11	0.10	0.10	0.10	0.15	0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

033 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 33.0 33.0 33.0 33.0 33.0 33.0 33.0 33.0
 VMT Mix: 0.771 0.186 0.016 0.001 0.012 0.003 0.010 0.001

OC Composite Emission Factors (Gm/Mile)
 Non-Meth HC: 2.60 3.21 4.31 3.30 10.31 0.47 0.71 1.74 6.12 2.710
 Exhaust HC: 1.25 1.75 2.39 1.80 2.91 0.47 0.71 1.74 1.36 1.359
 Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.701
 Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
 Running L HC: 0.59 0.50 0.74 0.52 1.39 0.562
 Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.088
 Exhaust CO: 17.69 23.04 30.82 23.66 79.95 1.01 1.21 7.45 14.57 18.601
 Exhaust NOX: 1.76 2.05 2.46 2.08 5.99 1.45 1.71 14.23 0.96 1.951

OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14	16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61	21.16
Multiple	18.53	24.22	28.07	25.40	59.20	
Crankcase	0.01	0.02	0.03	0.02	0.04	0.00
Refuel	4.58	4.58	4.58	4.58	4.58	
Resting	0.11	0.10	0.10	0.10	0.15	0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

025 MPH R/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 2.5 2.5 2.5 2.5 2.5 2.5 2.5
 VMT Mix: 0.700 0.224 0.019 0.002 0.005 0.002 0.047 0.001

OC Composite Emission Factors (Gm/Mile)
 Non-Meth HC: 32.09 34.50 50.36 35.74 79.82 1.56 2.36 5.77 14.76 31.610
 Exhaust HC: 11.55 15.05 21.93 15.59 22.86 1.56 2.36 5.77 10.00 12.210
 Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.696
 Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
 Running L HC: 19.79 18.50 27.23 19.18 50.96 18.619
 Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.085
 Exhaust CO: 171.28 224.06 333.46 232.61 482.72 5.51 6.61 40.74 185.46 179.528
 Exhaust NOX: 2.44 2.67 3.09 2.71 4.54 2.91 3.42 28.51 0.85 3.733

OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14	16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61	21.16
Multiple	18.53	24.22	28.07	25.40	59.20	
Crankcase	0.01	0.02	0.03	0.02	0.04	0.00
Refuel	4.58	4.58	4.58	4.58	4.58	
Resting	0.11	0.10	0.10	0.10	0.15	0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

063 MPH U/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 63.0 63.0 63.0 63.0 63.0 63.0 63.0

VMT Mix: 0.700 0.224 0.019 0.002 0.005 0.002 0.047 0.001
 OComposite Emission Factors (Gm/Mile)
 Non-Meth HC: 2.31 3.22 4.37 3.31 8.25 0.32 0.48 1.18 6.49 2.503
 Exhaust HC: 1.39 2.07 2.89 2.13 1.73 0.32 0.48 1.18 1.72 1.552
 Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.696
 Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
 Running L HC: 0.17 0.19 0.29 0.20 0.52 0.169
 Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.085
 Exhaust CO: 31.77 47.31 66.07 48.77 100.43 0.99 1.19 7.31 29.30 34.670
 Exhaust NOX: 2.93 3.44 4.26 3.51 7.40 2.66 3.13 26.04 1.59 4.163
 OEvaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)
 Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
 WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
 Multiple 18.53 24.22 28.07 25.40 59.20
 Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
 Refuel 4.58 4.58 4.58 4.58 4.58
 Resting 0.11 0.10 0.10 0.10 0.15 0.19

O Emission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

050 MPH U/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 50.0 50.0 50.0 50.0 50.0 50.0 50.0 50.0
 VMT Mix: 0.700 0.224 0.019 0.002 0.005 0.002 0.047 0.001
 OComposite Emission Factors (Gm/Mile)
 Non-Meth HC: 1.96 2.62 3.49 2.69 8.63 0.34 0.52 1.27 5.86 2.111
 Exhaust HC: 0.94 1.36 1.85 1.40 1.81 0.34 0.52 1.27 1.10 1.065
 Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.696
 Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
 Running L HC: 0.27 0.30 0.45 0.31 0.82 0.264
 Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.085
 Exhaust CO: 13.53 18.27 24.55 18.76 71.35 0.82 0.98 6.03 10.01 14.471
 Exhaust NOX: 1.97 2.31 2.81 2.35 6.79 1.75 2.06 17.13 1.13 2.785
 OEvaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)
 Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
 WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
 Multiple 18.53 24.22 28.07 25.40 59.20
 Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
 Refuel 4.58 4.58 4.58 4.58 4.58
 Resting 0.11 0.10 0.10 0.10 0.15 0.19

O Emission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

047 MPH R/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 47.0 47.0 47.0 47.0 47.0 47.0 47.0 47.0
 VMT Mix: 0.700 0.224 0.019 0.002 0.005 0.002 0.047 0.001
 OComposite Emission Factors (Gm/Mile)
 Non-Meth HC: 2.01 2.67 3.56 2.74 8.82 0.36 0.54 1.32 5.87 2.163
 Exhaust HC: 0.95 1.37 1.87 1.41 1.90 0.36 0.54 1.32 1.10 1.081
 Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.696
 Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
 Running L HC: 0.31 0.34 0.50 0.35 0.92 0.301
 Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.085
 Exhaust CO: 13.71 18.44 24.80 18.93 69.51 0.82 0.98 6.02 10.16 14.635
 Exhaust NOX: 1.82 2.13 2.58 2.17 6.65 1.64 1.93 16.09 1.06 2.584
 OEvaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)
 Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
 WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
 Multiple 18.53 24.22 28.07 25.40 59.20
 Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
 Refuel 4.58 4.58 4.58 4.58 4.58
 Resting 0.11 0.10 0.10 0.10 0.15 0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

049 MPH R/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+ Veh. Speeds: 49.0 49.0 49.0 49.0 49.0 49.0 49.0 49.0 49.0
VMT Mix: 0.700 0.224 0.019 0.002 0.005 0.002 0.047 0.001

0Composite Emission Factors (Gm/Mile)

Non-Meth HC:	1.97	2.63	3.51	2.70	8.69	0.35	0.52	1.28	5.86	2.122
Exhaust HC:	0.94	1.36	1.85	1.40	1.83	0.35	0.52	1.28	1.10	1.066
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.696	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.28	0.31	0.47	0.33	0.86				0.275	
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.085	
Exhaust CO:	13.53	18.27	24.55	18.76	70.57	0.81	0.98	6.02	10.01	14.468
Exhaust NOX:	1.90	2.23	2.70	2.26	6.74	1.71	2.01	16.75	1.10	2.694

0Evaporative Emissions by Component

Weathered RVP: 8.9

Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)

Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14		16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61		21.16
Multiple	18.53	24.22	28.07	25.40	59.20		
Crankcase	0.01	0.02	0.03	0.02	0.04		0.00
Refuel	4.58	4.58	4.58	4.58	4.58		
Resting	0.11	0.10	0.10	0.10	0.15		0.19

1

MOBILE5 (4-Dec-92)

0

-M 89 Error:

+ 0 out of bounds for flag PROMPT (1 to 4)

Interim-TDM Total Hydrocarbons

0Total HC emission factors include evaporative HC emission factors.

0

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

025 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds: 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5
VMT Mix: 0.790 0.182 0.018 0.002 0.000 0.000 0.008 0.000

0Composite Emission Factors (Gm/Mile)

Total HC:	32.68	35.27	51.33	36.71	81.46	1.58	2.40	6.02	15.95	33.372
Exhaust HC:	12.13	15.81	22.91	16.45	24.50	1.58	2.40	6.02	11.19	12.973
Evaporat HC:	0.66	0.87	1.11	0.90	5.85			4.32	0.714	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	19.79	18.50	27.23	19.28	50.96				19.596	
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.090	
Exhaust CO:	171.28	224.06	333.46	233.90	482.72	0.00	0.00	40.74	0.00	183.385
Exhaust NOX:	2.44	2.67	3.09	2.71	4.54	0.00	0.00	28.51	0.00	2.703

0Evaporative Emissions by Component

Weathered RVP: 8.9

Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

044 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds: 44.0 44.0 44.0 44.0 44.0 44.0 44.0 44.0 44.0
VMT Mix: 0.790 0.182 0.018 0.002 0.000 0.000 0.008 0.000

0Composite Emission Factors (Gm/Mile)

Total HC:	2.17	2.83	3.77	2.91	9.17	0.38	0.57	1.44	6.03	2.324
Exhaust HC:	1.05	1.50	2.03	1.55	2.17	0.38	0.57	1.44	1.26	1.159
Evaporat HC:	0.66	0.87	1.11	0.90	5.85			4.32	0.714	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.36	0.36	0.54	0.38	1.00				0.363	
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.090	
Exhaust CO:	14.30	19.03	25.64	19.62	69.07	0.00	0.00	6.12	0.00	15.411
Exhaust NOX:	1.81	2.12	2.56	2.16	6.51	0.00	0.00	15.31	0.00	1.996

0Evaporative Emissions by Component

Weathered RVP: 8.9

Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

043 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds: 43.0 43.0 43.0 43.0 43.0 43.0 43.0 43.0 43.0
VMT Mix: 0.790 0.182 0.018 0.002 0.000 0.000 0.008 0.000

0Composite Emission Factors (Gm/Mile)

Total HC:	2.20	2.86	3.81	2.94	9.25	0.38	0.58	1.46	6.04	2.360
Exhaust HC:	1.07	1.52	2.06	1.57	2.22	0.38	0.58	1.46	1.27	1.177
Evaporat HC:	0.66	0.87	1.11	0.90	5.85			4.32	0.714	

0Evaporative Emissions by Component						Weathered RVP: 8.9	Hot Soak Temp: 91.2 (F)
(Hot Soak: g/rip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Running Loss Temp: 92.2 (F)	
						Resting Loss Temp: 83.9 (F)	
Hot Soak	3.46	4.35	6.35	4.96	21.14		16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61		21.16
Multiple	18.53	24.22	28.07	25.40	59.20		
Crankcase	0.01	0.02	0.03	0.02	0.04		0.00
Refuel	4.58	4.58	4.58	4.58	4.58		
Resting	0.11	0.10	0.10	0.10	0.15		0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

028 MPH U MA/ART		Minimum Temp: 68. (F)			Maximum Temp: 96. (F)		
		Period 1 RVP: 9.5		Period 2 RVP: 9.5		Period 2 Start Yr: 1990	
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT
+							
Veh. Speeds:	28.0	28.0	28.0	28.0	28.0	28.0	28.0
VMT Mix:	0.790	0.182	0.018	0.002	0.000	0.000	0.008

0Composite Emission Factors (Gm/Mile)

Total HC:	2.99	3.66	4.90	3.77	11.59	0.55	0.83	2.09	6.48	3.155
Exhaust HC:	1.52	2.10	2.84	2.17	3.94	0.55	0.83	2.09	1.72	1.655
Evaporat HC:	0.66	0.87	1.11	0.90	5.85				4.32	0.714
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	0.72	0.60	0.87	0.62	1.66					0.697
Resting L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.090
Exhaust CO:	20.20	26.23	34.75	27.00	93.31	0.00	0.00	8.77	0.00	21.611
Exhaust NOX:	1.74	2.00	2.41	2.04	5.75	0.00	0.00	14.56	0.00	1.906

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/rip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14					16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61					21.16
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15					0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

032 MPH U MA/ART		Minimum Temp: 68. (F)			Maximum Temp: 96. (F)		
		Period 1 RVP: 9.5		Period 2 RVP: 9.5		Period 2 Start Yr: 1990	
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT
+							
Veh. Speeds:	32.0	32.0	32.0	32.0	32.0	32.0	32.0
VMT Mix:	0.790	0.182	0.018	0.002	0.000	0.000	0.008

0Composite Emission Factors (Gm/Mile)

Total HC:	2.72	3.37	4.51	3.47	10.70	0.49	0.74	1.86	6.32	2.881
Exhaust HC:	1.35	1.89	2.56	1.95	3.26	0.49	0.74	1.86	1.55	1.481
Evaporat HC:	0.66	0.87	1.11	0.90	5.85				4.32	0.714
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	0.61	0.52	0.76	0.54	1.44					0.597
Resting L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.090
Exhaust CO:	18.13	23.60	31.51	24.31	82.10	0.00	0.00	7.67	0.00	19.408
Exhaust NOX:	1.76	2.04	2.45	2.08	5.94	0.00	0.00	14.25	0.00	1.929

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/rip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14					16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61					21.16
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15					0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

050 MPH U MA/ART		Minimum Temp: 68. (F)			Maximum Temp: 96. (F)		
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Veh. Speeds:	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
VMF Mix:	0.790	0.182	0.018	0.002	0.000	0.000	0.008	0.000	
OComposite Emission Factors (Gm/Mile)									
Total HC:	2.01	2.69	3.58	2.77	8.76	0.35	0.53	1.32	5.99 2.171
Exhaust HC:	0.99	1.43	1.93	1.48	1.94	0.35	0.53	1.32	1.23 1.093
Evaporat HC:	0.66	0.87	1.11	0.90	5.85			4.32	0.714
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000
Running L HC:	0.27	0.30	0.45	0.32	0.82				0.275
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.090
Exhaust CO:	13.53	18.27	24.55	18.83	71.35	0.00	0.00	6.03	0.00 14.645
Exhaust NOX:	1.97	2.31	2.81	2.36	6.79	0.00	0.00	17.13	0.00 2.181
OEvaportive Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)									
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)									
Resting Loss Temp: 83.9 (F)									
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16	
Multiple	18.53	24.22	28.07	25.40	59.20				
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00	
Refuel	4.58	4.58	4.58	4.58	4.58				
Resting	0.11	0.10	0.10	0.10	0.15			0.19	

O Emission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

025 MPH R LOCAL Minimum Temp: 68. (F) Maximum Temp: 96. (F)

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
VMF Mix:	0.818	0.176	0.002	0.002	0.000	0.000	0.002	0.000	
OComposite Emission Factors (Gm/Mile)									
Total HC:	32.68	35.27	51.33	35.45	81.46	1.58	2.40	6.02	15.95 33.218
Exhaust HC:	12.13	15.81	22.91	15.89	24.50	1.58	2.40	6.02	11.19 12.815
Evaporat HC:	0.66	0.87	1.11	0.88	5.85			4.32	0.709
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000
Running L HC:	19.79	18.50	27.23	18.59	50.96				19.604
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.090
Exhaust CO:	171.28	224.06	333.46	225.29	482.72	0.00	0.00	40.74	0.00 181.257
Exhaust NOX:	2.44	2.67	3.09	2.68	4.54	0.00	0.00	28.51	0.00 2.535
OEvaportive Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)									
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)									
Resting Loss Temp: 83.9 (F)									
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16	
Multiple	18.53	24.22	28.07	25.40	59.20				
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00	
Refuel	4.58	4.58	4.58	4.58	4.58				
Resting	0.11	0.10	0.10	0.10	0.15			0.19	

O Emission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

040 MPH R LOCAL Minimum Temp: 68. (F) Maximum Temp: 96. (F)

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

Veh. Speeds:	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	
VMF Mix:	0.818	0.176	0.002	0.002	0.000	0.000	0.002	0.000	
OComposite Emission Factors (Gm/Mile)									
Total HC:	2.32	2.96	3.96	2.98	9.54	0.41	0.61	1.54	6.09 2.451
Exhaust HC:	1.13	1.60	2.17	1.60	2.42	0.41	0.61	1.54	1.32 1.219
Evaporat HC:	0.66	0.87	1.11	0.88	5.85			4.32	0.709
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000
Running L HC:	0.44	0.41	0.60	0.41	1.12				0.433
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.090
Exhaust CO:	15.28	20.09	27.08	20.16	70.64	0.00	0.00	6.41	0.00 16.241
Exhaust NOX:	1.79	2.09	2.53	2.10	6.32	0.00	0.00	14.61	0.00 1.882
OEvaportive Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)									
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)									
Resting Loss Temp: 83.9 (F)									
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16	
Multiple	18.53	24.22	28.07	25.40	59.20				

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

041 MPH R LOCAL

Minimum Temp: 68. (F)

Maximum Temp: 96. (F)

Period 1 RVP: 9.5

Period 2 RVP: 9.5

Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+ Veh. Speeds: 41.0 41.0 41.0 41.0 41.0 41.0 41.0 41.0
VMT Mix: 0.818 0.176 0.002 0.002 0.000 0.000 0.002 0.000

0Composite Emission Factors (Gm/Mile)

Total HC: 2.28 2.93 3.91 2.94 9.44 0.40 0.60 1.51 6.07 2.411
Exhaust HC: 1.11 1.57 2.13 1.58 2.35 0.40 0.60 1.51 1.31 1.197
Evaporat HC: 0.66 0.87 1.11 0.88 5.85 4.32 0.709
Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
Running L HC: 0.42 0.40 0.58 0.40 1.09 0.415
Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.090
Exhaust CO: 15.01 19.78 26.68 19.86 70.01 0.00 0.00 6.32 0.00 15.967
Exhaust NOX: 1.80 2.10 2.54 2.10 6.36 0.00 0.00 14.75 0.00 1.887

0Evaporative Emissions by Component

Weathered RVP: 8.9

Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)

Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
Multiple 18.53 24.22 28.07 25.40 59.20
Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
Refuel 4.58 4.58 4.58 4.58 4.58
Resting 0.11 0.10 0.10 0.10 0.15 0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

025 MPH U MA/ART

Minimum Temp: 68. (F)

Maximum Temp: 96. (F)

Period 1 RVP: 9.5

Period 2 RVP: 9.5

Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+ Veh. Speeds: 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5
VMT Mix: 0.760 0.207 0.018 0.002 0.001 0.002 0.010 0.000

0Composite Emission Factors (Gm/Mile)

Total HC: 32.68 35.27 51.33 36.55 81.46 1.58 2.40 6.02 15.95 33.292
Exhaust HC: 12.13 15.81 22.91 16.38 24.50 1.58 2.40 6.02 11.19 13.022
Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.716
Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
Running L HC: 19.79 18.50 27.23 19.20 50.96 19.465
Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.089
Exhaust CO: 171.28 224.06 333.46 232.81 482.72 5.51 6.61 40.74 0.00 183.948
Exhaust NOX: 2.44 2.67 3.09 2.71 4.54 2.91 3.42 28.51 0.00 2.763

0Evaporative Emissions by Component

Weathered RVP: 8.9

Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)

Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
Multiple 18.53 24.22 28.07 25.40 59.20
Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
Refuel 4.58 4.58 4.58 4.58 4.58
Resting 0.11 0.10 0.10 0.10 0.15 0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

045 MPH U MA/ART

Minimum Temp: 68. (F)

Maximum Temp: 96. (F)

HC: 0.66 0.87 1.11 0.88 5.85

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+ Veh. Speeds: 45.0 45.0 45.0 45.0 45.0 45.0 45.0 45.0
VMT Mix: 0.760 0.207 0.018 0.002 0.001 0.002 0.010 0.000

0Composite Emission Factors (Gm/Mile)

Total HC: 2.13 2.80 3.73 2.87 9.09 0.37 0.56 1.41 6.02 2.300
Exhaust HC: 1.04 1.48 2.01 1.52 2.12 0.37 0.56 1.41 1.25 1.151
Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.716
Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
Running L HC: 0.34 0.35 0.53 0.37 0.97 0.345

Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.089
 Exhaust CO: 14.09 18.81 25.34 19.34 69.07 0.82 0.99 6.08 0.00 15.264
 Exhaust NOX: 1.81 2.12 2.57 2.16 6.55 1.59 1.87 15.54 0.00 2.037
 0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14	16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61	21.16
Multiple	18.53	24.22	28.07	25.40	59.20	
Crankcase	0.01	0.02	0.03	0.02	0.04	0.00
Refuel	4.58	4.58	4.58	4.58	4.58	
Resting	0.11	0.10	0.10	0.10	0.15	0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

025 MPH R MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5
 VMT Mix: 0.741 0.229 0.017 0.011 0.000 0.000 0.002 0.000

0Composite Emission Factors (Gm/Mile)
 Total HC: 32.68 35.27 51.33 36.38 81.46 1.58 2.40 6.02 15.95 34.074
 Exhaust HC: 12.13 15.81 22.91 16.30 24.50 1.58 2.40 6.02 11.19 13.283
 Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.774
 Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
 Running L HC: 19.79 18.50 27.23 19.10 50.96 19.927
 Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.090
 Exhaust CO: 171.28 224.06 333.46 231.62 482.72 0.00 0.00 40.74 0.00 189.289
 Exhaust NOX: 2.44 2.67 3.09 2.70 4.54 0.00 0.00 28.51 0.00 2.576

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14	16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61	21.16
Multiple	18.53	24.22	28.07	25.40	59.20	
Crankcase	0.01	0.02	0.03	0.02	0.04	0.00
Refuel	4.58	4.58	4.58	4.58	4.58	
Resting	0.11	0.10	0.10	0.10	0.15	0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

039 MPH R MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 39.0 39.0 39.0 39.0 39.0 39.0 39.0 39.0
 VMT Mix: 0.741 0.229 0.017 0.011 0.000 0.000 0.002 0.000

0Composite Emission Factors (Gm/Mile)
 Total HC: 2.37 3.00 4.01 3.07 9.65 0.41 0.63 1.58 6.11 2.618
 Exhaust HC: 1.15 1.62 2.20 1.66 2.50 0.41 0.63 1.58 1.35 1.295
 Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.774
 Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
 Running L HC: 0.46 0.42 0.62 0.43 1.16 0.459
 Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.090
 Exhaust CO: 15.56 20.42 27.51 20.91 71.43 0.00 0.00 6.51 0.00 17.472
 Exhaust NOX: 1.79 2.09 2.52 2.12 6.27 0.00 0.00 14.49 0.00 1.944

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14	16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61	21.16
Multiple	18.53	24.22	28.07	25.40	59.20	
Crankcase	0.01	0.02	0.03	0.02	0.04	0.00
Refuel	4.58	4.58	4.58	4.58	4.58	
Resting	0.11	0.10	0.10	0.10	0.15	0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

037 MPH R MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+										
Veh. Speeds:	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	
VMT Mix:	0.741	0.229	0.017	0.011	0.000	0.000	0.002	0.000		
OComposite Emission Factors (Gm/Mile)										
Total HC:	2.46	3.09	4.13	3.16	9.90	0.43	0.66	1.65	6.16	2.710
Exhaust HC:	1.20	1.69	2.29	1.73	2.67	0.43	0.66	1.65	1.39	1.349
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.774
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	0.50	0.45	0.65	0.46	1.23					0.497
Resting L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.090
Exhaust CO:	16.18	21.16	28.47	21.67	73.51	0.00	0.00	6.76	0.00	18.144
Exhaust NOX:	1.78	2.08	2.50	2.11	6.18	0.00	0.00	14.32	0.00	1.934
OEvaporative Emissions by Component										
					Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)								Running Loss Temp: 92.2 (F)		
								Resting Loss Temp: 83.9 (F)		
Hot Soak	3.46	4.35	6.35	4.96	21.14				16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61				21.16	
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04				0.00	
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15				0.19	

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

025 MPH U MA/ART										
					Minimum Temp: 68. (F)			Maximum Temp: 96. (F)		
					Period 1 RVP: 9.5			Period 2 Start Yr: 1990		
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		
VMT Mix:	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001		
OComposite Emission Factors (Gm/Mile)										
Total HC:	32.68	35.27	51.33	36.56	81.46	1.58	2.40	6.02	15.95	32.485
Exhaust HC:	12.13	15.81	22.91	16.38	24.50	1.58	2.40	6.02	11.19	13.175
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.716
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	19.79	18.50	27.23	19.20	50.96					18.510
Resting L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.085
Exhaust CO:	171.28	224.06	333.46	232.87	482.72	5.51	6.61	40.74	185.46	184.624
Exhaust NOX:	2.44	2.67	3.09	2.71	4.54	2.91	3.42	28.51	0.85	3.659
OEvaporative Emissions by Component										
					Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)								Running Loss Temp: 92.2 (F)		
								Resting Loss Temp: 83.9 (F)		
Hot Soak	3.46	4.35	6.35	4.96	21.14				16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61				21.16	
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04				0.00	
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15				0.19	

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

040 MPH U MA/ART										
					Minimum Temp: 68. (F)			Maximum Temp: 96. (F)		
					Period 1 RVP: 9.5			Period 2 Start Yr: 1990		
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0		
VMT Mix:	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001		
OComposite Emission Factors (Gm/Mile)										
Total HC:	2.32	2.96	3.96	3.04	9.54	0.41	0.61	1.54	6.09	2.523
Exhaust HC:	1.13	1.60	2.17	1.64	2.42	0.41	0.61	1.54	1.32	1.314
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.716
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
								0.000od 1 RVP: 9.5		
								Period 2 RVP: 9.5		

1 MOBILE5 RUN FOR NASHVILLE AREA : Interim-TDM Non-Methane Hydrocarbons

MOBILE5 (4-Dec-92)

0Non-methane HC emission factors include evaporative HC emission factors.

0

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

025 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds: 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5
VMT Mix: 0.790 0.182 0.018 0.002 0.000 0.000 0.008 0.000

0Composite Emission Factors (Gm/Mile)

Non-Meth HC: 32.09 34.50 50.36 35.93 79.82 1.56 2.36 5.77 14.76 32.747
Exhaust HC: 11.55 15.05 21.93 15.67 22.86 1.56 2.36 5.77 10.00 12.347
Evaporat HC: 0.66 0.87 1.11 0.90 5.85 4.32 0.714
Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
Running L HC: 19.79 18.50 27.23 19.28 50.96 19.596
Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.090
Exhaust CO: 171.28 224.06 333.46 233.90 482.72 0.00 0.00 40.74 0.00 183.385
Exhaust NOX: 2.44 2.67 3.09 2.71 4.54 0.00 0.00 28.51 0.00 2.703

0Evaporative Emissions by Component

Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
Resting Loss Temp: 83.9 (F)

Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
Multiple 18.53 24.22 28.07 25.40 59.20
Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
Refuel 4.58 4.58 4.58 4.58 4.58
Resting 0.11 0.10 0.10 0.10 0.15 0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

044 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds: 44.0 44.0 44.0 44.0 44.0 44.0 44.0 44.0
VMT Mix: 0.790 0.182 0.018 0.002 0.000 0.000 0.008 0.000

0Composite Emission Factors (Gm/Mile)

Non-Meth HC: 2.11 2.75 3.68 2.84 9.03 0.37 0.56 1.38 5.89 2.266
Exhaust HC: 1.00 1.43 1.95 1.47 2.03 0.37 0.56 1.38 1.13 1.100
Evaporat HC: 0.66 0.87 1.11 0.90 5.85 4.32 0.714
Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
Running L HC: 0.36 0.36 0.54 0.38 1.00 0.363
Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.090
Exhaust CO: 14.30 19.03 25.64 19.62 69.07 0.00 0.00 6.12 0.00 15.411
Exhaust NOX: 1.81 2.12 2.56 2.16 6.51 0.00 0.00 15.31 0.00 1.996

0Evaporative Emissions by Component

Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
Resting Loss Temp: 83.9 (F)

Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
Multiple 18.53 24.22 28.07 25.40 59.20
Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
Refuel 4.58 4.58 4.58 4.58 4.58
Resting 0.11 0.10 0.10 0.10 0.15 0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

043 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds: 43.0 43.0 43.0 43.0 43.0 43.0 43.0 43.0
VMT Mix: 0.790 0.182 0.018 0.002 0.000 0.000 0.008 0.000

0Composite Emission Factors (Gm/Mile)

Non-Meth HC: 2.15 2.78 3.72 2.87 9.10 0.38 0.57 1.40 5.90 2.300
Exhaust HC: 1.02 1.45 1.97 1.49 2.08 0.38 0.57 1.40 1.14 1.118
Evaporat HC: 0.66 0.87 1.11 0.90 5.85 4.32 0.714

Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	0.38	0.37	0.55	0.39	1.03					0.380
Running L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.090
Exhaust CO:	14.53	19.26	25.96	19.86	69.23	0.00	0.00	6.17	0.00	15.635
Exhaust NOX:	1.80	2.11	2.55	2.15	6.46	0.00	0.00	15.10	0.00	1.990

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14					16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61					21.16
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15					0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

028 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+ Veh. Speeds: 28.0 28.0 28.0 28.0 28.0 28.0 28.0 28.0 28.0

VMT Mix: 0.790 0.182 0.018 0.002 0.000 0.000 0.008 0.000

0Composite Emission Factors (Gm/Mile)

Non-Meth HC:	2.91	3.55	4.77	3.66	11.33	0.54	0.82	2.00	6.30	3.071
Exhaust HC:	1.44	2.00	2.71	2.06	3.68	0.54	0.82	2.00	1.54	1.571
Evaporat HC:	0.66	0.87	1.11	0.90	5.85				4.32	0.714
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	0.72	0.60	0.87	0.62	1.66					0.697
Resting L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.090
Exhaust CO:	20.20	26.23	34.75	27.00	93.31	0.00	0.00	8.77	0.00	21.611
Exhaust NOX:	1.74	2.00	2.41	2.04	5.75	0.00	0.00	14.56	0.00	1.906

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14					16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61					21.16
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15					0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

032 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+ Veh. Speeds: 32.0 32.0 32.0 32.0 32.0 32.0 32.0 32.0

VMT Mix: 0.790 0.182 0.018 0.002 0.000 0.000 0.008 0.000

0Composite Emission Factors (Gm/Mile)

Non-Meth HC:	2.65	3.27	4.39	3.37	10.48	0.48	0.73	1.78	6.15	2.806
Exhaust HC:	1.29	1.79	2.44	1.85	3.04	0.48	0.73	1.78	1.39	1.406
Evaporat HC:	0.66	0.87	1.11	0.90	5.85				4.32	0.714
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	0.61	0.52	0.76	0.54	1.44					0.597
Resting L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.090
Exhaust CO:	18.13	23.60	31.51	24.31	82.10	0.00	0.00	7.67	0.00	19.408
Exhaust NOX:	1.76	2.04	2.45	2.08	5.94	0.00	0.00	14.25	0.00	1.929

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14					16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61					21.16
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15					0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

050 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Veh. Speeds:	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
VMT Mix:	0.790	0.182	0.018	0.002	0.000	0.000	0.008	0.000	
0 Composite Emission Factors (Gm/Mile)									
Non-Meth HC:	1.96	2.62	3.49	2.70	8.63	0.34	0.52	1.27	5.86 2.116
Exhaust HC:	0.94	1.36	1.85	1.40	1.81	0.34	0.52	1.27	1.10 1.038
Evaporat HC:	0.66	0.87	1.11	0.90	5.85			4.32	0.714
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000
Running L HC:	0.27	0.30	0.45	0.32	0.82				0.275
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.090
Exhaust CO:	13.53	18.27	24.55	18.83	71.35	0.00	0.00	6.03	0.00 14.645
Exhaust NOX:	1.97	2.31	2.81	2.36	6.79	0.00	0.00	17.13	0.00 2.181
0 Evaporative Emissions by Component									
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)		
					Resting Loss Temp: 83.9 (F)		Running Loss Temp: 92.2 (F)		
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16	
Multiple	18.53	24.22	28.07	25.40	59.20				
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00	
Refuel	4.58	4.58	4.58	4.58	4.58				
Resting	0.11	0.10	0.10	0.10	0.15			0.19	

0 Emission factors are as of July 1st of the indicated calendar year.

0 Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

025 MPH R LOCAL			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)				
Period 1 RVP: 9.5			Period 2 RVP: 9.5		Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5			
VMT Mix:	0.818	0.176	0.002	0.002	0.000	0.000	0.002	0.000		
0Composite Emission Factors (Gm/Mile)										
Non-Meth HC:	32.09	34.50	50.36	34.68	79.82	1.56	2.36	5.77	14.76	32.598
Exhaust HC:	11.55	15.05	21.93	15.13	22.86	1.56	2.36	5.77	10.00	12.195
Evaporat HC:	0.66	0.87	1.11	0.88	5.85			4.32	0.709	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	19.79	18.50	27.23	18.59	50.96				19.604	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.090	
Exhaust CO:	171.28	224.06	333.46	225.29	482.72	0.00	0.00	40.74	0.00	181.257
Exhaust NOX:	2.44	2.67	3.09	2.68	4.54	0.00	0.00	28.51	0.00	2.535
0Evaporative Emissions by Component					Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)			
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Resting Loss Temp: 83.9 (F)		Running Loss Temp: 92.2 (F)			
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

0 Emission factors are as of July 1st of the indicated calendar year.

0 Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

040 MPH R LOCAL			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)				
Period 1 RVP: 9.5			Period 2 RVP: 9.5		Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0		
VMT Mix:	0.818	0.176	0.002	0.002	0.000	0.000	0.002	0.000		
0Composite Emission Factors (Gm/Mile)										
Non-Meth HC:	2.26	2.88	3.86	2.90	9.38	0.40	0.60	1.48	5.95	2.389
Exhaust HC:	1.07	1.52	2.07	1.52	2.26	0.40	0.60	1.48	1.18	1.157
Evaporat HC:	0.66	0.87	1.11	0.88	5.85			4.32	0.709	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.44	0.41	0.60	0.41	1.12				0.433	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.090	
Exhaust CO:	15.28	20.09	27.08	20.16	70.64	0.00	0.00	6.41	0.00	16.241
Exhaust NOX:	1.79	2.09	2.53	2.10	6.32	0.00	0.00	14.61	0.00	1.882
0Evaporative Emissions by Component					Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)			
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Resting Loss Temp: 83.9 (F)		Running Loss Temp: 92.2 (F)			
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					

Crankcase	0.01	0.02	0.03	0.02	0.04	0.00
Refuel	4.58	4.58	4.58	4.58	4.58	
Resting	0.11	0.10	0.10	0.10	0.15	0.19

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

041 MPH R LOCAL			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)				
Period 1 RVP: 9.5			Period 2 RVP: 9.5		Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0		
VMT Mix:	0.818	0.176	0.002	0.002	0.000	0.000	0.002	0.000		
0Composite Emission Factors (Gm/Mile)										
Non-Meth HC:	2.22	2.85	3.81	2.86	9.28	0.39	0.59	1.45	5.93	2.350
Exhaust HC:	1.05	1.49	2.04	1.50	2.19	0.39	0.59	1.45	1.17	1.136
Evaporat HC:	0.66	0.87	1.11	0.88	5.85			4.32	0.709	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.42	0.40	0.58	0.40	1.09				0.415	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.090	
Exhaust CO:	15.01	19.78	26.68	19.86	70.01	0.00	0.00	6.32	0.00	15.967
Exhaust NOX:	1.80	2.10	2.54	2.10	6.36	0.00	0.00	14.75	0.00	1.887
0Evaporative Emissions by Component			Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)				
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)			Resting Loss Temp: 83.9 (F)			Running Loss Temp: 92.2 (F)				
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

025 MPH U MA/ART			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)				
Period 1 RVP: 9.5			Period 2 RVP: 9.5		Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		
VMT Mix:	0.760	0.207	0.018		0.002	0.001	0.002	0.010	0.000	
0Composite Emission Factors (Gm/Mile)										
Non-Meth HC:	32.09	34.50	50.36	35.77	79.82	1.56	2.36	5.77	14.76	32.664
Exhaust HC:	11.55	15.05	21.93	15.60	22.86	1.56	2.36	5.77	10.00	12.395
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.716	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	19.79	18.50	27.23	19.20	50.96				19.465	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.089	
Exhaust CO:	171.28	224.06	333.46	232.81	482.72	5.51	6.61	40.74	0.00	183.948
Exhaust NOX:	2.44	2.67	3.09	2.71	4.54	2.91	3.42	28.51	0.00	2.763
0Evaporative Emissions by Component			Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)				
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Running Loss Temp: 92.2 (F)				
						Resting Loss Temp: 83.9 (F)				
Hot Soak	3.46	4.35	6.35	4.96	21.14	16.37				
WtDiurnal	7.55	11.58	16.87	13.20	54.61	21.16				
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04	0.00				
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15	0.19				

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

045 MPH U MA/ART			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)				
Period 1 RVP: 9.5			Period 2 RVP: 9.5		Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0		
VMT Mix:	0.760	0.207	0.018	0.002	0.001	0.002	0.010	0.000		
0Composite Emission Factors (Gm/Mile)										
Non-Meth HC:	2.08	2.72	3.64	2.80	8.95	0.37	0.55	1.36	5.88	2.242
Exhaust HC:	0.98	1.41	1.92	1.45	1.98	0.37	0.55	1.36	1.12	1.093
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.716	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.34	0.35	0.53	0.37	0.97				0.345	

Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.089
 Exhaust CO: 14.09 18.81 25.34 19.34 69.07 0.82 0.99 6.08 0.00 15.264
 Exhaust NOX: 1.81 2.12 2.57 2.16 6.55 1.59 1.87 15.54 0.00 2.037
 OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14	16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61	21.16
Multiple	18.53	24.22	28.07	25.40	59.20	
Crankcase	0.01	0.02	0.03	0.02	0.04	0.00
Refuel	4.58	4.58	4.58	4.58	4.58	
Resting	0.11	0.10	0.10	0.10	0.15	0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

025 MPH R MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		
VMT Mix:	0.741	0.229	0.017	0.011	0.000	0.000	0.002	0.000		

OComposite Emission Factors (Gm/Mile)

Non-Meth HC:	32.09	34.50	50.36	35.60	79.82	1.56	2.36	5.77	14.76	33.429
Exhaust HC:	11.55	15.05	21.93	15.52	22.86	1.56	2.36	5.77	10.00	12.638
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.774	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	19.79	18.50	27.23	19.10	50.96				19.927	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.090	
Exhaust CO:	171.28	224.06	333.46	231.62	482.72	0.00	0.00	40.74	0.00	189.289
Exhaust NOX:	2.44	2.67	3.09	2.70	4.54	0.00	0.00	28.51	0.00	2.576

OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14	16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61	21.16
Multiple	18.53	24.22	28.07	25.40	59.20	
Crankcase	0.01	0.02	0.03	0.02	0.04	0.00
Refuel	4.58	4.58	4.58	4.58	4.58	
Resting	0.11	0.10	0.10	0.10	0.15	0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

039 MPH R MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0		
VMT Mix:	0.741	0.229	0.017	0.011	0.000	0.000	0.002	0.000		

OComposite Emission Factors (Gm/Mile)

Non-Meth HC:	2.31	2.92	3.92	2.99	9.49	0.41	0.62	1.51	5.97	2.552
Exhaust HC:	1.09	1.54	2.11	1.58	2.33	0.41	0.62	1.51	1.20	1.229
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.774	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.46	0.42	0.62	0.43	1.16				0.459	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.090	
Exhaust CO:	15.56	20.42	27.51	20.91	71.43	0.00	0.00	6.51	0.00	17.472
Exhaust NOX:	1.79	2.09	2.52	2.12	6.27	0.00	0.00	14.49	0.00	1.944

OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14	16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61	21.16
Multiple	18.53	24.22	28.07	25.40	59.20	
Crankcase	0.01	0.02	0.03	0.02	0.04	0.00
Refuel	4.58	4.58	4.58	4.58	4.58	
Resting	0.11	0.10	0.10	0.10	0.15	0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

037 MPH R MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
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Veh. Speeds:	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0
VMF Mix:	0.741	0.229	0.017	0.011	0.000	0.000	0.002	0.000	
Composite Emission Factors (Gm/Mile)									
Non-Meth HC:	2.39	3.01	4.03	3.08	9.72	0.43	0.64	1.58	6.01 2.642
Exhaust HC:	1.14	1.60	2.19	1.64	2.49	0.43	0.64	1.58	1.25 1.280
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.774
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000
Raising L HC:	0.50	0.45	0.65	0.46	1.23				0.497
Refuel L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.090
Exhaust CO:	16.18	21.16	28.47	21.67	73.51	0.00	0.00	6.76	0.00 18.144
Exhaust NOX:	1.78	2.08	2.50	2.11	6.18	0.00	0.00	14.32	0.00 1.934
Evaporative Emissions by Component									
Weathered RVP: 8.9						Hot Soak Temp: 91.2 (F)			
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Running Loss Temp: 92.2 (F)			
Resting Loss Temp: 83.9 (F)									
Hot Soak	3.46	4.35	6.35	4.96	21.14	16.37			
WtDiurnal	7.55	11.58	16.87	13.20	54.61	21.16			
Multiple	18.53	24.22	28.07	25.40	59.20				
Crankcase	0.01	0.02	0.03	0.02	0.04	0.00			
Refuel	4.58	4.58	4.58	4.58	4.58				
Resting	0.11	0.10	0.10	0.10	0.15	0.19			

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

		Period 1 RVP: 9.5		Period 2 RVP: 9.5		Period 2 Start Yr: 1990				
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDBGV	LDDV	LDDT	HDDV	MC	All Veh

Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
VMF Mix:	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001		
Composite Emission Factors (Gm/Mile)										
Non-Meth HC:	32.09	34.50	50.36	35.78	79.82	1.56	2.36	5.77	14.76	31.853
Exhaust HC:	11.55	15.05	21.93	15.60	22.86	1.56	2.36	5.77	10.00	12.542
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.716	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	19.79	18.50	27.23	19.20	50.96				18.510	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.085	
Exhaust CO:	171.28	224.06	333.46	232.87	482.72	5.51	6.61	40.74	185.46	184.624
Exhaust NOx:	2.44	2.67	3.09	2.71	4.54	2.91	3.42	28.51	0.85	3.659
Evaporative Emissions by Component										
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)		
						Resting Loss Temp: 83.9 (F)		Running Loss Temp: 92.2 (F)		
Hot Soak	3.46	4.35	6.35	4.96	21.14	16.37				
WtDiurnal	7.55	11.58	16.87	13.20	54.61	21.16				
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04	0.00				
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15	0.19				

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

	Period 1 RVP: 9.5		Period 2 RVP: 9.5		Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh

Veh. Speeds:	40.0	40.0	40.0		40.0	40.0	40.0	40.0	40.0	
VMET Mix:	0.605	0.308	0.027		0.002	0.009	0.005	0.043	0.001	
0Composite Emission Factors (Gm/Mile)										
Non-Meth HC:	2.26	2.88	3.86	2.96	9.38	0.40	0.60	1.48	5.95	2.457
Exhaust HC:	1.07	1.52	2.07	1.56	2.26	0.40	0.60	1.48	1.18	1.248
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.716
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Raising L HC:	0.44	0.41	0.60	0.42	1.12					0.409
Rating L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.085
Exhaust CO:	15.28	20.09	27.08	20.65	70.64	0.87	1.04	6.41	11.69	16.602
Exhaust NOX:	1.79	2.09	2.53	2.13	6.32	1.49	1.75	14.61	1.02	2.462
0Evaporative Emissions by Component					Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Running Loss Temp: 92.2 (F)			Resting Loss Temp: 83.9 (F)		
Hot Soak	3.46	4.35	6.35	4.96	21.14				16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61				21.16	
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04				0.00	
Refuel	4.58	4.58	4.58	4.58	4.58					

Resting 0.11 0.10 0.10 0.10 0.15 0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

025 MPH U MA/ART		Minimum Temp: 68. (F)					Maximum Temp: 96. (F)				
		Period 1 RVP: 9.5		Period 2 RVP: 9.5		Period 2 Start Yr: 1990					
0 Veh. Type:		LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+											
Veh. Speeds:		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		
VMT Mix:		0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001		
0Composite Emission Factors (Gm/Mile)											
Non-Meth HC:		32.09	34.50	50.36	35.76	79.82	1.56	2.36	5.77	14.76	32.146
Exhaust HC:		11.55	15.05	21.93	15.59	22.86	1.56	2.36	5.77	10.00	12.169
Evaporat HC:		0.66	0.87	1.11	0.89	5.85			4.32	0.701	
Refuel L HC:		0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:		19.79	18.50	27.23	19.19	50.96				19.189	
Rating L HC:		0.09	0.09	0.08	0.09	0.15			0.44	0.088	
Exhaust CO:		171.28	224.06	333.46	232.72	482.72	5.51	6.61	40.74	185.46	180.230
Exhaust NOX:		2.44	2.67	3.09	2.71	4.54	2.91	3.42	28.51	0.85	2.760
0Evaporative Emissions by Component											
						Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Running Loss Temp: 92.2 (F)					
						Resting Loss Temp: 83.9 (F)					
Hot Soak		3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal		7.55	11.58	16.87	13.20	54.61			21.16		
Multiple		18.53	24.22	28.07	25.40	59.20					
Crankcase		0.01	0.02	0.03	0.02	0.04			0.00		
Refuel		4.58	4.58	4.58	4.58	4.58					
Resting		0.11	0.10	0.10	0.10	0.15			0.19		

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

033 MPH U MA/ART			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)					
Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh	
+											
Veh. Speeds:	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0			
VMT Mix:	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001			
0Composite Emission Factors (Gm/Mile)											
Non-Meth HC:	2.60	3.21	4.31	3.30	10.31	0.47	0.71	1.74	6.12	2.710	
Exhaust HC:	1.25	1.75	2.39	1.80	2.91	0.47	0.71	1.74	1.36	1.359	
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.701	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000	
Running L HC:	0.59	0.50	0.74	0.52	1.39					0.562	
Rating L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.088	
Exhaust CO:	17.69	23.04	30.82	23.66	79.95	1.01	1.21	7.45	14.57	18.601	
Exhaust NOX:	1.76	2.05	2.46	2.08	5.99	1.45	1.71	14.23	0.96	1.951	
0Evaporative Emissions by Component											
						Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Running Loss Temp: 92.2 (F)					
						Resting Loss Temp: 83.9 (F)					
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37			
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16			
Multiple	18.53	24.22	28.07	25.40	59.20						
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00			
Refuel	4.58	4.58	4.58	4.58	4.58						
Resting	0.11	0.10	0.10	0.10	0.15			0.19			

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

065 MPH U/INT		Minimum Temp: 68. (F)				Maximum Temp: 96. (F)					
		Period 1 RVP: 9.5		Period 2 RVP: 9.5		Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh	
+											
Veh. Speeds:	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0			
VMT Mix:	0.743	0.207	0.017	0.001	0.000	0.000	0.031	0.001			
0Composite Emission Factors (Gm/Mile)											
Non-Meth HC:	2.41	3.39	4.61	3.48	8.25	0.32	0.49	1.19	6.64	2.623	
Exhaust HC:	1.50	2.25	3.15	2.31	1.77	0.32	0.49	1.19	1.88	1.672	
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.702		
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000		
Running L HC:	0.16	0.18	0.27	0.19	0.49				0.162		
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.088		
Exhaust CO:	36.33	54.57	76.45	56.23	109.41	0.00	0.00	7.74	34.12	39.969	

Exhaust NOX: 3.08 3.62 4.48 3.68 7.50 0.00 0.00 28.38 1.65 4.000
 0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14		16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61		21.16
Multiple	18.53	24.22	28.07	25.40	59.20		
Crankcase	0.01	0.02	0.03	0.02	0.04		0.00
Refuel	4.58	4.58	4.58	4.58	4.58		
Resting	0.11	0.10	0.10	0.10	0.15		0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

050 MPH U/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 50.0 50.0 50.0 50.0 50.0 50.0 50.0 50.0
 VMT Mix: 0.743 0.207 0.017 0.001 0.000 0.000 0.031 0.001

0Composite Emission Factors (Gm/Mile)

Non-Meth HC:	1.96	2.62	3.49	2.69	8.63	0.34	0.52	1.27	5.86	2.112
Exhaust HC:	0.94	1.36	1.85	1.40	1.81	0.34	0.52	1.27	1.10	1.054
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.702	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Runing L HC:	0.27	0.30	0.45	0.31	0.82				0.269	
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.088	
Exhaust CO:	13.53	18.27	24.55	18.74	71.35	0.00	0.00	6.03	10.01	14.519
Exhaust NOX:	1.97	2.31	2.81	2.35	6.79	0.00	0.00	17.13	1.13	2.531

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14		16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61		21.16
Multiple	18.53	24.22	28.07	25.40	59.20		
Crankcase	0.01	0.02	0.03	0.02	0.04		0.00
Refuel	4.58	4.58	4.58	4.58	4.58		
Resting	0.11	0.10	0.10	0.10	0.15		0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

044 MPH R/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 44.0 44.0 44.0 44.0 44.0 44.0 44.0 44.0
 VMT Mix: 0.743 0.207 0.017 0.001 0.000 0.000 0.031 0.001

0Composite Emission Factors (Gm/Mile)

Non-Meth HC:	2.11	2.75	3.68	2.82	9.03	0.37	0.56	1.38	5.89	2.260
Exhaust HC:	1.00	1.43	1.95	1.47	2.03	0.37	0.56	1.38	1.13	1.117
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.702	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Runing L HC:	0.36	0.36	0.54	0.38	1.00				0.353	
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.088	
Exhaust CO:	14.30	19.03	25.64	19.53	69.07	0.00	0.00	6.12	10.69	15.271
Exhaust NOX:	1.81	2.12	2.56	2.15	6.51	0.00	0.00	15.31	1.04	2.308

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14		16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61		21.16
Multiple	18.53	24.22	28.07	25.40	59.20		
Crankcase	0.01	0.02	0.03	0.02	0.04		0.00
Refuel	4.58	4.58	4.58	4.58	4.58		
Resting	0.11	0.10	0.10	0.10	0.15		0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

043 MPH R/INT Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 43.0 43.0 43.0 43.0 43.0 43.0 43.0 43.0

VMT Mix:	0.743	0.207	0.017		0.001	0.000	0.000	0.031	0.001
0Composite Emission Factors (Gm/Mile)									
Non-Meth HC:	2.15	2.78	3.72	2.85	9.10	0.38	0.57	1.40	5.90 2.294
Exhaust HC:	1.02	1.45	1.97	1.49	2.08	0.38	0.57	1.40	1.14 1.135
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.702
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000
Running L HC:	0.38	0.37	0.55	0.39	1.03				0.370
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.088
Exhaust CO:	14.53	19.26	25.96	19.76	69.23	0.00	0.00	6.17	10.91 15.491
Exhaust NOX:	1.80	2.11	2.55	2.14	6.46	0.00	0.00	15.10	1.03 2.297
0Evaporative Emissions by Component					Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Running Loss Temp: 92.2 (F)				
					Resting Loss Temp: 83.9 (F)				
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16	
Multiple	18.53	24.22	28.07	25.40	59.20				
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00	
Refuel	4.58	4.58	4.58	4.58	4.58				
Resting	0.11	0.10	0.10	0.10	0.15			0.19	

1

MOBILE5 (4-Dec-92)

0

-M 89 Error:

+ 0 out of bounds for flag PROMPT (1 to 4)

1 MOBILE5 RUN FOR NASHVILLE AREA : Full-TDM Total Hydrocarbons

MOBILE5 (4-Dec-92)

0 Total HC emission factors include evaporative HC emission factors.

0

0 Emission factors are as of July 1st of the indicated calendar year.

0 Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

025 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5			
VTM Mix:	0.695	0.265	0.006	0.001	0.006	0.020	0.006	0.001				

0 Composite Emission Factors (Gm/Mile)

Total HC:	32.68	35.27	51.33	35.62	81.46	1.58	2.40	6.02	15.95	32.559
Exhaust HC:	12.13	15.81	22.91	15.97	24.50	1.58	2.40	6.02	11.19	12.890
Evaporant HC:	0.66	0.87	1.11	0.88	5.85			4.32	0.708	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	19.79	18.50	27.23	18.69	50.96				18.873	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.087	
Exhaust CO:	171.28	224.06	333.46	226.48	482.72	5.51	6.61	40.74	185.46	181.495
Exhaust NOX:	2.44	2.67	3.09	2.68	4.54	2.91	3.42	28.51	0.85	2.682

0 Evaporative Emissions by Component

Weathered RVP: 8.9

Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

0 Emission factors are as of July 1st of the indicated calendar year.

0 Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

047 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds:	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0			
VTM Mix:	0.695	0.265	0.006	0.001	0.006	0.020	0.006	0.001				

0 Composite Emission Factors (Gm/Mile)

Total HC:	2.06	2.74	3.65	2.76	8.95	0.36	0.55	1.37	6.00	2.220
Exhaust HC:	1.01	1.45	1.96	1.46	2.04	0.36	0.55	1.37	1.23	1.119
Evaporant HC:	0.66	0.87	1.11	0.88	5.85			4.32	0.708	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.31	0.34	0.50	0.34	0.92				0.305	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.087	
Exhaust CO:	13.71	18.44	24.80	18.58	69.51	0.82	0.98	6.02	10.16	14.702
Exhaust NOX:	1.82	2.13	2.58	2.14	6.65	1.64	1.93	16.09	1.06	1.999

0 Evaporative Emissions by Component

Weathered RVP: 8.9

Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

0 Emission factors are as of July 1st of the indicated calendar year.

0 Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

032 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds:	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0			
VTM Mix:	0.695	0.265	0.006	0.001	0.006	0.020	0.006	0.001				

0 Composite Emission Factors (Gm/Mile)

Total HC:	2.72	3.37	4.51	3.39	10.70	0.49	0.74	1.86	6.32	2.857
Exhaust HC:	1.35	1.89	2.56	1.90	3.26	0.49	0.74	1.86	1.55	1.491
Evaporant HC:	0.66	0.87	1.11	0.88	5.85			4.32	0.708	

Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	0.61	0.52	0.76	0.53	1.44					0.571
Rating L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.087
Exhaust CO:	18.13	23.60	31.51	23.77	82.10	1.04	1.24	7.67	15.11	19.215
Exhaust NOX:	1.76	2.04	2.45	2.05	5.94	1.46	1.71	14.25	0.95	1.912

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14					16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61					21.16
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15					0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

035 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

	Period 1 RVP: 9.5	Period 2 RVP: 9.5	Period 2 Start Yr: 1990							
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0		
VTM Mix:	0.695	0.265	0.006	0.001	0.006	0.020	0.006	0.001		

0Composite Emission Factors (Gm/Mile)

Total HC:	2.56	3.19	4.27	3.22	10.19	0.45	0.69	1.72	6.22	2.691
Exhaust HC:	1.26	1.76	2.39	1.77	2.88	0.45	0.69	1.72	1.45	1.386
Evaporat HC:	0.66	0.87	1.11	0.88	5.85				4.32	0.708
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	0.54	0.47	0.69	0.48	1.31					0.509
Rating L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.087
Exhaust CO:	16.89	22.03	29.57	22.20	76.33	0.96	1.15	7.07	13.58	17.914
Exhaust NOX:	1.77	2.06	2.48	2.07	6.08	1.46	1.71	14.23	0.98	1.928

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14					16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61					21.16
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15					0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

050 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

	Period 1 RVP: 9.5	Period 2 RVP: 9.5	Period 2 Start Yr: 1990							
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0		
VTM Mix:	0.695	0.265	0.006	0.001	0.006	0.020	0.006	0.001		

0Composite Emission Factors (Gm/Mile)

Total HC:	2.01	2.69	3.58	2.71	8.76	0.35	0.53	1.32	5.99	2.168
Exhaust HC:	0.99	1.43	1.93	1.44	1.94	0.35	0.53	1.32	1.23	1.103
Evaporat HC:	0.66	0.87	1.11	0.88	5.85				4.32	0.708
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	0.27	0.30	0.45	0.31	0.82					0.269
Rating L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.087
Exhaust CO:	13.53	18.27	24.55	18.40	71.35	0.82	0.98	6.03	10.01	14.533
Exhaust NOX:	1.97	2.31	2.81	2.32	6.79	1.75	2.06	17.13	1.13	2.163

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14					16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61					21.16
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15					0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

025 MPH R LOCAL Minimum Temp: 68. (F) Maximum Temp: 96. (F)

		Period 1 RVP: 9.5			Period 2 RVP: 9.5		Period 2 Start Yr: 1990				
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh	
+											
Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5			
VMT Mix:	0.654	0.327	0.000	0.000	0.009	0.005	0.000	0.005			
0Composite Emission Factors (Gsm/Mile)											
Total HC:	32.68	35.27	51.33	35.27	81.46	1.58	2.40	6.02	15.95	33.012	
Exhaust HC:	12.13	15.81	22.91	15.81	24.50	1.58	2.40	6.02	11.19	13.188	
Evaporat HC:	0.66	0.87	1.11	0.87	5.85			4.32	0.740		
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000		
Running L HC:	19.79	18.50	27.23	18.50	50.96				18.994		
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.090		
Exhaust CO:	171.28	224.06	0.00	0.00	0.00	5.51	6.61	0.00	185.46	186.295	
Exhaust NOX:	2.44	2.67	0.00	0.00	0.00	2.91	3.42	0.00	0.85	2.514	
0Evaporative Emissions by Component						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)			
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Resting Loss Temp: 83.9 (F)		Running Loss Temp: 92.2 (F)			
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37			
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16			
Multiple	18.53	24.22	28.07	25.40	59.20						
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00			
Refuel	4.58	4.58	4.58	4.58	4.58						
Resting	0.11	0.10	0.10	0.10	0.15			0.19			

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

040 MPH R LOCAL Minimum Temp: 68. (F) Maximum Temp: 96. (F)

		Period 1 RVP: 9.5			Period 2 RVP: 9.5		Period 2 Start Yr: 1990				
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh	
+											
Veh. Speeds:	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0			
VMT Mix:	0.654	0.327	0.000	0.000	0.009	0.005	0.000	0.005			
0Composite Emission Factors (Gm/Mile)											
Total HC:	2.32	2.96	3.96	2.96	9.54	0.41	0.61	1.54	6.09	2.525	
Exhaust HC:	1.13	1.60	2.17	1.60	2.42	0.41	0.61	1.54	1.32	1.275	
Evaporat HC:	0.66	0.87	1.11	0.87	5.85			4.32	0.740		
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000		
Running L HC:	0.44	0.41	0.60	0.41	1.12				0.420		
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.090		
Exhaust CO:	15.28	20.09	0.00	0.00	0.00	0.87	1.04	0.00	11.69	16.631	
Exhaust NOX:	1.79	2.09	0.00	0.00	0.00	1.49	1.75	0.00	1.02	1.884	
0Evaporative Emissions by Component											
					Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)				
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Running Loss Temp: 92.2 (F)						
					Resting Loss Temp: 83.9 (F)						
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37			
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16			
Multiple	18.53	24.22	28.07	25.40	59.20						
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00			
Refuel	4.58	4.58	4.58	4.58	4.58						
Resting	0.11	0.10	0.10	0.10	0.15			0.19			

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

042 MPH R LOCAL Minimum Temp: 68. (F) Maximum Temp: 96. (F)

	Period 1 RVP: 9.5			Period 2 RVP: 9.5		Period 2 Start Yr: 1990						
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh		
+												
Veh. Speeds:	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0				
VMT Mix:	0.654	0.327	0.000	0.000	0.009	0.005	0.000	0.005				
0Composite Emission Factors (Gsm/Mile)												
Total HC:	2.24	2.89	3.86	2.89	9.34	0.39	0.59	1.49	6.05	2.448		
Exhaust HC:	1.09	1.55	2.10	1.55	2.28	0.39	0.59	1.49	1.29	1.232		
Evaporat HC:	0.66	0.87	1.11	0.87	5.85			4.32	0.740			
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000			
Running L HC:	0.40	0.39	0.57	0.39	1.06				0.387			
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.090			
Exhaust CO:	14.76	19.51	0.00	0.00	0.00	0.84	1.01	0.00	11.14	16.101		
Exhaust NOX:	1.80	2.10	0.00	0.00	0.00	1.52	1.79	0.00	1.03	1.894		
0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)												
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)												
Resting Loss Temp: 83.9 (F)												
Hot Soak	3.46	4.35	6.35	4.96	21.14				16.37			
WtDiurnal	7.55	11.58	16.87	13.20	54.61				21.16			
Multiple	18.53	24.22	28.07	25.40	59.20							

Crankcase	0.01	0.02	0.03	0.02	0.04	0.00
Refuel	4.58	4.58	4.58	4.58	4.58	
Resting	0.11	0.10	0.10	0.10	0.15	0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

025 MPH R MA/ART			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)				
Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990				
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5			
VMT Mix:	0.669	0.302	0.006	0.001	0.003	0.010	0.009	0.000		
0Composite Emission Factors (Gm/Mile)										
Total HC:	32.68	35.27	51.33	35.58	81.46	1.58	2.40	6.02	15.95	32.987
Exhaust HC:	12.13	15.81	22.91	15.95	24.50	1.58	2.40	6.02	11.19	13.137
Evaporat HC:	0.66	0.87	1.11	0.88	5.85			4.32	0.719	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	19.79	18.50	27.23	18.67	50.96				19.043	
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.088	
Exhaust CO:	171.28	224.06	333.46	226.19	482.72	5.51	6.61	40.74	0.00	185.186
Exhaust NOX:	2.44	2.67	3.09	2.68	4.54	2.91	3.42	28.51	0.00	2.759
0Evaporative Emissions by Component			Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)				
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Running Loss Temp: 92.2 (F)				
						Resting Loss Temp: 83.9 (F)				
Hot Soak	3.46	4.35	6.35	4.96	21.14	16.37				
WtDiurnal	7.55	11.58	16.87	13.20	54.61	21.16				
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04	0.00				
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15	0.19				

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

038 MPH R MA/ART			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)					
Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh	
+											
Veh. Speeds:	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0			
VMT Mix:	0.669	0.302	0.006	0.001	0.003	0.010	0.009	0.000			
0Composite Emission Factors (Gm/Mile)											
Total HC:	2.41	3.05	4.07	3.07	9.77	0.42	0.64	1.61	6.13	2.588	
Exhaust HC:	1.18	1.65	2.24	1.67	2.58	0.42	0.64	1.61	1.37	1.326	
Evaporat HC:	0.66	0.87	1.11	0.88	5.85				4.32	0.719	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000	
Running L HC:	0.48	0.43	0.63	0.44	1.19					0.456	
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.088		
Exhaust CO:	15.86	20.77	27.97	20.91	72.38	0.90	1.08	6.63	0.00	17.199	
Exhaust NOX:	1.78	2.08	2.51	2.09	6.22	1.47	1.73	14.40	0.00	1.995	
0Evaporative Emissions by Component					Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)			
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)								Running Loss Temp: 92.2 (F)			
					Resting Loss Temp: 83.9 (F)						
Hot Soak	3.46	4.35	6.35	4.96	21.14				16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61				21.16		
Multiple	18.53	24.22	28.07	25.40	59.20						
Crankcase	0.01	0.02	0.03	0.02	0.04				0.00		
Refuel	4.58	4.58	4.58	4.58	4.58						
Resting	0.11	0.10	0.10	0.10	0.15				0.19		

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

024 MPH R MA/ART			Minimum Temp: 68. (F)			Maximum Temp: 96. (F)				
Period 1 RVP: 9.5			Period 2 RVP: 9.5			Period 2 Start Yr: 1990				
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0		
VMT Mix:	0.669	0.302	0.006	0.001	0.003	0.010	0.009	0.000		
0Composite Emission Factors (Gm/Mile)										
Total HC:	3.33	4.03	5.41	4.06	12.82	0.62	0.94	2.37	6.68	3.520
Exhaust HC:	1.73	2.37	3.20	2.39	4.88	0.62	0.94	2.37	1.92	1.929
Evaporat HC:	0.66	0.87	1.11	0.88	5.85			4.32	0.719	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.85	0.69	1.01	0.70	1.93				0.784	

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14	16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61	21.16
Multiple	18.53	24.22	28.07	25.40	59.20	
Crankcase	0.01	0.02	0.03	0.02	0.04	0.00
Refuel	4.58	4.58	4.58	4.58	4.58	
Resting	0.11	0.10	0.10	0.10	0.15	0.19

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

045 MPH R MA/ART		Minimum Temp: 68. (F)			Maximum Temp: 96. (F)		
		Period 1 RVP: 9.5			Period 2 RVP: 9.5		
		Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT
Veh. Speeds:	45.0	45.0	45.0	45.0	45.0	45.0	45.0
VMT Mix:	0.669	0.302	0.006	0.001	0.003	0.010	0.009

OComposite Emission Factors (Gm/Mile)									
Total HC:	2.13	2.80	3.73	2.82	9.09	0.37	0.56	1.41	6.02
Exhaust HC:	1.04	1.48	2.01	1.49	2.12	0.37	0.56	1.41	1.25
Evaporat HC:	0.66	0.87	1.11	0.88	5.85			4.32	0.719
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000
Running L HC:	0.34	0.35	0.53	0.36	0.97				0.340
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.088
Exhaust CO:	14.09	18.81	25.34	18.94	69.07	0.82	0.99	6.08	0.00
Exhaust NOX:	1.81	2.12	2.57	2.13	6.55	1.59	1.87	15.54	0.00

OEvaportive Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14	16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61	21.16
Multiple	18.53	24.22	28.07	25.40	59.20	
Crankcase	0.01	0.02	0.03	0.02	0.04	0.00
Refuel	4.58	4.58	4.58	4.58	4.58	
Resting	0.11	0.10	0.10	0.10	0.15	0.19

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

025 MPH U MA/ART		Minimum Temp: 68. (F)			Maximum Temp: 96. (F)		
		Period 1 RVP: 9.5			Period 2 RVP: 9.5		
		Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT
Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5
VMT Mix:	0.605	0.308	0.027	0.002	0.009	0.005	0.043

OComposite Emission Factors (Gm/Mile)									
Total HC:	32.68	35.27	51.33	36.56	81.46	1.58	2.40	6.02	15.95
Exhaust HC:	12.13	15.81	22.91	16.38	24.50	1.58	2.40	6.02	11.19
Evaporat HC:	0.66	0.87	1.11	0.89	5.85			4.32	0.716
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000
Running L HC:	19.79	18.50	27.23	19.20	50.96				18.510
Resting L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.085
Exhaust CO:	171.28	224.06	333.46	232.87	482.72	5.51	6.61	40.74	185.46
Exhaust NOX:	2.44	2.67	3.09	2.71	4.54	2.91	3.42	28.51	0.85

OEvaportive Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14	16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61	21.16
Multiple	18.53	24.22	28.07	25.40	59.20	
Crankcase	0.01	0.02	0.03	0.02	0.04	0.00
Refuel	4.58	4.58	4.58	4.58	4.58	
Resting	0.11	0.10	0.10	0.10	0.15	0.19

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

040 MPH U MA/ART		Minimum Temp: 68. (F)			Maximum Temp: 96. (F)		
		Period 1 RVP: 9.5			Period 2 RVP: 9.5		
		Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT

VMT Mix: 0.605 0.308 0.027 0.002 0.009 0.005 0.043 0.001

0Composite Emission Factors (Gm/Mile)

Total HC:	2.32	2.96	3.96	3.04	9.54	0.41	0.61	1.54	6.09	2.523
Exhaust HC:	1.13	1.60	2.17	1.64	2.42	0.41	0.61	1.54	1.32	1.314
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.716
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Runing L HC:	0.44	0.41	0.60	0.42	1.12					0.409
Rsting L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.085
Exhaust CO:	15.28	20.09	27.08	20.65	70.64	0.87	1.04	6.41	11.69	16.602
Exhaust NOX:	1.79	2.09	2.53	2.13	6.32	1.49	1.75	14.61	1.02	2.462

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14				16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61				21.16	
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04				0.00	
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15				0.19	

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

025 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)
Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+ Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		
VMT Mix:	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001		

0Composite Emission Factors (Gm/Mile)

Total HC:	32.68	35.27	51.33	36.54	81.46	1.58	2.40	6.02	15.95	32.762
Exhaust HC:	12.13	15.81	22.91	16.37	24.50	1.58	2.40	6.02	11.19	12.785
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.701
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Runing L HC:	19.79	18.50	27.23	19.19	50.96					19.189
Rsting L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.088
Exhaust CO:	171.28	224.06	333.46	232.72	482.72	5.51	6.61	40.74	185.46	180.230
Exhaust NOX:	2.44	2.67	3.09	2.71	4.54	2.91	3.42	28.51	0.85	2.760

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14				16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61				21.16	
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04				0.00	
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15				0.19	

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

030 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)
Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+ Veh. Speeds:	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0		
VMT Mix:	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001		

0Composite Emission Factors (Gm/Mile)

Total HC:	2.85	3.50	4.69	3.60	11.11	0.52	0.78	1.97	6.40	2.969
Exhaust HC:	1.43	1.99	2.69	2.04	3.57	0.52	0.78	1.97	1.63	1.548
Evaporat HC:	0.66	0.87	1.11	0.89	5.85				4.32	0.701
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Runing L HC:	0.67	0.56	0.81	0.58	1.54					0.631
Rsting L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.088
Exhaust CO:	19.09	24.83	33.03	25.48	87.14	1.11	1.33	8.17	16.31	20.071
Exhaust NOX:	1.75	2.02	2.43	2.05	5.84	1.47	1.72	14.37	0.92	1.935

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14				16.37	
WtDiurnal	7.55	11.58	16.87	13.20	54.61				21.16	
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04				0.00	
Refuel	4.58	4.58	4.58	4.58	4.58					

Resting 0.11 0.10 0.10 0.10 0.15 0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

065 MPH U/INT		Minimum Temp: 68. (F)					Maximum Temp: 96. (F)				
		Period 1 RVP: 9.5			Period 2 RVP: 9.5		Period 2 Start Yr: 1990				
0 Veh. Type:		LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+											
Veh. Speeds:		65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0		
VMT Mix:		0.657	0.248	0.004	0.002	0.001	0.013	0.075	0.000		
0Composite Emission Factors (Gm/Mile)											
Total HC:		2.49	3.50	4.75	3.52	8.38	0.33	0.49	1.24	6.87	2.639
Exhaust HC:		1.58	2.36	3.29	2.37	1.89	0.33	0.49	1.24	2.10	1.737
Evaporat HC:		0.66	0.87	1.11	0.88	5.85			4.32	0.668	
Refuel L HC:		0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:		0.16	0.18	0.27	0.18	0.49				0.152	
Rating L HC:		0.09	0.09	0.08	0.09	0.15			0.44	0.082	
Exhaust CO:		36.33	54.57	76.45	54.92	109.41	1.05	1.26	7.74	0.00	38.522
Exhaust NOX:		3.08	3.62	4.48	3.63	7.50	2.90	3.41	28.38	0.00	5.127
0Evaporative Emissions by Component											
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)			
						Running Loss Temp: 92.2 (F)					
						Resting Loss Temp: 83.9 (F)					
Hot Soak		3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal		7.55	11.58	16.87	13.20	54.61			21.16		
Multiple		18.53	24.22	28.07	25.40	59.20					
Crankcase		0.01	0.02	0.03	0.02	0.04			0.00		
Refuel		4.58	4.58	4.58	4.58	4.58					
Resting		0.11	0.10	0.10	0.10	0.15			0.19		

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

050 MPH U/INT		Minimum Temp: 68. (F)					Maximum Temp: 96. (F)				
		Period 1 RVP: 9.5			Period 2 RVP: 9.5		Period 2 Start Yr: 1990				
0 Veh. Type:		LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+											
Veh. Speeds:		50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0		
VMT Mix:		0.657	0.248	0.004	0.002	0.001	0.013	0.075	0.000		
0Composite Emission Factors (Gm/Mile)											
Total HC:		2.01	2.69	3.58	2.71	8.76	0.35	0.53	1.32	5.99	2.127
Exhaust HC:		0.99	1.43	1.93	1.44	1.94	0.35	0.53	1.32	1.23	1.124
Evaporat HC:		0.66	0.87	1.11	0.88	5.85			4.32	0.668	
Refuel L HC:		0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:		0.27	0.30	0.45	0.30	0.82				0.253	
Rating L HC:		0.09	0.09	0.08	0.09	0.15			0.44	0.082	
Exhaust CO:		13.53	18.27	24.55	18.37	71.35	0.82	0.98	6.03	0.00	14.125
Exhaust NOX:		1.97	2.31	2.81	2.32	6.79	1.75	2.06	17.13	0.00	3.208
0Evaporative Emissions by Component											
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)			
								Running Loss Temp: 92.2 (F)			
								Resting Loss Temp: 83.9 (F)			
Hot Soak		3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal		7.55	11.58	16.87	13.20	54.61			21.16		
Multiple		18.53	24.22	28.07	25.40	59.20					
Crankcase		0.01	0.02	0.03	0.02	0.04			0.00		
Refuel		4.58	4.58	4.58	4.58	4.58					
Resting		0.11	0.10	0.10	0.10	0.15			0.19		

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

063 MPH R/INT		Minimum Temp: 68. (F)				Maximum Temp: 96. (F)					
		Period 1 RVP: 9.5		Period 2 RVP: 9.5		Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh	
+											
Veh. Speeds:	63.0	63.0	63.0	63.0	63.0	63.0	63.0				
VMT Mix:	0.657	0.248	0.004	0.002	0.001	0.013	0.075	0.000			
0Composite Emission Factors (Gm/Mile)											
Total HC:	2.38	3.33	4.49	3.35	8.38	0.32	0.49	1.24	6.66	2.524	
Exhaust HC:	1.46	2.17	3.02	2.19	1.86	0.32	0.49	1.24	1.93	1.613	
Evaporat HC:	0.66	0.87	1.11	0.88	5.85			4.32	0.668		
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000		
Running L HC:	0.17	0.19	0.29	0.19	0.52				0.162		
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.082		
Exhaust CO:	31.77	47.31	66.07	47.61	100.43	0.99	1.19	7.31	0.00	33.633	

Exhaust NOX:	2.93	3.44	4.26	3.46	7.40	2.66	3.13	26.04	0.00	4.807
0Evaporative Emissions by Component					Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)			
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)					Running Loss Temp: 92.2 (F)					
					Resting Loss Temp: 83.9 (F)					
Hot Soak	3.46	4.35	6.35	4.96	21.14	16.37				
WtDiurnal	7.55	11.58	16.87	13.20	54.61	21.16				
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04	0.00				
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15	0.19				

1
MOBILES (4-Dec-92)
0
-M 89 Error:
+ 0 out of bounds for flag PROMPT (1 to 4)

1 MOBILE5 RUN FOR NASHVILLE AREA : Full-TDM Non-Methane Hydrocarbons

MOBILE5 (4-Dec-92)

0Non-methane HC emission factors include evaporative HC emission factors.

0

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

025 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		
VMT Mix:	0.695	0.265	0.006	0.001	0.006	0.020	0.006	0.001		

0Composite Emission Factors (Gm/Mile)

Non-Meth HC:	32.09	34.50	50.36	34.86	79.82	1.56	2.36	5.77	14.76	31.937
Exhaust HC:	11.55	15.05	21.93	15.20	22.86	1.56	2.36	5.77	10.00	12.268
Evaporat HC:	0.66	0.87	1.11	0.88	5.85			4.32	0.708	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	19.79	18.50	27.23	18.69	50.96				18.873	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.087	
Exhaust CO:	171.28	224.06	333.46	226.48	482.72	5.51	6.61	40.74	185.46	181.495
Exhaust NOX:	2.44	2.67	3.09	2.68	4.54	2.91	3.42	28.51	0.85	2.682

0Evaporative Emissions by Component

Weathered RVP: 8.9

Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

047 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds:	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0		
VMT Mix:	0.695	0.265	0.006	0.001	0.006	0.020	0.006	0.001		

0Composite Emission Factors (Gm/Mile)

Non-Meth HC:	2.01	2.67	3.56	2.69	8.82	0.36	0.54	1.32	5.87	2.164
Exhaust HC:	0.95	1.37	1.87	1.39	1.90	0.36	0.54	1.32	1.10	1.063
Evaporat HC:	0.66	0.87	1.11	0.88	5.85			4.32	0.708	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.31	0.34	0.50	0.34	0.92				0.305	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.087	
Exhaust CO:	13.71	18.44	24.80	18.58	69.51	0.82	0.98	6.02	10.16	14.702
Exhaust NOX:	1.82	2.13	2.58	2.14	6.65	1.64	1.93	16.09	1.06	1.999

0Evaporative Emissions by Component

Weathered RVP: 8.9

Hot Soak Temp: 91.2 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)

Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

032 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990

0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

+

Veh. Speeds:	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0		
VMT Mix:	0.695	0.265	0.006	0.001	0.006	0.020	0.006	0.001		

0Composite Emission Factors (Gm/Mile)

Non-Meth HC:	2.65	3.27	4.39	3.30	10.48	0.48	0.73	1.78	6.15	2.782
Exhaust HC:	1.29	1.79	2.44	1.81	3.04	0.48	0.73			
Evaporat HC:	0.66	0.87	1.11	0.88	5.85					

Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:	0.61	0.52	0.76	0.53	1.44					0.571
Rating L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.087
Exhaust CO:	18.13	23.60	31.51	23.77	82.10	1.04	1.24	7.67	15.11	19.215
Exhaust NOX:	1.76	2.04	2.45	2.05	5.94	1.46	1.71	14.25	0.95	1.912
OEvaportive Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)										
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)										
Resting Loss Temp: 83.9 (F)										
Hot Soak	3.46	4.35	6.35	4.96	21.14					16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61					21.16
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15					0.19

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

035 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)										
Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990										
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HIDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0		
VMT Mix:	0.695	0.265	0.006	0.001	0.006	0.020	0.006	0.001		
OComposite Emission Factors (Gm/Mile)										
Non-Meth HC:	2.49	3.10	4.16	3.13	9.99	0.45	0.67	1.65	6.06	2.621
Exhaust HC:	1.19	1.67	2.28	1.68	2.69	0.45	0.67	1.65	1.30	1.316
Evaporat HC:	0.66	0.87	1.11	0.88	5.85			4.32	0.708	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.54	0.47	0.69	0.48	1.31				0.509	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.087	
Exhaust CO:	16.89	22.03	29.57	22.20	76.33	0.96	1.15	7.07	13.58	17.914
Exhaust NOX:	1.77	2.06	2.48	2.07	6.08	1.46	1.71	14.23	0.98	1.928
OEvaportive Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)										
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)										
Resting Loss Temp: 83.9 (F)										
Hot Soak	3.46	4.35	6.35	4.96	21.14					16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61					21.16
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15					0.19

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

050 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)										
Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990										
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HIDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0		
VMT Mix:	0.695	0.265	0.006	0.001	0.006	0.020	0.006	0.001		
OComposite Emission Factors (Gm/Mile)										
Non-Meth HC:	1.96	2.62	3.49	2.64	8.63	0.34	0.52	1.27	5.86	2.112
Exhaust HC:	0.94	1.36	1.85	1.37	1.81	0.34	0.52	1.27	1.10	1.048
Evaporat HC:	0.66	0.87	1.11	0.88	5.85			4.32	0.708	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.27	0.30	0.45	0.31	0.82				0.269	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.087	
Exhaust CO:	13.53	18.27	24.55	18.40	71.35	0.82	0.98	6.03	10.01	14.533
Exhaust NOX:	1.97	2.31	2.81	2.32	6.79	1.75	2.06	17.13	1.13	2.163
OEvaportive Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)										
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)										
Resting Loss Temp: 83.9 (F)										
Hot Soak	3.46	4.35	6.35	4.96	21.14					16.37
WtDiurnal	7.55	11.58	16.87	13.20	54.61					21.16
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					0.00
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15					0.19

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

025 MPH R LOCAL Minimum Temp: 68. (F) Maximum Temp: 96. (F)

0 Veh. Type:	Period 1 RVP: 9.5			Period 2 RVP: 9.5		Period 2 Start Yr: 1990			HDDV	MC	All Veh
	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT				
+											
Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5			
VTM Mix:	0.654	0.327	0.000	0.000	0.009	0.005	0.000	0.005			
0Composite Emission Factors (Gm/Mile)											
Non-Meth HC:	32.09	34.50	50.36	34.50	79.82	1.56	2.36	5.77	14.76	32.372	
Exhaust HC:	11.55	15.05	21.93	15.05	22.86	1.56	2.36	5.77	10.00	12.548	
Evaporat HC:	0.66	0.87	1.11	0.87	5.85			4.32	0.740		
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000		
Running L HC:	19.79	18.50	27.23	18.50	50.96				18.994		
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.090		
Exhaust CO:	171.28	224.06	0.00	0.00	0.00	5.51	6.61	0.00	185.46	186.295	
Exhaust NOX:	2.44	2.67	0.00	0.00	0.00	2.91	3.42	0.00	0.85	2.514	
0Evaporative Emissions by Component											
						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)			
(Hot Soak: g/rip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)								Running Loss Temp: 92.2 (F)			
						Resting Loss Temp: 83.9 (F)					
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37			
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16			
Multiple	18.53	24.22	28.07	25.40	59.20						
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00			
Refuel	4.58	4.58	4.58	4.58	4.58						
Resting	0.11	0.10	0.10	0.10	0.15			0.19			

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

040 MPH R LOCAL Minimum Temp: 68. (F) Maximum Temp: 96. (F)

	Period 1 RVP: 9.5			Period 2 RVP: 9.5		Period 2 Start Yr: 1990						
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh		
+ Veh. Speeds:	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0				
VTM Mix:	0.654	0.327	0.000	0.000	0.009	0.005	0.000	0.005				
0Composite Emission Factors (Gm/Mile)												
Non-Meth HC:	2.26	2.88	3.86	2.88	9.38	0.40	0.60	1.48	5.95	2.460		
Exhaust HC:	1.07	1.52	2.07	1.52	2.26	0.40	0.60	1.48	1.18	1.210		
Evaporat HC:	0.66	0.87	1.11	0.87	5.85			4.32	0.740			
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000			
Running L HC:	0.44	0.41	0.60	0.41	1.12				0.420			
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.090			
Exhaust CO:	15.28	20.09	0.00	0.00	0.00	0.87	1.04	0.00	11.69	16.631		
Exhaust NOX:	1.79	2.09	0.00	0.00	0.00	1.49	1.75	0.00	1.02	1.884		
0Evaporative Emissions by Component						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)				
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Running Loss Temp: 92.2 (F)						
						Resting Loss Temp: 83.9 (F)						
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37				
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16				
Multiple	18.53	24.22	28.07	25.40	59.20							
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00				
Refuel	4.58	4.58	4.58	4.58	4.58							
Resting	0.11	0.10	0.10	0.10	0.15			0.19				

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low

Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: No

042 MPH R LOCAL Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5		Period 2 RVP: 9.5		Period 2 Start Yr: 1990							
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh	
+ Veh. Speeds:	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0			
VTM Mix:	0.654	0.327	0.000	0.000	0.009	0.005	0.000	0.005			
0Composite Emission Factors (Gm/Mile)											
Non-Meth HC:	2.19	2.81	3.76	2.81	9.19	0.38	0.58	1.42	5.92	2.386	
Exhaust HC:	1.03	1.47	2.00	1.47	2.13	0.38	0.58	1.42	1.15	1.169	
Evaporat HC:	0.66	0.87	1.11	0.87	5.85			4.32	0.740		
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000		
Running L HC:	0.40	0.39	0.57	0.39	1.06				0.387		
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.090		
Exhaust CO:	14.76	19.51	0.00	0.00	0.00	0.84	1.01	0.00	11.14	16.101	
Exhaust NOX:	1.80	2.10	0.00	0.00	0.00	1.52	1.79	0.00	1.03	1.894	
0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)											
(Hot Soak: g/rip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)											
Resting Loss Temp: 83.9 (F)											
Hot Soak	3.46	4.35	6.35	4.96	21.14				16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61				21.16		
Multiple	18.53	24.22	28.07	25.40	59.20						

Crankcase	0.01	0.02	0.03	0.02	0.04	0.00
Refuel	4.58	4.58	4.58	4.58	4.58	
Resting	0.11	0.10	0.10	0.10	0.15	0.19

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

025 MPH R MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

Veh. Speeds:	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		
VTM Mix:	0.669	0.302	0.006	0.001	0.003	0.010	0.009	0.000		

0Composite Emission Factors (Gm/Mile)

Non-Meth HC:	32.09	34.50	50.36	34.81	79.82	1.56	2.36	5.77	14.76	32.354
Exhaust HC:	11.55	15.05	21.93	15.18	22.86	1.56	2.36	5.77	10.00	12.504
Evaporat HC:	0.66	0.87	1.11	0.88	5.85			4.32	0.719	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	19.79	18.50	27.23	18.67	50.96				19.043	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.088	
Exhaust CO:	171.28	224.06	333.46	226.19	482.72	5.51	6.61	40.74	0.00	185.186
Exhaust NOX:	2.44	2.67	3.09	2.68	4.54	2.91	3.42	28.51	0.00	2.759

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

038 MPH R MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

Veh. Speeds:	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0		
VTM Mix:	0.669	0.302	0.006	0.001	0.003	0.010	0.009	0.000		

0Composite Emission Factors (Gm/Mile)

Non-Meth HC:	2.35	2.96	3.97	2.98	9.60	0.42	0.63	1.54	5.99	2.522
Exhaust HC:	1.12	1.57	2.15	1.58	2.41	0.42	0.63	1.54	1.22	1.259
Evaporat HC:	0.66	0.87	1.11	0.88	5.85			4.32	0.719	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.48	0.43	0.63	0.44	1.19				0.456	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44	0.088	
Exhaust CO:	15.86	20.77	27.97	20.91	72.38	0.90	1.08	6.63	0.00	17.199
Exhaust NOX:	1.78	2.08	2.51	2.09	6.22	1.47	1.73	14.40	0.00	1.995

0Evaporative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
Resting Loss Temp: 83.9 (F)

Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37		
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16		
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00		
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15			0.19		

OEmission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

024 MPH R MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)

Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

Veh. Speeds:	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0		
VTM Mix:	0.669	0.302	0.006	0.001	0.003	0.010	0.009	0.000		

0Composite Emission Factors (Gm/Mile)

Non-Meth HC:	3.24	3.91	5.27	3.94	12.49	0.61	0.93	2.27	6.48	3.423
Exhaust HC:	1.64	2.26	3.06	2.27	4.56	0.61	0.93	2.27	1.71	1.832
Evaporat HC:	0.66	0.87	1.11	0.88	5.85			4.32	0.719	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00				0.000	
Running L HC:	0.85	0.69	1.01	0.70	1.93				0.784	

Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.088
 Exhaust CO: 22.92 29.60 38.97 29.78 109.85 1.40 1.67 10.32 0.00 24.727
 Exhaust NOX: 1.71 1.95 2.35 1.96 5.56 1.56 1.83 15.22 0.00 1.912
 OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)
 Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
 WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
 Multiple 18.53 24.22 28.07 25.40 59.20
 Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
 Refuel 4.58 4.58 4.58 4.58 4.58
 Resting 0.11 0.10 0.10 0.10 0.15 0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

045 MPH R MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 45.0 45.0 45.0 45.0 45.0 45.0 45.0 45.0
 VMT Mix: 0.669 0.302 0.006 0.001 0.003 0.010 0.009 0.000
 OComposite Emission Factors (Gm/Mile)
 Non-Meth HC: 2.08 2.72 3.64 2.74 8.95 0.37 0.55 1.36 5.88 2.263
 Exhaust HC: 0.98 1.41 1.92 1.42 1.98 0.37 0.55 1.36 1.12 1.116
 Evaporat HC: 0.66 0.87 1.11 0.88 5.85 4.32 0.719
 Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
 Running L HC: 0.34 0.35 0.53 0.36 0.97 0.340
 Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.088
 Exhaust CO: 14.09 18.81 25.34 18.94 69.07 0.82 0.99 6.08 0.00 15.399
 Exhaust NOX: 1.81 2.12 2.57 2.13 6.55 1.59 1.87 15.54 0.00 2.039
 OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)
 Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
 WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
 Multiple 18.53 24.22 28.07 25.40 59.20
 Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
 Refuel 4.58 4.58 4.58 4.58 4.58
 Resting 0.11 0.10 0.10 0.10 0.15 0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

025 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh
 +
 Veh. Speeds: 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5
 VMT Mix: 0.605 0.308 0.027 0.002 0.009 0.005 0.043 0.001
 OComposite Emission Factors (Gm/Mile)
 Non-Meth HC: 32.09 34.50 50.36 35.78 79.82 1.56 2.36 5.77 14.76 31.853
 Exhaust HC: 11.55 15.05 21.93 15.60 22.86 1.56 2.36 5.77 10.00 12.542
 Evaporat HC: 0.66 0.87 1.11 0.89 5.85 4.32 0.716
 Refuel L HC: 0.00 0.00 0.00 0.00 0.00 0.000
 Running L HC: 19.79 18.50 27.23 19.20 50.96 18.510
 Rating L HC: 0.09 0.09 0.08 0.09 0.15 0.44 0.085
 Exhaust CO: 171.28 224.06 333.46 232.87 482.72 5.51 6.61 40.74 185.46 184.624
 Exhaust NOX: 2.44 2.67 3.09 2.71 4.54 2.91 3.42 28.51 0.85 3.659
 OE vapourative Emissions by Component Weathered RVP: 8.9 Hot Soak Temp: 91.2 (F)
 (Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) Running Loss Temp: 92.2 (F)
 Resting Loss Temp: 83.9 (F)
 Hot Soak 3.46 4.35 6.35 4.96 21.14 16.37
 WtDiurnal 7.55 11.58 16.87 13.20 54.61 21.16
 Multiple 18.53 24.22 28.07 25.40 59.20
 Crankcase 0.01 0.02 0.03 0.02 0.04 0.00
 Refuel 4.58 4.58 4.58 4.58 4.58
 Resting 0.11 0.10 0.10 0.10 0.15 0.19

OEmission factors are as of July 1st of the indicated calendar year.

OCal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
 Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
 Reformulated Gas: No

040 MPH U MA/ART Minimum Temp: 68. (F) Maximum Temp: 96. (F)
 Period 1 RVP: 9.5 Period 2 RVP: 9.5 Period 2 Start Yr: 1990
 0 Veh. Type: LDGV LDGT1 LDGT2 LDGT HDGV LDDV LDDT HDDV MC All Veh

Resting 0.11 0.10 0.10 0.10 0.15 0.19

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

065 MPH U/INT		Minimum Temp: 68. (F)					Maximum Temp: 96. (F)				
		Period 1 RVP: 9.5		Period 2 RVP: 9.5		Period 2 Start Yr: 1990					
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh	
+											
Veh. Speeds:	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0			
VMT Mix:	0.657	0.248	0.004	0.002	0.001	0.013	0.075	0.000			
0Composite Emission Factors (Gm/Mile)											
Non-Meth HC:	2.41	3.39	4.61	3.41	8.25	0.32	0.49	1.19	6.64	2.555	
Exhaust HC:	1.50	2.25	3.15	2.26	1.77	0.32	0.49	1.19	1.88	1.653	
Evaporat HC:	0.66	0.87	1.11	0.88	5.85				4.32	0.668	
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000	
Running L HC:	0.16	0.18	0.27	0.18	0.49					0.152	
Rating L HC:	0.09	0.09	0.08	0.09	0.15			0.44		0.082	
Exhaust CO:	36.33	54.57	76.45	54.92	109.41	1.05	1.26	7.74	0.00	38.522	
Exhaust NOX:	3.08	3.62	4.48	3.63	7.50	2.90	3.41	28.38	0.00	5.127	
0Evaporative Emissions by Component											
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)			
								Running Loss Temp: 92.2 (F)			
						Resting Loss Temp: 83.9 (F)					
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37			
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16			
Multiple	18.53	24.22	28.07	25.40	59.20						
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00			
Refuel	4.58	4.58	4.58	4.58	4.58						
Resting	0.11	0.10	0.10	0.10	0.15			0.19			

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

050 MPH U/INT		Minimum Temp: 68. (F)					Maximum Temp: 96. (F)						
Period 1 RVP: 9.5		Period 2 RVP: 9.5			Period 2 Start Yr: 1990								
0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh			
+													
Veh. Speeds:	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0					
VMT Mix:	0.657	0.248	0.004	0.002	0.001	0.013	0.075	0.000					
0Composite Emission Factors (Gm/Mile)													
Non-Meth HC:	1.96	2.62	3.49	2.63	8.63	0.34	0.52	1.27	5.86	2.071			
Exhaust HC:	0.94	1.36	1.85	1.37	1.81	0.34	0.52	1.27	1.10	1.068			
Evaporat HC:	0.66	0.87	1.11	0.88	5.85				4.32	0.668			
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000			
Running L HC:	0.27	0.30	0.45	0.30	0.82					0.253			
Rating L HC:	0.09	0.09	0.08	0.09	0.15				0.44	0.082			
Exhaust CO:	13.53	18.27	24.55	18.37	71.35	0.82	0.98	6.03	0.00	14.125			
Exhaust NOX:	1.97	2.31	2.81	2.32	6.79	1.75	2.06	17.13	0.00	3.208			
0Evaporative Emissions by Component					Weathered RVP: 8.9			Hot Soak Temp: 91.2 (F)					
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr)								Running Loss Temp: 92.2 (F)					
					Resting Loss Temp: 83.9 (F)								
Hot Soak	3.46	4.35	6.35	4.96	21.14			16.37					
WtDiurnal	7.55	11.58	16.87	13.20	54.61			21.16					
Multiple	18.53	24.22	28.07	25.40	59.20								
Crankcase	0.01	0.02	0.03	0.02	0.04			0.00					
Refuel	4.58	4.58	4.58	4.58	4.58								
Resting	0.11	0.10	0.10	0.10	0.15			0.19					

0Emission factors are as of July 1st of the indicated calendar year.

0Cal. Year: 1993 I/M Program: No Ambient Temp: 89.3 / 89.3 / 89.3 (F) Region: Low
Anti-tan. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: No

063 MPH R/INT		Minimum Temp: 68. (F)					Maximum Temp: 96. (F)				
		Period 1 RVP: 9.5		Period 2 RVP: 9.5		Period 2 Start Yr: 1990					
0 Veh. Type:		LDGV	LDGT1	LDGT2	.LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+											
Veh. Speeds:		63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0		
VMT Mix:		0.657	0.248	0.004	0.002	0.001	0.013	0.075	0.000		
0Composite Emission Factors (Gm/Mile)											
Non-Meth HC:		2.31	3.22	4.37	3.24	8.25	0.32	0.48	1.18	6.49	2.446
Exhaust HC:		1.39	2.07	2.89	2.08	1.73	0.32	0.48	1.18	1.72	1.535
Evaporat HC:		0.66	0.87	1.11	0.88	5.85				4.32	0.668
Refuel L HC:		0.00	0.00	0.00	0.00	0.00					0.000
Running L HC:		0.17	0.19	0.29	0.19	0.52					0.162
Rating L HC:		0.09	0.09	0.08	0.09	0.15			0.44		0.082
Exhaust CO:		31.77	47.31	66.07	47.61	100.43	0.99	1.19	7.31	0.00	33.633

Exhaust NOX:	2.93	3.44	4.26	3.46	7.40	2.66	3.13	26.04	0.00	4.807
0Evaporative Emissions by Component										
						Weathered RVP: 8.9		Hot Soak Temp: 91.2 (F)		
(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, RResting: g/hr)										Running Loss Temp: 92.2 (F)
										Resting Loss Temp: 83.9 (F)
Hot Soak	3.46	4.35	6.35	4.96	21.14					
Wtdiurnal	7.55	11.58	16.87	13.20	54.61					
Multiple	18.53	24.22	28.07	25.40	59.20					
Crankcase	0.01	0.02	0.03	0.02	0.04					
Refuel	4.58	4.58	4.58	4.58	4.58					
Resting	0.11	0.10	0.10	0.10	0.15					

1
MOBILE5 (4-Dec-92)
0
-M 89 Error:
+ 0 out of bounds for flag PROMPT (1 to 4)

APPENDIX D

PRE-CONSTRUCTION GWP DATA

APPENDIX D-1

**Road Segments Analyzed
BRENTWOOD I-65 CORRIDOR
PRECONSTRUCTION ANALYSIS**

LINK ID NO	Road Segment	Traffic Flow Direction
1	Franklin Rd.; Harding Pl. to O. Hickory Blvd.	N/B
2		S/B
3	Franklin Rd.; O. Hickory Blvd. to Murray Ln.	N/B
4		S/B
5	Franklin Rd.; Murray Ln. to Concord Rd.	N/B
6		S/B
7	Wilson Pk.; Church St. to Concord Rd.	N/B
8		S/B
9	Old Hickory Blvd.; Franklin Rd. to Stonebrook DR.	E/B
10		W/B
11	Concord Road, Franklin Rd. to Wilson Pk.	E/B
12		W/B
13	Maryland Way, Granny White to Franklin Rd.	E/B
14		W/B
15	O. Hickory Blvd, Franklin to Granny White	E/B
16		W/B
17	O. Hickory Blvd, Stonebrook to Nolensville	E/B
18		W/B
19	Harding Place, I-65 to Franklin Rd.	E/B
20		W/B
21	I-65, Harding Place to Old Hickory Blvd. Link A	N/B
22		S/B
23	I-65, Harding Place to Old Hickory Blvd. Link B	N/B
24		S/B
25	I-65, Harding Place to Old Hickory Blvd. Link C	N/B
26		S/B
27	I-65, Old Hickory to Concord Link A	N/B
28		S/B
29	I-65, Old Hickory to Concord Link B	N/B
30		S/B

APPENDIX D-2

**Traffic Data
BRENTWOOD I-65 CORRIDOR
PRECONSTRUCTION**

LINK ID NO	Speed	ADT	Link Length-mi	VMT	Grade %
1	44	5300	3.54	18762	0
2	43	5300	3.54	18762	0
3	28	12610	1.85	23329	0
4	32	12610	1.85	23329	0
5	50	9190	1.07	9833	0
6	50	9190	1.07	9833	0
7	40	2155	2.63	5668	0
8	41	2155	2.63	5668	0
9	33	18895	0.45	8503	0
10	24	18895	0.45	8503	0
11	39	6180	1.71	10568	0
12	37	6180	1.71	10568	0
13	40	6389	1.68	10734	0
14	40	6389	1.68	10734	0
15	45	13698	1.71	23424	0
16	45	13698	1.71	23424	0
17	45	8000	3.98	31840	0
18	45	8000	3.98	31840	0
19	33	9833	0.62	6096	0
20	33	9833	0.62	6096	0
21	65	31755	0.299	9495	-3
22	50	31755	0.299	9495	3
23	65	31755	0.637	20228	1
24	50	31755	0.637	20228	-1
25	65	31755	2.29	72719	0
26	50	31755	2.29	72719	0
27	46	25305	0.419	10603	2.2
28	48	25305	0.419	10603	-2.2
29	46	25305	2.63	66552	0
30	48	25305	2.63	66552	0

APPENDIX D-3

Vehicle Mix BRENTWOOD I-65 CORRIDOR PRECONSTRUCTION

LINK ID NO	LDGV	LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC
1	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001
2	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001
3	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001
4	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001
5	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001
6	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001
7	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001
8	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001
9	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001
10	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001
11	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001
12	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001
13	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001
14	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001
15	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001
16	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001
17	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001
18	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001
19	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001
20	0.771	0.186	0.016	0.001	0.012	0.003	0.010	0.001
21	0.657	0.241	0.021	0.003	0.010	0.004	0.063	0.001
22	0.657	0.241	0.021	0.003	0.010	0.004	0.063	0.001
23	0.657	0.241	0.021	0.003	0.010	0.004	0.063	0.001
24	0.657	0.241	0.021	0.003	0.010	0.004	0.063	0.001
25	0.657	0.241	0.021	0.003	0.010	0.004	0.063	0.001
26	0.657	0.241	0.021	0.003	0.010	0.004	0.063	0.001
27	0.657	0.241	0.021	0.003	0.010	0.004	0.063	0.001
28	0.657	0.241	0.021	0.003	0.010	0.004	0.063	0.001
29	0.657	0.241	0.021	0.003	0.010	0.004	0.063	0.001
30	0.657	0.241	0.021	0.003	0.010	0.004	0.063	0.001

APPENDIX D-4

Fuel Consumption Rates By Vehicle Type (1980)
gallons/1000 miles
BRENTWOOD I-65 CORRIDOR
PRECONSTRUCTION

LINK ID NO	LDGV	LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC
1	35.8	59.0	59.0	199.4	46.7	149.0	199.4	24.8
2	33.9	58.0	58.0	199.8	43.1	149.0	199.8	24.6
3	32.6	53.4	53.4	204.0	39.6	148.8	204.0	25.5
4	33.0	53.4	53.4	203.2	39.7	154.8	203.2	26.2
5	35.7	64.4	64.4	199.0	46.4	149.0	199.0	25.0
6	35.7	64.4	64.4	199.0	46.4	149.0	199.0	25.0
7	32.9	55.0	55.0	201.0	41.8	149.0	201.0	24.0
8	33.3	56.0	56.0	200.6	42.3	149.0	200.6	24.2
9	32.9	53.6	53.6	201.2	39.9	154.2	201.2	25.8
10	35.7	52.2	52.2	204.2	40.5	170.2	204.2	30.8
11	32.4	55.8	55.8	201.2	41.6	145.8	201.2	23.2
12	32.3	55.4	55.4	201.6	41.0	147.4	201.6	23.6
13	32.9	55.0	55.0	201.0	41.8	149.0	201.0	24.0
14	32.9	55.0	55.0	201.0	41.8	149.0	201.0	24.0
15	34.5	60.0	60.0	199.0	44.0	149.0	199.0	25.0
16	34.5	60.0	60.0	199.0	44.0	149.0	199.0	25.0
17	34.5	60.0	60.0	199.0	44.0	149.0	199.0	25.0
18	34.5	60.0	60.0	199.0	44.0	149.0	199.0	25.0
19	32.9	53.6	53.6	201.2	39.9	154.2	201.2	25.8
20	32.9	53.6	53.6	201.2	39.9	154.2	201.2	25.8
21	34.5	46.0	46.0	0.0	48.0	27.0	0.0	21.0
22	51.4	96.5	96.5	348.5	66.8	329.0	348.5	36.0
23	52.6	107.0	107.0	301.0	67.7	277.0	301.0	37.5
24	29.5	47.0	47.0	45.0	40.2	51.0	45.0	18.8
25	45.8	82.0	82.0	210.0	60.0	163.0	210.0	31.5
26	35.8	64.4	64.4	199.0	46.5	149.0	199.0	25.0
27	41.4	77.7	77.7	298.9	52.7	251.4	298.9	30.1
28	28.8	50.0	50.0	39.7	39.1	65.4	39.7	18.4
29	34.8	65.3	65.3	199.0	44.6	149.0	199.0	25.0
30	35.3	67.0	67.0	199.0	45.5	149.0	199.0	25.0

APPENDIX D-5

Daily Fuel Consumption By Vehicle Type (1993)

Gallons/Day

1993 Fuel Consumption Rates/1980 Fuel Consumption Rates = .685

BRENTWOOD I-65 CORRIDOR

PRECONSTRUCTION

LINK									Segment
ID NO	LDGV	LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC	Totals
1	351.7	140.0	12.0	2.5	7.1	5.7	25.4	0.3	544.9
2	333.1	137.6	11.8	2.5	6.6	5.7	25.5	0.3	523.2
3	398.1	157.6	13.6	3.2	7.5	7.1	32.4	0.4	619.9
4	403.0	157.6	13.6	3.2	7.6	7.4	32.2	0.4	624.9
5	184.0	80.1	6.9	1.3	3.7	3.0	13.3	0.2	292.5
6	184.0	80.1	6.9	1.3	3.7	3.0	13.3	0.2	292.5
7	76.7	65.3	5.7	1.5	1.4	2.9	33.3	0.1	187.0
8	77.5	66.5	5.8	1.5	1.5	2.9	33.2	0.1	189.1
9	146.4	57.6	5.0	1.2	2.8	2.7	11.6	0.1	227.4
10	159.0	56.1	4.8	1.2	2.8	3.0	11.8	0.2	238.8
11	140.9	123.5	10.8	2.9	2.7	5.2	62.2	0.2	348.4
12	140.4	122.6	10.7	2.9	2.7	5.3	62.3	0.2	347.1
13	145.3	123.6	10.8	2.9	2.7	5.4	63.1	0.2	354.1
14	145.3	123.6	10.8	2.9	2.7	5.4	63.1	0.2	354.1
15	423.7	177.8	15.3	3.2	8.4	7.1	31.7	0.4	667.5
16	423.7	177.8	15.3	3.2	8.4	7.1	31.7	0.4	667.5
17	575.9	241.6	20.8	4.3	11.4	9.7	43.1	0.5	907.4
18	575.9	241.6	20.8	4.3	11.4	9.7	43.1	0.5	907.4
19	105.0	41.3	3.6	0.8	2.0	1.9	8.3	0.1	163.1
20	105.0	41.3	3.6	0.8	2.0	1.9	8.3	0.1	163.1
21	146.3	71.6	6.2	0.0	3.1	0.7	0.0	0.1	228.1
22	218.0	150.2	13.1	6.8	4.3	8.5	141.8	0.2	542.8
23	475.1	354.7	30.9	12.4	9.3	15.2	260.8	0.5	1159.0
24	266.7	155.8	13.6	1.9	5.5	2.8	39.0	0.3	485.5
25	1486.3	977.2	85.2	31.2	29.7	32.2	654.2	1.6	3297.5
26	1161.4	767.5	66.9	29.5	23.0	29.5	619.9	1.2	2698.9
27	196.1	135.0	11.8	6.5	3.8	7.3	135.8	0.2	496.4
28	136.2	86.9	7.6	0.9	2.8	1.9	18.0	0.1	254.4
29	1034.7	712.0	62.0	27.0	20.2	27.0	567.4	1.1	2451.4
30	1048.1	731.2	63.7	27.0	20.6	27.0	567.4	1.1	2486.1
Totals By Vehicle Type									Area
									Total
	11264	6555	570	191	222	254	3653	12	22720

APPENDIX D-6

Energy Consumption (million btu/day)
BRENTWOOD I-65 CORRIDOR
PRECONSTRUCTION

LINK ID NO	LDGV	LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC	Road Segment Totals
1	44.889	17.872	1.537	0.325	0.966	0.770	3.437	0.040	69.837
2	42.516	17.569	1.511	0.325	0.892	0.770	3.444	0.040	67.068
3	50.819	20.120	1.731	0.413	1.018	0.957	4.372	0.052	79.481
4	51.443	20.113	1.730	0.411	1.021	0.995	4.355	0.053	80.122
5	23.494	10.224	0.879	0.170	0.503	0.404	1.798	0.021	37.493
6	23.494	10.224	0.879	0.170	0.503	0.404	1.798	0.021	37.493
7	9.792	8.334	0.731	0.198	0.196	0.388	4.500	0.012	24.150
8	9.896	8.485	0.744	0.197	0.198	0.388	4.491	0.012	24.412
9	18.693	7.358	0.633	0.148	0.374	0.361	1.572	0.019	29.159
10	20.292	7.160	0.616	0.151	0.380	0.399	1.595	0.023	30.616
11	17.981	15.765	1.382	0.369	0.363	0.708	8.399	0.021	44.989
12	17.926	15.652	1.372	0.370	0.358	0.716	8.416	0.022	44.831
13	18.545	15.783	1.384	0.375	0.371	0.735	8.523	0.022	45.736
14	18.545	15.783	1.384	0.375	0.371	0.735	8.523	0.022	45.736
15	54.082	22.691	1.952	0.405	1.136	0.962	4.282	0.051	85.561
16	54.082	22.691	1.952	0.405	1.136	0.962	4.282	0.051	85.561
17	73.515	30.844	2.653	0.550	1.544	1.308	5.821	0.069	116.304
18	73.515	30.844	2.653	0.550	1.544	1.308	5.821	0.069	116.304
19	13.403	5.276	0.454	0.106	0.268	0.259	1.127	0.014	20.907
20	13.403	5.276	0.454	0.106	0.268	0.259	1.127	0.014	20.907
21	18.681	9.137	0.796	0.000	0.419	0.094	0.000	0.017	29.144
22	27.832	19.167	1.670	0.862	0.583	1.148	19.151	0.030	70.442
23	60.649	45.277	3.945	1.586	1.257	2.059	35.239	0.066	150.079
24	34.042	19.888	1.733	0.237	0.747	0.379	5.262	0.033	62.322
25	189.729	124.741	10.870	3.977	4.008	4.356	88.384	0.199	426.262
26	148.258	97.967	8.537	3.768	3.106	3.982	83.754	0.158	349.530
27	25.033	17.234	1.502	0.825	0.513	0.980	18.342	0.028	64.457
28	17.384	11.090	0.966	0.110	0.381	0.255	2.438	0.017	32.641
29	132.080	90.884	7.919	3.449	2.727	3.644	76.651	0.144	317.499
30	133.788	93.335	8.133	3.449	2.782	3.644	76.651	0.144	321.926
Totals By Vehicle Type									Area Total
	1437.80	836.78	72.70	24.38	29.94	34.33	493.55	1.48	2930.97

APPENDIX D-7

CO₂ Emissions BRENTWOOD I-65 CORRIDOR PRECONSTRUCTION

		CO2 Emissions From Gasoline	CO2 Emissions From Diesel	Fuel
LINK ID NO	lb./day	lb./day	Segment Totals	
1	10155.3	830.9	10986.3	
2	9752.1	820.2	10572.2	
3	11553.3	1019.5	12572.8	
4	11642.9	1023.3	12666.2	
5	5456.3	434.4	5890.7	
6	5456.3	434.4	5890.7	
7	3487.3	816.6	4303.9	
8	3526.2	815.5	4341.8	
9	4237.1	370.6	4607.6	
10	4447.9	381.3	4829.1	
11	6498.9	1521.2	8020.0	
12	6474.6	1524.3	7998.9	
13	6604.3	1546.5	8150.8	
14	6604.3	1546.5	8150.8	
15	12445.4	1024.8	13470.2	
16	12445.4	1024.8	13470.2	
17	16917.2	1393.0	18310.3	
18	16917.2	1393.0	18310.3	
19	3038.0	265.7	3303.7	
20	3038.0	265.7	3303.7	
21	4281.4	82.4	4363.8	
22	10118.7	3354.0	13472.7	
23	21659.1	6192.8	27851.9	
24	9108.2	1026.2	10134.4	
25	61770.2	15539.8	77310.0	
26	50524.2	14591.2	65115.4	
27	9265.7	3185.9	12451.6	
28	4766.2	493.7	5259.9	
29	45899.4	13335.2	59234.5	
30	46553.5	13344.0	59897.5	
Totals			Area Total	
	Gasoline	Diesel		
	424645	89597		514242

APPENDIX D-8

Emission Factors For Greenhouse Gases BRENTWOOD I-65 CORRIDOR PRECONSTRUCTION

LINK ID NO	Emission Factors (g/v-mi)		CO	NOx	THC	NMHC	MHC
	CO2						
1	267.799		15.130	2.014	2.290	2.235	0.055
2	267.799		15.130	2.014	2.290	2.235	0.055
3	246.480		21.220	1.920	3.110	3.028	0.082
4	248.312		19.060	1.945	2.840	2.767	0.073
5	273.971		15.000	2.050	2.000	1.950	0.050
6	273.971		15.000	2.050	2.000	1.950	0.050
7	347.294		16.600	2.462	2.520	2.457	0.063
8	350.349		16.330	2.473	2.480	2.419	0.061
9	247.832		18.600	1.951	2.780	2.710	0.070
10	259.746		24.050	1.900	3.450	3.360	0.090
11	347.080		16.890	2.452	2.560	2.490	0.070
12	346.165		17.540	2.435	2.650	2.584	0.066
13	347.294		16.600	2.462	2.520	2.457	0.063
14	347.294		16.600	2.462	2.520	2.457	0.063
15	263.002		14.900	2.021	2.250	2.200	0.050
16	263.002		14.900	2.021	2.250	2.200	0.050
17	263.002		14.900	2.021	2.250	2.200	0.050
18	263.002		14.900	2.021	2.250	2.200	0.050
19	247.832		18.600	1.951	2.780	2.710	0.070
20	247.832		18.600	1.951	2.780	2.710	0.070
21	210.193		39.480	4.820	2.690	2.604	0.086
22	648.947		14.400	3.040	2.160	2.110	0.050
23	629.711		39.480	4.820	2.690	2.604	0.086
24	229.131		14.400	3.040	2.160	2.110	0.050
25	486.212		39.480	4.820	2.690	2.604	0.086
26	409.519		14.400	3.040	2.160	2.110	0.050
27	537.086		14.750	2.801	2.250	2.192	0.058
28	226.881		14.400	2.840	2.190	2.134	0.056
29	407.053		14.750	2.801	2.250	2.192	0.058
30	411.608		14.400	2.840	2.190	2.134	0.056

APPENDIX D-9

Masses of Greenhouse Gases Emitted (lbm/day) BRENTWOOD I-65 CORRIDOR PRECONSTRUCTION

LINK ID NO	CO2	CO	NOx	NMHC	MHC
1	11067.0	625.3	83.2	92.4	2.3
2	11067.0	625.3	83.2	92.4	2.3
3	12665.2	1090.4	98.7	155.6	4.2
4	12759.3	979.4	99.9	142.2	3.8
5	5934.0	324.9	44.4	42.2	1.1
6	5934.0	324.9	44.4	42.2	1.1
7	4335.5	207.2	30.7	30.7	0.8
8	4373.7	203.9	30.9	30.2	0.8
9	4641.5	348.4	36.5	50.8	1.3
10	4864.7	450.4	35.6	62.9	1.7
11	8079.0	393.2	57.1	58.0	1.6
12	8057.7	408.3	56.7	60.1	1.5
13	8210.8	392.5	58.2	58.1	1.5
14	8210.8	392.5	58.2	58.1	1.5
15	13569.3	768.7	104.3	113.5	2.6
16	13569.3	768.7	104.3	113.5	2.6
17	18444.9	1045.0	141.7	154.3	3.5
18	18444.9	1045.0	141.7	154.3	3.5
19	3328.0	249.8	26.2	36.4	0.9
20	3328.0	249.8	26.2	36.4	0.9
21	4395.9	825.7	100.8	54.5	1.8
22	13571.8	301.2	63.6	44.1	1.0
23	28056.7	1759.0	214.8	116.0	3.8
24	10208.9	641.6	135.4	94.0	2.2
25	77878.5	6323.7	772.0	417.1	13.8
26	65594.2	2306.5	486.9	338.0	8.0
27	12543.2	344.5	65.4	51.2	1.4
28	5298.6	336.3	66.3	49.8	1.3
29	59670.1	2162.2	410.6	321.3	8.5
30	60337.9	2110.9	416.3	312.8	8.2
Totals	518440	28005	4094	3383	89

APPENDIX D-10

Global Warming Potentials of Greenhouse Gases Emitted (lbm of CO₂-Equiv./day) BRENTWOOD I-65 CORRIDOR PRECONSTRUCTION

Global Warming Potential Factors (lbm CO₂/lbm Greenhouse Gas)

1	7	150	5	37
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LINK ID NO	CO2	CO	NOx	NMHC	MHC	Segment Totals CO2-Equiv (tons/day)
1	11067.0	4376.8	12484.6	461.8	84.1	14.24
2	11067.0	4376.8	12484.6	461.8	84.1	14.24
3	12665.2	7632.6	14798.7	778.0	155.9	18.02
4	12759.3	6855.7	14991.4	710.9	138.8	17.73
5	5934.0	2274.2	6660.2	211.2	40.1	7.56
6	5934.0	2274.2	6660.2	211.2	40.1	7.56
7	4335.5	1450.6	4610.3	153.4	29.1	5.29
8	4373.7	1427.0	4630.9	151.0	28.2	5.31
9	4641.5	2438.5	5480.9	253.8	48.5	6.43
10	4864.7	3152.9	5337.6	314.6	62.4	6.87
11	8079.0	2752.1	8561.3	289.8	60.3	9.87
12	8057.7	2858.0	8502.0	300.7	56.8	9.89
13	8210.8	2747.2	8731.0	290.4	55.1	10.02
14	8210.8	2747.2	8731.0	290.4	55.1	10.02
15	13569.3	5381.2	15640.7	567.5	95.4	17.63
16	13569.3	5381.2	15640.7	567.5	95.4	17.63
17	18444.9	7314.8	21260.6	771.5	129.7	23.96
18	18444.9	7314.8	21260.6	771.5	129.7	23.96
19	3328.0	1748.4	3929.8	182.0	34.8	4.61
20	3328.0	1748.4	3929.8	182.0	34.8	4.61
21	4395.9	5779.7	15120.5	272.3	66.5	12.82
22	13571.8	2108.1	9536.6	220.6	38.7	12.74
23	28056.7	12313.2	32213.2	580.1	141.8	36.65
24	10208.9	4491.1	20317.0	470.1	82.4	17.78
25	77878.5	44265.7	115805.7	2085.5	509.7	120.27
26	65594.2	16145.5	73039.3	1689.8	296.3	78.38
27	12543.2	2411.3	9812.3	256.0	50.1	12.54
28	5298.6	2354.1	9948.9	249.2	48.4	8.95
29	59670.1	15135.5	61590.1	1606.6	314.6	69.16
30	60337.9	14776.3	62447.6	1564.1	303.7	69.71
Total CO2 Equivalents By Greenhouse Gas	518440	196033	614158	16915	3311	Area Total 674.4

APPENDIX E

PRE-TDM GWP DATA

APPENDIX E-1

Road Segments Analyzed NASHVILLE I-65 CORRIDOR PRE-TDM IMPLEMENTATION

LINK ID NO	Road Segment	Traffic Flow Direction
1	Franklin Rd.; Harding Pl. to O. Hickory Blvd.	N/B
2		S/B
3	Franklin Rd.; O. Hickory Blvd. to Murray Ln.	N/B
4		S/B
5	Franklin Rd.; Murray Ln. to Concord Rd.	N/B
6		S/B
7	Wilson Pk.; Church St. to Concord Rd.	N/B
8		S/B
9	Old Hickory Blvd.; Franklin Rd. to Stonebrook DR.	E/B
10		W/B
11	Concord Road, Franklin Rd. to Wilson Pk.	E/B
12		W/B
13	Maryland Way, Granny White to Franklin Rd.	E/B
14		W/B
15	O. Hickory Blvd, Franklin to Granny White	E/B
16		W/B
17	O. Hickory Blvd, Stonebrook to Nolensville	E/B
18		W/B
19	Harding Place, I-65 to Franklin Rd.	E/B
20		W/B
21	I-65, Harding Place to Old Hickory Blvd. Link A	N/B
22		S/B
23	I-65, Harding Place to Old Hickory Blvd. Link B	N/B
24		S/B
25	I-65, Harding Place to Old Hickory Blvd. Link C	N/B
26		S/B
27	I-65, Old Hickory to Concord Link A	N/B
28		S/B
29	I-65, Old Hickory to Concord Link B	N/B
30		S/B

APPENDIX E-2

**Traffic Data
BRENTWOOD I-65 CORRIDOR
PRE-TDM IMPLEMENTATION**

LINK ID NO	Speed	ADT	Link Length-mi	VMT	Grade %
1	45	7810	3.54	27647	0
2	44	7810	3.54	27647	0
3	28	12680	1.85	23458	0
4	32	12680	1.85	23458	0
5	49	11450	1.07	12252	0
6	48	11450	1.07	12252	0
7	40	2380	2.63	6259	0
8	40	2380	2.63	6259	0
9	32	16940	0.45	7623	0
10	24	16940	0.45	7623	0
11	40	5630	1.71	9627	0
12	39	5630	1.71	9627	0
13	40	6450	1.68	10836	0
14	40	6450	1.68	10836	0
15	45	13150	1.71	22487	0
16	45	13150	1.71	22487	0
17	45	8100	3.98	32238	0
18	45	8100	3.98	32238	0
19	33	10000	0.62	6200	0
20	33	10000	0.62	6200	0
21	63	41310	0.299	12352	-3
22	50	20650	0.299	6174	3
23	63	41310	0.637	26314	1
24	50	20650	0.637	13154	-1
25	63	41310	2.29	94600	0
26	50	20650	2.29	47289	0
27	47	32920	0.419	13793	2.2
28	49	16460	0.419	6897	-2.2
29	47	32920	2.63	86580	0
30	49	16460	2.63	43290	0

APPENDIX E-3

Vehicle Mix BRENTWOOD I-65 CORRIDOR PRE-TDM IMPLEMENTATION

LINK ID NO	LDGV	LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC
1	0.78	0.184	0.017	0.001	0.006	0.002	0.009	0.001
2	0.78	0.184	0.017	0.001	0.006	0.002	0.009	0.001
3	0.78	0.184	0.017	0.001	0.006	0.002	0.009	0.001
4	0.78	0.184	0.017	0.001	0.006	0.002	0.009	0.001
5	0.78	0.184	0.017	0.001	0.006	0.002	0.009	0.001
6	0.78	0.184	0.017	0.001	0.006	0.002	0.009	0.001
7	0.712	0.242	0.015	0.002	0.004	0.003	0.022	0
8	0.712	0.242	0.015	0.002	0.004	0.003	0.022	0
9	0.766	0.197	0.017	0.001	0.006	0.002	0.01	0.001
10	0.766	0.197	0.017	0.001	0.006	0.002	0.01	0.001
11	0.673	0.269	0.022	0.007	0.005	0.002	0.022	0
12	0.673	0.269	0.022	0.007	0.005	0.002	0.022	0
13	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001
14	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001
15	0.766	0.197	0.017	0.001	0.006	0.002	0.01	0.001
16	0.766	0.197	0.017	0.001	0.006	0.002	0.01	0.001
17	0.766	0.197	0.017	0.001	0.006	0.002	0.01	0.001
18	0.766	0.197	0.017	0.001	0.006	0.002	0.01	0.001
19	0.771	0.186	0.016	0.001	0.012	0.003	0.01	0.001
20	0.771	0.186	0.016	0.001	0.012	0.003	0.01	0.001
21	0.7	0.224	0.019	0.002	0.005	0.002	0.047	0.001
22	0.7	0.224	0.019	0.002	0.005	0.002	0.047	0.001
23	0.7	0.224	0.019	0.002	0.005	0.002	0.047	0.001
24	0.7	0.224	0.019	0.002	0.005	0.002	0.047	0.001
25	0.7	0.224	0.019	0.002	0.005	0.002	0.047	0.001
26	0.7	0.224	0.019	0.002	0.005	0.002	0.047	0.001
27	0.7	0.224	0.019	0.002	0.005	0.002	0.047	0.001
28	0.7	0.224	0.019	0.002	0.005	0.002	0.047	0.001
29	0.7	0.224	0.019	0.002	0.005	0.002	0.047	0.001
30	0.7	0.224	0.019	0.002	0.005	0.002	0.047	0.001

APPENDIX E-4

Fuel Consumption Rates By Vehicle Type - 1980, (gallons/1000 miles) BRENTWOOD I-65 CORRIDOR PRE-TDM IMPLEMENTATION

LINK ID NO	LDGV	LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC
1	35.18	60.68	60.68	199.68	44.68	149.68	199.68	34.86
2	34.86	59.68	59.68	200.08	44.24	149.68	200.08	34.86
3	32.62	54.10	54.10	204.68	39.06	149.48	204.68	34.86
4	33.71	54.08	54.08	203.88	40.54	155.48	203.88	34.86
5	37.43	68.60	68.60	199.68	49.18	149.68	199.68	34.86
6	37.18	67.72	67.72	199.68	48.68	149.68	199.68	34.86
7	33.58	55.68	55.68	201.68	42.48	149.68	201.68	34.86
8	33.58	55.68	55.68	201.68	42.48	149.68	201.68	34.86
9	33.71	54.08	54.08	203.88	40.54	155.48	203.88	34.86
10	36.34	52.84	52.84	204.88	41.20	170.88	204.88	34.86
11	33.58	55.68	55.68	201.68	42.48	149.68	201.68	34.86
12	33.50	56.48	56.48	200.88	43.12	146.48	200.88	34.86
13	33.58	55.68	55.68	201.68	42.48	149.68	201.68	34.86
14	33.58	55.68	55.68	201.68	42.48	149.68	201.68	34.86
15	35.18	60.68	60.68	199.68	44.68	149.68	199.68	34.86
16	35.18	60.68	60.68	199.68	44.68	149.68	199.68	34.86
17	35.18	60.68	60.68	199.68	44.68	149.68	199.68	34.86
18	35.18	60.68	60.68	199.68	44.68	149.68	199.68	34.86
19	33.70	54.28	54.28	203.48	40.92	154.88	203.48	34.86
20	33.70	54.28	54.28	203.48	40.92	154.88	203.48	34.86
21	22.29	30.27	30.27	13.91	31.09	18.14	13.91	13.50
22	51.53	90.68	90.68	381.68	66.38	329.68	381.68	36.68
23	51.20	98.84	98.84	304.88	65.32	275.88	304.88	37.08
24	23.52	40.91	40.91	135.67	30.00	101.58	135.67	34.86
25	44.71	76.88	76.88	209.48	58.64	160.88	209.48	34.86
26	35.18	60.68	60.68	199.68	44.68	149.68	199.68	34.86
27	43.93	78.83	78.83	260.18	57.22	251.98	260.18	30.63
28	20.66	34.77	34.77	37.77	28.91	45.82	37.77	12.41
29	36.93	66.84	66.84	199.68	48.18	149.68	199.68	34.86
30	37.43	68.60	68.60	199.68	49.18	149.68	199.68	34.86

APPENDIX E-5

Daily Fuel Consumption By Vehicle Type (1993)

Gallons/Day

1993 Fuel Consumption Rates/1980 Fuel Consumption Rates = .685

BRENTWOOD I-65 CORRIDOR

PRE-TDM IMPLEMENTATION

LINK									Segment
ID NO	LDGV	LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC	Totals
1	519.71	211.46	19.54	3.78	5.08	5.67	34.04	0.66	799.92
2	514.98	207.97	19.21	3.79	5.03	5.67	34.10	0.66	791.41
3	408.87	159.96	14.78	3.29	3.77	4.80	29.60	0.56	625.62
4	422.53	159.90	14.77	3.28	3.91	5.00	29.49	0.56	639.43
5	245.03	105.93	9.79	1.68	2.48	2.51	15.08	0.29	382.78
6	243.39	104.57	9.66	1.68	2.45	2.51	15.08	0.29	379.64
7	102.52	57.78	3.58	1.73	0.73	1.93	19.02	0.00	187.28
8	102.52	57.78	3.58	1.73	0.73	1.93	19.02	0.00	187.28
9	134.84	55.63	4.80	1.06	1.27	1.62	10.65	0.18	210.06
10	145.36	54.36	4.69	1.07	1.29	1.78	10.70	0.18	219.43
11	149.04	98.78	8.08	9.31	1.40	1.97	29.26	0.00	297.84
12	148.69	100.20	8.19	9.27	1.42	1.93	29.14	0.00	298.85
13	150.81	127.30	11.16	2.99	2.84	5.56	64.37	0.26	365.28
14	150.81	127.30	11.16	2.99	2.84	5.56	64.37	0.26	365.28
15	415.11	184.14	15.89	3.08	4.13	4.61	30.76	0.54	658.24
16	415.11	184.14	15.89	3.08	4.13	4.61	30.76	0.54	658.24
17	595.12	263.99	22.78	4.41	5.92	6.61	44.10	0.77	943.69
18	595.12	263.99	22.78	4.41	5.92	6.61	44.10	0.77	943.69
19	110.35	42.88	3.69	0.86	2.09	1.97	8.64	0.15	170.63
20	110.35	42.88	3.69	0.86	2.09	1.97	8.64	0.15	170.63
21	132.04	57.37	4.87	0.24	1.32	0.31	5.53	0.11	201.77
22	152.57	85.91	7.29	3.23	1.40	2.79	75.87	0.16	329.21
23	646.05	399.09	33.85	10.99	5.89	9.95	258.29	0.67	1364.7
24	148.36	82.56	7.00	2.44	1.35	1.83	57.46	0.31	301.32
25	2028.16	1115.97	94.66	27.15	19.00	20.85	638.01	2.26	3946.0
26	797.74	440.30	37.35	12.94	7.24	9.70	304.01	1.13	1610.3
27	290.53	166.85	14.15	4.92	2.70	4.76	115.54	0.29	599.74
28	68.32	36.80	3.12	0.36	0.68	0.43	8.39	0.06	118.14
29	1533.22	887.98	75.32	23.69	14.29	17.75	556.60	2.07	3110.9
30	776.99	455.68	38.65	11.84	7.29	8.88	278.30	1.03	1578.6
Totals By Vehicle Type									Area
	11264	6555	570	191	222	254	3653	12	Total
									22456

APPENDIX E-6

Energy Consumption (million btu/day)
BRENTWOOD I-65 CORRIDOR
PRE-TDM IMPLEMENTATION

LINK										Road
ID NO	LDGV	LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC		Segment
										Totals
1	66.3403	26.9924	2.4938	0.4827	0.6859	0.7659	4.5981	0.0842		102.444
2	65.7369	26.5475	2.4527	0.4836	0.6791	0.7659	4.6073	0.0842		101.358
3	52.1920	20.4188	1.8865	0.4198	0.5087	0.6490	3.9990	0.0715		80.146
4	53.9359	20.4113	1.8858	0.4181	0.5280	0.6750	3.9834	0.0715		81.909
5	31.2777	13.5224	1.2493	0.2139	0.3345	0.3394	2.0375	0.0373		49.012
6	31.0688	13.3489	1.2333	0.2139	0.3311	0.3394	2.0375	0.0373		48.611
7	13.0866	7.37517	0.4571	0.2207	0.0984	0.2601	2.5702		0	24.068
8	13.0866	7.37517	0.4571	0.2207	0.0984	0.2601	2.5702		0	24.068
9	17.2126	7.10157	0.6128	0.1358	0.1716	0.2193	1.4383	0.0232		26.915
10	18.5554	6.93874	0.5987	0.1365	0.1743	0.2411	1.4453	0.0232		28.114
11	19.0254	12.6090	1.0312	1.1884	0.1892	0.2667	3.9531		0	38.263
12	18.9801	12.7901	1.0460	1.1837	0.1920	0.2610	3.9374		0	38.391
13	19.2503	16.2496	1.4244	0.3821	0.3834	0.7505	8.6966	0.0330		47.170
14	19.2503	16.2496	1.4244	0.3821	0.3834	0.7505	8.6966	0.0330		47.170
15	52.9882	23.5048	2.0283	0.3926	0.5578	0.6229	4.1553	0.0685		84.319
16	52.9882	23.5048	2.0283	0.3926	0.5578	0.6229	4.1553	0.0685		84.319
17	75.9671	33.6979	2.9079	0.5628	0.7998	0.8931	5.9573	0.0982		120.885
18	75.9671	33.6979	2.9079	0.5628	0.7998	0.8931	5.9573	0.0982		120.885
19	14.0867	5.47356	0.4708	0.1103	0.2817	0.2665	1.1675	0.0188		21.876
20	14.0867	5.47356	0.4708	0.1103	0.2817	0.2665	1.1675	0.0188		21.876
21	16.8549	7.32338	0.6211	0.0300	0.1776	0.0414	0.7472	0.0145		25.810
22	19.4749	10.9665	0.9301	0.4121	0.1896	0.3767	10.250	0.0198		42.620
23	82.4686	50.9441	4.3211	1.4030	0.7953	1.3436	34.895	0.0853		176.257
24	18.9378	10.5393	0.8939	0.3121	0.1825	0.2473	7.7624	0.0400		38.916
25	258.894	142.453	12.083	3.4655	2.5669	2.8169	86.194	0.2883		508.763
26	101.831	56.2047	4.7673	1.6513	0.9776	1.3100	41.071	0.1441		207.958
27	37.0862	21.2977	1.8065	0.6276	0.3652	0.6433	15.609	0.0369		77.473
28	8.72044	4.69695	0.3984	0.0455	0.0922	0.0584	1.1330	0.0074		15.153
29	195.715	113.350	9.6145	3.0233	1.9302	2.3986	75.196	0.2639		401.493
30	99.1825	58.1674	4.9338	1.5116	0.9851	1.1993	37.598	0.1319		203.710
Totals By Vehicle Type										Area
										Total
	1564.25	809.23	69.44	20.70	16.30	20.55	387.59	1.90		2889.95

APPENDIX E-7

CO₂ Emissions BRENTWOOD I-65 CORRIDOR PRE-TDM

LINK ID NO	CO2 Emissions From Gasoline	CO2 Emissions From Diesel	Fuel
	lb./day	lb./day	Segment Totals
1	15060.6	971.8	16032.4
2	14899.1	972.2	15871.3
3	11775.1	828.3	12603.4
4	12032.3	833.1	12865.4
5	7210.4	435.5	7645.9
6	7150.8	435.0	7585.7
7	3526.5	470.4	3996.9
8	3526.5	470.4	3996.9
9	3953.5	293.8	4247.3
10	4129.0	298.9	4427.9
11	5624.4	708.2	6332.6
12	5644.0	705.2	6349.2
13	6811.6	1579.0	8390.6
14	6811.6	1579.0	8390.6
15	12395.2	857.1	13252.3
16	12395.2	857.1	13252.3
17	17770.5	1228.8	18999.3
18	17770.5	1228.8	18999.3
19	3178.8	275.6	3454.4
20	3178.8	275.6	3454.4
21	3820.8	155.2	3976.0
22	6204.9	1737.4	7942.3
23	25752.2	5948.6	31700.8
24	5688.5	1315.9	7004.4
25	74565.3	14709.5	89274.8
26	30413.6	6964.4	37378.0
27	11306.9	2669.2	13976.2
28	2234.2	206.2	2440.4
29	58766.9	12773.5	71540.4
30	29823.9	6390.0	36213.9
Totals	Gasoline 423422	Diesel 68174	Area Total 491595

APPENDIX E-8

Emission Factors For Greenhouse Gases BRENTWOOD I-65 CORRIDOR PRE-TDM IMPLEMENTATION

LINK ID NO	Emission Factors (g/v-mi)		CO	NOx	THC	NMHC	MHC
	CO2						
1	263.269		15.027	2.009	2.272	2.215	0.057
2	260.623		15.457	1.996	2.342	2.282	0.060
3	243.923		21.370	1.913	3.129	3.046	0.083
4	248.994		19.192	1.935	2.858	2.783	0.075
5	283.332		14.473	2.110	2.166	2.111	0.055
6	281.103		14.472	2.031	2.177	2.122	0.055
7	289.897		16.434	2.166	2.487	2.423	0.064
8	289.897		16.434	2.166	2.487	2.423	0.064
9	252.954		19.253	1.951	2.865	2.790	0.075
10	263.711		24.292	1.904	3.482	3.387	0.095
11	298.630		16.923	2.202	2.551	2.486	0.065
12	299.415		17.219	2.195	2.595	2.527	0.068
13	351.545		16.602	2.462	2.523	2.457	0.066
14	351.545		16.602	2.462	2.523	2.457	0.066
15	267.563		15.081	2.027	2.280	2.222	0.058
16	267.563		15.081	2.027	2.280	2.222	0.058
17	267.563		15.081	2.027	2.280	2.222	0.058
18	267.563		15.081	2.027	2.280	2.222	0.058
19	252.950		18.601	1.951	2.780	2.710	0.070
20	252.950		18.601	1.951	2.780	2.710	0.070
21	146.144		34.670	4.163	2.582	2.503	0.079
22	583.997		14.471	2.785	2.167	2.111	0.056
23	546.929		34.670	4.163	2.582	2.503	0.079
24	241.750		14.471	2.785	2.167	2.111	0.056
25	428.444		34.670	4.163	2.582	2.503	0.079
26	358.853		14.471	2.785	2.167	2.111	0.056
27	460.014		14.635	2.584	2.220	2.163	0.057
28	160.649		14.468	2.694	2.179	2.122	0.057
29	375.139		14.635	2.584	2.220	2.163	0.057
30	379.792		14.468	2.694	2.179	2.122	0.057

APPENDIX E-9

Masses of Greenhouse Gases Emitted (lbm/day)
BRENTWOOD I-65 CORRIDOR
PRE-TDM IMPLEMENTATION

LINK ID NO	CO2	CO	NOx	NMHC	MHC
1	16032.4	915.1	122.3	134.9	3.5
2	15871.3	941.3	121.6	139.0	3.7
3	12603.4	1104.2	98.8	157.4	4.3
4	12865.4	991.6	100.0	143.8	3.9
5	7645.9	390.6	56.9	57.0	1.5
6	7585.7	390.5	54.8	57.3	1.5
7	3996.9	226.6	29.9	33.4	0.9
8	3996.9	226.6	29.9	33.4	0.9
9	4247.3	323.3	32.8	46.8	1.3
10	4427.9	407.9	32.0	56.9	1.6
11	6332.6	358.9	46.7	52.7	1.4
12	6349.2	365.1	46.5	53.6	1.4
13	8390.6	396.3	58.8	58.6	1.6
14	8390.6	396.3	58.8	58.6	1.6
15	13252.3	747.0	100.4	110.1	2.9
16	13252.3	747.0	100.4	110.1	2.9
17	18999.3	1070.9	143.9	157.8	4.1
18	18999.3	1070.9	143.9	157.8	4.1
19	3454.4	254.0	26.6	37.0	1.0
20	3454.4	254.0	26.6	37.0	1.0
21	3976.0	943.2	113.3	68.1	2.1
22	7942.3	196.8	37.9	28.7	0.8
23	31700.8	2009.5	241.3	145.1	4.6
24	7004.4	419.3	80.7	61.2	1.6
25	89274.8	7224.2	867.4	521.5	16.5
26	37378.0	1507.3	290.1	219.9	5.8
27	13976.2	444.6	78.5	65.7	1.7
28	2440.4	219.8	40.9	32.2	0.9
29	71540.4	2791.0	492.8	412.5	10.9
30	36213.9	1379.6	256.9	202.3	5.4
Totals	491595.4	28713.1	3931.4	3450.3	95.1

APPENDIX E-10

Global Warming Potentials of Greenhouse Gases Emitted (lbm of CO2-Equiv./day) BRENTWOOD I-65 CORRIDOR PRE-TDM IMPLEMENTATION

Global Warming Potential Factors (lbm CO2/lbm Greenhouse Gas)

1	7	150	5	37
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LINK ID NO	CO2	CO	NOx	NMHC	MHC	Segment Totals CO2-Equiv (tons/day)
1	16032.4	6405.7	18351.4	674.4	128.4	20.796213
2	15871.3	6589.0	18232.7	694.8	135.2	20.761493
3	12603.4	7729.3	14826.6	786.9	158.7	18.052427
4	12865.4	6941.5	14997.1	719.0	143.4	17.833194
5	7645.9	2733.9	8541.0	284.8	54.9	9.6302852
6	7585.7	2733.8	8221.2	286.3	54.9	9.4409647
7	3996.9	1586.1	4479.5	167.0	32.6	5.1310425
8	3996.9	1586.1	4479.5	167.0	32.6	5.1310425
9	4247.3	2262.9	4913.8	234.2	46.6	5.8524120
10	4427.9	2855.2	4795.4	284.4	59.0	6.2109416
11	6332.6	2512.0	7004.2	263.6	51.0	8.0816911
12	6349.2	2556.0	6981.9	267.9	53.4	8.1041989
13	8390.6	2773.8	8814.4	293.2	58.3	10.165146
14	8390.6	2773.8	8814.4	293.2	58.3	10.165146
15	13252.3	5228.7	15059.5	550.3	106.3	17.098557
16	13252.3	5228.7	15059.5	550.3	106.3	17.098557
17	18999.3	7496.2	21590.2	788.9	152.4	24.513521
18	18999.3	7496.2	21590.2	788.9	152.4	24.513521
19	3454.4	1778.2	3996.5	185.0	35.4	4.7247512
20	3454.4	1778.2	3996.5	185.0	35.4	4.7247512
21	3976.0	6602.7	16989.0	340.5	79.5	13.993891
22	7942.3	1377.6	5681.4	143.5	28.2	7.5865030
23	31700.8	14066.6	36194.0	725.4	169.4	41.428103
24	7004.4	2934.9	12103.8	305.8	60.0	11.204462
25	89274.8	50569.3	130116.5	2607.7	609.1	136.58869
26	37378.0	10551.1	43512.7	1099.4	215.8	46.378496
27	13976.2	3112.5	11776.1	328.6	64.1	14.628724
28	2440.4	1538.5	6138.7	161.2	32.0	5.1554200
29	71540.4	19536.7	73916.9	2062.5	402.2	83.729297
30	36213.9	9656.9	38531.7	1011.7	201.1	42.807636
Total CO2 Equivalents By Greenhouse Gas						Area Total
491595 200992 589706 17252 3517						651.5

APPENDIX F

INTERIM-TDM GWP DATA

APPENDIX F-1

Road Segments Analyzed BRENTWOOD I-65 CORRIDOR INTERIM-TDM IMPLEMENTATION

LINK ID NO	Road Segment	Traffic Flow Direction
1	Franklin Rd.; Harding Pl. to O. Hickory Blvd.	N/B
2		S/B
3	Franklin Rd.; O. Hickory Blvd. to Murray Ln.	N/B
4		S/B
5	Franklin Rd.; Murray Ln. to Concord Rd.	N/B
6		S/B
7	Wilson Pk.; Church St. to Concord Rd.	N/B
8		S/B
9	Old Hickory Blvd.; Franklin Rd. to Stonebrook DR.	E/B
10		W/B
11	Concord Road, Franklin Rd. to Wilson Pk.	E/B
12		W/B
13	Maryland Way, Granny White to Franklin Rd.	E/B
14		W/B
15	O. Hickory Blvd, Franklin to Granny White	E/B
16		W/B
17	O. Hickory Blvd, Stonebrook to Nolensville	E/B
18		W/B
19	Harding Place, I-65 to Franklin Rd.	E/B
20		W/B
21	I-65, Harding Place to Old Hickory Blvd. Link A	N/B
22		S/B
23	I-65, Harding Place to Old Hickory Blvd. Link B	N/B
24		S/B
25	I-65, Harding Place to Old Hickory Blvd. Link C	N/B
26		S/B
27	I-65, Old Hickory to Concord Link A	N/B
28		S/B
29	I-65, Old Hickory to Concord Link B	N/B
30		S/B

APPENDIX F-2

**Traffic Data
BRENTWOOD I-65 CORRIDOR
INTERIM-TDM IMPLEMENTATION**

LINK ID NO	Speed	ADT	Link Length-mi	VMT	Grade %
1	44	5300	3.54	18762	0
2	43	5300	3.54	18762	0
3	28	12610	1.85	23329	0
4	32	12610	1.85	23329	0
5	50	9190	1.07	9833	0
6	50	9190	1.07	9833	0
7	40	2155	2.63	5668	0
8	41	2155	2.63	5668	0
9	33	18895	0.45	8503	0
10	24	18895	0.45	8503	0
11	39	6180	1.71	10568	0
12	37	6180	1.71	10568	0
13	40	6389	1.68	10734	0
14	40	6389	1.68	10734	0
15	45	13698	1.71	23424	0
16	45	13698	1.71	23424	0
17	45	8000	3.98	31840	0
18	45	8000	3.98	31840	0
19	33	9833	0.62	6096	0
20	33	9833	0.62	6096	0
21	65	31755	0.299	9495	-3
22	50	31755	0.299	9495	3
23	65	31755	0.637	20228	1
24	50	31755	0.637	20228	-1
25	65	31755	2.29	72719	0
26	50	31755	2.29	72719	0
27	46	25305	0.419	10603	2.2
28	48	25305	0.419	10603	-2.2
29	46	25305	2.63	66552	0
30	48	25305	2.63	66552	0

APPENDIX F-3

Vehicle Mix BRENTWOOD I-65 CORRIDOR INTERIM-TDM IMPLEMENTATION

LINK ID NO	LDGV	LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC
1	0.771	0.186	0.016	0.001	0.012	0.003	0.01	0.001
2	0.771	0.186	0.016	0.001	0.012	0.003	0.01	0.001
3	0.771	0.186	0.016	0.001	0.012	0.003	0.01	0.001
4	0.771	0.186	0.016	0.001	0.012	0.003	0.01	0.001
5	0.771	0.186	0.016	0.001	0.012	0.003	0.01	0.001
6	0.771	0.186	0.016	0.001	0.012	0.003	0.01	0.001
7	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001
8	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001
9	0.771	0.186	0.016	0.001	0.012	0.003	0.01	0.001
10	0.771	0.186	0.016	0.001	0.012	0.003	0.01	0.001
11	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001
12	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001
13	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001
14	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001
15	0.771	0.186	0.016	0.001	0.012	0.003	0.01	0.001
16	0.771	0.186	0.016	0.001	0.012	0.003	0.01	0.001
17	0.771	0.186	0.016	0.001	0.012	0.003	0.01	0.001
18	0.771	0.186	0.016	0.001	0.012	0.003	0.01	0.001
19	0.771	0.186	0.016	0.001	0.012	0.003	0.01	0.001
20	0.771	0.186	0.016	0.001	0.012	0.003	0.01	0.001
21	0.657	0.241	0.021	0.003	0.01	0.004	0.063	0.001
22	0.657	0.241	0.021	0.003	0.01	0.004	0.063	0.001
23	0.657	0.241	0.021	0.003	0.01	0.004	0.063	0.001
24	0.657	0.241	0.021	0.003	0.01	0.004	0.063	0.001
25	0.657	0.241	0.021	0.003	0.01	0.004	0.063	0.001
26	0.657	0.241	0.021	0.003	0.01	0.004	0.063	0.001
27	0.657	0.241	0.021	0.003	0.01	0.004	0.063	0.001
28	0.657	0.241	0.021	0.003	0.01	0.004	0.063	0.001
29	0.657	0.241	0.021	0.003	0.01	0.004	0.063	0.001
30	0.657	0.241	0.021	0.003	0.01	0.004	0.063	0.001

APPENDIX F-4

Fuel Consumption Rates By Vehicle Type - 1980 (gallons/1000 miles) BRENTWOOD I-65 CORRIDOR INTERIM-TDM IMPLEMENTATION

LINK ID NO	LDGV	LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC
1	34.9	59.7	59.7	200.1	44.2	149.7	200.1	25.5
2	34.5	58.7	58.7	200.5	43.8	149.7	200.5	25.3
3	33.7	53.7	53.7	204.7	39.8	156.7	204.7	27.7
4	33.7	54.1	54.1	203.9	40.5	155.5	203.9	26.9
5	35.2	60.7	60.7	199.7	44.7	149.7	199.7	25.7
6	35.2	60.7	60.7	199.7	44.7	149.7	199.7	25.7
7	33.7	54.7	54.7	202.7	41.7	153.7	202.7	25.7
8	33.9	56.7	56.7	201.3	42.9	149.7	201.3	24.9
9	35.2	60.7	60.7	199.7	44.7	149.7	199.7	25.7
10	35.2	60.7	60.7	199.7	44.7	149.7	199.7	25.7
11	33.5	56.5	56.5	200.9	43.1	146.5	200.9	23.9
12	33.5	56.1	56.1	201.3	42.8	148.1	201.3	24.3
13	33.7	54.7	54.7	202.7	41.7	153.7	202.7	25.7
14	33.7	54.7	54.7	202.7	41.7	153.7	202.7	25.7
15	35.2	60.7	60.7	199.7	44.7	149.7	199.7	23.9
16	35.2	60.7	60.7	199.7	44.7	149.7	199.7	24.3
17	35.2	60.7	60.7	199.7	44.7	149.7	199.7	25.7
18	35.2	60.7	60.7	199.7	44.7	149.7	199.7	25.7
19	33.7	54.3	54.3	203.5	40.9	154.9	203.5	26.5
20	33.7	54.3	54.3	203.5	40.9	154.9	203.5	26.5
21	23.5	31.4	31.4	9.5	32.7	18.4	9.5	14.3
22	51.5	90.7	90.7	381.7	66.4	329.7	381.7	36.7
23	52.9	107.7	107.7	301.7	67.7	277.7	301.7	38.2
24	19.4	28.6	28.6	21.8	25.2	34.8	21.8	13.6
25	46.4	82.7	82.7	210.7	60.7	163.7	210.7	32.2
26	35.2	60.7	60.7	199.7	44.7	149.7	199.7	25.7
27	43.8	78.4	78.4	266.7	56.9	252.1	266.7	30.8
28	24.6	45.3	45.3	144.4	32.2	101.6	144.4	17.0
29	36.7	66.0	66.0	199.7	47.7	149.7	199.7	25.7
30	37.2	67.7	67.7	199.7	48.7	149.7	199.7	25.7

APPENDIX F-5

Daily Fuel Consumption By Vehicle Type - 1993 (Gallons/Day)
 1993 Fuel Consumption Rates/1980 Fuel Consumption Rates = .685
 BRENTWOOD I-65 CORRIDOR
 INTERIM-TDM IMPLEMENTATION

LINK ID NO	LDGV	LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC	Segment Totals
1	383.2	158.3	13.6	2.9	7.6	6.4	28.5	0.4	600.9
2	379.7	155.6	13.4	2.9	7.5	6.4	28.6	0.4	594.4
3	435.0	167.0	14.4	3.4	8.0	7.9	34.2	0.5	670.4
4	434.8	168.3	14.5	3.4	8.1	7.8	34.1	0.4	671.4
5	238.9	99.4	8.6	1.8	4.7	4.0	17.6	0.2	375.1
6	238.9	99.4	8.6	1.8	4.7	4.0	17.6	0.2	375.1
7	89.2	73.7	6.5	1.8	1.6	3.4	38.2	0.1	214.4
8	89.8	76.4	6.7	1.8	1.7	3.3	37.9	0.1	217.6
9	158.3	65.9	5.7	1.2	3.1	2.6	11.7	0.1	248.5
10	158.3	65.9	5.7	1.2	3.1	2.6	11.7	0.1	248.5
11	137.2	117.8	10.3	2.7	2.6	5.0	58.5	0.2	334.3
12	137.4	116.9	10.3	2.7	2.6	5.0	58.6	0.2	333.7
13	151.3	125.0	11.0	3.0	2.8	5.7	64.7	0.2	363.6
14	151.3	125.0	11.0	3.0	2.8	5.7	64.7	0.2	363.6
15	405.9	168.9	14.5	3.0	8.0	6.7	29.9	0.4	637.3
16	405.9	168.9	14.5	3.0	8.0	6.7	29.9	0.4	637.3
17	768.4	319.7	27.5	5.7	15.2	12.7	56.6	0.7	1206.4
18	768.4	319.7	27.5	5.7	15.2	12.7	56.6	0.7	1206.4
19	110.7	43.0	3.7	0.9	2.1	2.0	8.7	0.1	171.2
20	110.7	43.0	3.7	0.9	2.1	2.0	8.7	0.1	171.2
21	108.2	52.9	4.6	0.2	2.3	0.5	4.2	0.1	173.0
22	237.0	153.0	13.3	8.0	4.6	9.2	168.4	0.3	593.9
23	518.7	387.1	33.7	13.5	10.1	16.6	283.5	0.6	1263.8
24	190.4	102.9	9.0	1.0	3.8	2.1	20.5	0.2	329.8
25	1635.8	1068.5	93.1	33.9	32.5	35.1	711.8	1.7	3612.5
26	1239.5	784.2	68.3	32.1	24.0	32.1	674.6	1.4	2856.2
27	219.1	143.7	12.5	6.1	4.3	7.7	127.8	0.2	521.5
28	123.0	83.0	7.2	3.3	2.4	3.1	69.2	0.1	291.4
29	1150.8	759.1	66.1	28.6	22.8	28.6	600.7	1.2	2657.9
30	1166.5	779.3	67.9	28.6	23.2	28.6	600.7	1.2	2696.1
Totals By Vehicle Type									Area Total
	11264	6555	570	191	222	254	3653	12	24638

APPENDIX F-6

Energy Consumption (million btu/day)
BRENTWOOD I-65 CORRIDOR
INTERIM-TDM IMPLEMENTATION

LINK ID NO	LDGV	LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC	Road Segment Totals
1	48.921	20.204	1.738	0.364	1.023	0.865	3.854	0.046	77.016
2	48.472	19.866	1.709	0.365	1.013	0.865	3.862	0.046	76.197
3	55.533	21.320	1.834	0.437	1.079	1.062	4.626	0.059	85.950
4	55.500	21.479	1.848	0.435	1.099	1.054	4.608	0.057	86.081
5	30.492	12.688	1.091	0.224	0.638	0.534	2.376	0.029	48.073
6	30.492	12.688	1.091	0.224	0.638	0.534	2.376	0.029	48.073
7	11.387	9.412	0.825	0.227	0.222	0.454	5.155	0.014	27.696
8	11.462	9.756	0.855	0.225	0.228	0.443	5.119	0.014	28.102
9	20.204	8.407	0.723	0.149	0.423	0.354	1.574	0.019	31.853
10	20.204	8.407	0.723	0.149	0.423	0.354	1.574	0.019	31.853
11	17.517	15.035	1.318	0.347	0.355	0.670	7.901	0.021	43.163
12	17.538	14.928	1.309	0.348	0.352	0.677	7.917	0.021	43.090
13	19.308	15.958	1.399	0.384	0.376	0.771	8.740	0.024	46.959
14	19.308	15.958	1.399	0.384	0.376	0.771	8.740	0.024	46.959
15	51.813	21.560	1.855	0.381	1.084	0.908	4.037	0.046	81.683
16	51.813	21.560	1.855	0.381	1.084	0.908	4.037	0.046	81.684
17	98.080	40.811	3.511	0.722	2.052	1.718	7.642	0.093	154.629
18	98.080	40.811	3.511	0.722	2.052	1.718	7.642	0.093	154.629
19	14.136	5.493	0.472	0.111	0.283	0.268	1.172	0.014	21.948
20	14.136	5.493	0.472	0.111	0.283	0.268	1.172	0.014	21.948
21	13.812	6.755	0.589	0.026	0.310	0.070	0.569	0.013	22.142
22	30.259	19.532	1.702	1.023	0.628	1.247	22.745	0.033	77.171
23	66.217	49.414	4.306	1.723	1.364	2.238	38.301	0.073	163.635
24	24.307	13.140	1.145	0.125	0.508	0.280	2.770	0.026	42.301
25	208.816	136.398	11.885	4.326	4.396	4.743	96.158	0.220	466.943
26	158.222	100.105	8.723	4.101	3.237	4.338	91.137	0.176	370.038
27	27.971	18.344	1.598	0.777	0.585	1.036	17.267	0.030	67.608
28	15.702	10.595	0.923	0.421	0.331	0.418	9.350	0.017	37.755
29	146.896	96.896	8.443	3.651	3.076	3.862	81.154	0.157	344.135
30	148.899	99.481	8.668	3.651	3.140	3.862	81.154	0.157	349.013
Totals By Vehicle Type									Area Total
	1575.50	892.49	77.52	26.52	32.66	37.29	534.72	1.63	3178.33

APPENDIX F-7

CO₂ Emissions BRENTWOOD I-65 CORRIDOR INTERIM-TDM IMPLEMENTATION

		CO ₂ Emissions From Gasoline	CO ₂ Emissions From Diesel Fuel	
LINK	ID NO	lb./day	lb./day	Segment Totals
	1	11202.5	922.3	12124.8
	2	11081.5	921.9	12003.4
	3	12493.2	1086.9	13580.1
	4	12511.3	1086.0	13597.2
	5	6993.7	569.9	7563.6
	6	6993.7	569.9	7563.6
	7	3998.2	936.6	4934.8
	8	4060.1	930.0	4990.1
	9	4634.1	377.6	5011.7
	10	4634.1	377.6	5011.7
	11	6236.8	1433.7	7670.5
	12	6224.9	1437.0	7661.9
	13	6779.1	1588.0	8367.1
	14	6779.1	1588.0	8367.1
	15	11883.9	968.3	12852.2
	16	11883.9	968.3	12852.2
	17	22495.7	1833.0	24328.8
	18	22495.7	1833.0	24328.8
	19	3189.9	276.6	3466.5
	20	3189.9	276.6	3466.5
	21	3249.7	152.3	3402.0
	22	11073.7	3954.6	15028.3
	23	23618.5	6730.6	30349.1
	24	6184.7	571.6	6756.3
	25	67673.9	16913.0	84586.9
	26	53456.4	15855.3	69311.6
	27	9726.5	3033.9	12760.4
	28	5457.7	1622.0	7079.6
	29	49761.0	14149.5	63910.5
	30	50481.2	14159.9	64641.0
Totals		Gasoline	Diesel	Area Total
		460445	97124	557568

APPENDIX F-8

Emission Factors For Greenhouse Gases BRENTWOOD I-65 CORRIDOR INTERIM-TDM IMPLEMENTATION

LINK ID NO	Emission Factors (g/v-mi)	CO	NOx	THC	NMHC	MHC
	CO2					
1	264.454	15.411	1.996	2.324	2.266	0.058
2	261.806	15.635	1.990	2.360	2.300	0.060
3	252.471	21.611	1.901	3.155	3.071	0.084
4	252.791	19.408	1.929	2.881	2.806	0.075
5	267.102	14.645	2.181	2.171	2.116	0.055
6	267.102	14.645	2.181	2.171	2.116	0.055
7	350.558	16.241	1.882	2.451	2.387	0.064
8	354.489	15.767	2.037	2.411	2.350	0.061
9	267.102	15.264	2.037	2.300	2.242	0.058
10	267.102	15.264	2.037	2.300	2.242	0.058
11	352.334	17.472	1.944	2.618	2.552	0.066
12	351.940	18.144	1.934	2.710	2.642	0.068
13	350.558	16.602	2.462	2.523	2.457	0.066
14	350.558	16.602	2.462	2.523	2.457	0.066
15	267.102	15.264	2.037	2.300	2.242	0.058
16	267.102	15.264	2.037	2.300	2.242	0.058
17	267.102	15.264	2.037	2.300	2.242	0.058
18	267.102	15.264	2.037	2.300	2.242	0.058
19	252.950	18.601	1.951	2.780	2.710	0.070
20	252.950	18.601	1.951	2.780	2.710	0.070
21	151.105	39.962	4.000	2.708	2.623	0.085
22	667.513	14.519	2.531	2.168	2.112	0.056
23	632.742	39.962	4.000	2.708	2.623	0.085
24	140.861	14.519	2.531	2.168	2.112	0.056
25	490.555	39.962	4.000	2.708	2.623	0.085
26	401.967	14.519	2.531	2.168	2.112	0.056
27	521.649	14.400	2.840	2.190	2.134	0.056
28	289.418	14.750	2.801	2.250	2.192	0.058
29	416.241	14.400	2.840	2.190	2.134	0.056
30	420.998	14.750	2.801	2.250	2.192	0.058

APPENDIX F-9

Masses of Greenhouse Gases Emitted (lbm/day) BRENTWOOD I-65 CORRIDOR INTERIM-TDM IMPLEMENTATION

LINK ID NO	CO2	CO	NOx	NMHC	MHC
1	12124.8	706.6	91.5	103.9	2.7
2	12003.4	716.8	91.2	105.5	2.8
3	13580.1	1162.4	102.3	165.2	4.5
4	13597.2	1043.9	103.8	150.9	4.0
5	7563.6	414.7	61.8	59.9	1.6
6	7563.6	414.7	61.8	59.9	1.6
7	4934.8	228.6	26.5	33.6	0.9
8	4990.1	222.0	28.7	33.1	0.9
9	5011.7	286.4	38.2	42.1	1.1
10	5011.7	286.4	38.2	42.1	1.1
11	7670.5	380.4	42.3	55.6	1.4
12	7661.9	395.0	42.1	57.5	1.5
13	8367.1	396.3	58.8	58.6	1.6
14	8367.1	396.3	58.8	58.6	1.6
15	12852.2	734.5	98.0	107.9	2.8
16	12852.2	734.5	98.0	107.9	2.8
17	24328.8	1390.3	185.5	204.2	5.3
18	24328.8	1390.3	185.5	204.2	5.3
19	3466.5	254.9	26.7	37.1	1.0
20	3466.5	254.9	26.7	37.1	1.0
21	3402.0	899.7	90.1	59.1	1.9
22	15028.3	326.9	57.0	47.5	1.3
23	30349.1	1916.8	191.9	125.8	4.1
24	6756.3	696.4	121.4	101.3	2.7
25	84586.9	6890.7	689.7	452.3	14.7
26	69311.6	2503.5	436.4	364.2	9.7
27	12760.4	352.2	69.5	52.2	1.4
28	7079.6	360.8	68.5	53.6	1.4
29	63910.5	2211.0	436.1	327.7	8.6
30	64641.0	2264.7	430.1	336.6	8.9
Totals	557568	30233	4057	3645	100

APPENDIX F-10

Global Warming Potentials of Greenhouse Gases Emitted (lbm of CO2-Equiv./day) BRENTWOOD I-65 CORRIDOR INTERIM-TDM IMPLEMENTATION

Global Warming Potential Factors (lbm CO2/lbm Greenhouse Gas)

1	7	150	5	37
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LINK ID NO	CO2	CO	NOx	NMHC	MHC	Segment Totals CO2-Equiv (tons/day)
1	12124.8	4946.0	13727.0	519.5	98.4	15.71
2	12003.4	5017.9	13685.8	527.3	101.8	15.67
3	13580.1	8137.0	15337.8	825.9	167.2	19.02
4	13597.2	7307.5	15563.7	754.7	149.3	18.69
5	7563.6	2902.9	9264.0	299.6	57.6	10.04
6	7563.6	2902.9	9264.0	299.6	57.6	10.04
7	4934.8	1600.4	3973.9	168.0	33.3	5.36
8	4990.1	1553.7	4301.2	165.4	31.8	5.52
9	5011.7	2004.8	5733.1	210.3	40.3	6.50
10	5011.7	2004.8	5733.1	210.3	40.3	6.50
11	7670.5	2662.6	6348.3	277.8	53.2	8.51
12	7661.9	2765.0	6315.6	287.6	54.8	8.54
13	8367.1	2773.8	8814.4	293.2	58.3	10.15
14	8367.1	2773.8	8814.4	293.2	58.3	10.15
15	12852.2	5141.2	14702.2	539.4	103.3	16.67
16	12852.2	5141.2	14702.2	539.4	103.3	16.67
17	24328.8	9732.2	27830.8	1021.1	195.5	31.55
18	24328.8	9732.2	27830.8	1021.1	195.5	31.55
19	3466.5	1784.4	4010.5	185.7	35.5	4.74
20	3466.5	1784.4	4010.5	185.7	35.5	4.74
21	3402.0	6297.9	13508.3	295.3	70.8	11.79
22	15028.3	2288.2	8547.4	237.7	46.6	13.07
23	30349.1	13417.3	28778.6	629.1	150.8	36.66
24	6756.3	4874.8	18209.7	506.5	99.4	15.22
25	84586.9	48234.8	103458.6	2261.4	542.3	119.54
26	69311.6	17524.7	65463.4	1820.9	357.3	77.24
27	12760.4	2465.7	10420.7	261.0	50.7	12.98
28	7079.6	2525.7	10277.6	268.1	52.5	10.10
29	63910.5	15477.1	65409.0	1638.3	318.1	73.38
30	64641.0	15853.2	64510.7	1682.8	329.5	73.51
Total CO2 Equivalents By Greenhouse Gas						Area Total
557568 211628 608547 18226 3689						699.83

APPENDIX G

FULL-TDM GWP DATA

APPENDIX G-1

Road Segments Analyzed
BRENTWOOD I-65 CORRIDOR
FULL-TDM IMPLEMENTATION

LINK ID NO	Road Segment	Traffic Flow Direction
1	Franklin Rd.; Harding Pl. to O. Hickory Blvd.	N/B
2		S/B
3	Franklin Rd.; O. Hickory Blvd. to Murray Ln.	N/B
4		S/B
5	Franklin Rd.; Murray Ln. to Concord Rd.	N/B
6		S/B
7	Wilson Pk.; Church St. to Concord Rd.	N/B
8		S/B
9	Old Hickory Blvd.; Franklin Rd. to Stonebrook DR.	E/B
10		W/B
11	Concord Road, Franklin Rd. to Wilson Pk.	E/B
12		W/B
13	Maryland Way, Granny White to Franklin Rd.	E/B
14		W/B
15	O. Hickory Blvd, Franklin to Granny White	E/B
16		W/B
17	O. Hickory Blvd, Stonebrook to Nolensville	E/B
18		W/B
19	Harding Place, I-65 to Franklin Rd.	E/B
20		W/B
21	I-65, Harding Place to Old Hickory Blvd. Link A	N/B
22		S/B
23	I-65, Harding Place to Old Hickory Blvd. Link B	N/B
24		S/B
25	I-65, Harding Place to Old Hickory Blvd. Link C	N/B
26		S/B
27	I-65, Old Hickory to Concord Link A	N/B
28		S/B
29	I-65, Old Hickory to Concord Link B	N/B
30		S/B

APPENDIX G-2

Traffic Data
BRENTWOOD I-65 CORRIDOR
FULL-TDM IMPLEMENTATION

LINK ID NO	Speed	ADT	Link Length-mi	VMT	Grade %
1	47	7825	3.54	27701	0
2	47	7825	3.54	27701	0
3	32	12450	1.85	23033	0
4	35	12450	1.85	23033	0
5	50	11330	1.07	12123	0
6	50	11330	1.07	12123	0
7	40	2725	2.63	7167	0
8	42	2725	2.63	7167	0
9	38	17990	0.45	8096	0
10	24	17990	0.45	8096	0
11	36	5560	1.71	9508	0
12	36	5560	1.71	9508	0
13	40	6275	1.68	10542	0
14	40	6275	1.68	10542	0
15	45	13900	1.71	23769	0
16	45	13900	1.71	23769	0
17	45	10500	3.98	41790	0
18	45	10500	3.98	41790	0
19	30	10400	0.62	6448	0
20	30	10400	0.62	6448	0
21	65	32585	0.299	9743	-3
22	50	32585	0.299	9743	3
23	65	32585	0.637	20757	1
24	50	32585	0.637	20757	-1
25	65	32585	2.29	74620	0
26	50	32585	2.29	74620	0
27	63	25265	0.419	10586	2.2
28	63	25265	0.419	10586	-2.2
29	63	25265	2.63	66447	0
30	63	25265	2.63	66447	0

Totals 494480 51.03 704654.2

Average Round Trip Length 1.425041

APPENDIX G-3

Vehicle Mix
BRENTWOOD I-65 CORRIDOR
FULL-TDM IMPLEMENTATION

LINK ID NO	LDGV	LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC
1	0.695	0.265	0.006	0.001	0.006	0.02	0.006	0.001
2	0.695	0.265	0.006	0.001	0.006	0.02	0.006	0.001
3	0.695	0.265	0.006	0.001	0.006	0.02	0.006	0.001
4	0.695	0.265	0.006	0.001	0.006	0.02	0.006	0.001
5	0.695	0.265	0.006	0.001	0.006	0.02	0.006	0.001
6	0.695	0.265	0.006	0.001	0.006	0.02	0.006	0.001
7	0.654	0.327	0	0	0.009	0.005	0	0.005
8	0.654	0.327	0	0	0.009	0.005	0	0.005
9	0.669	0.302	0.006	0.001	0.003	0.01	0.009	0
10	0.669	0.302	0.006	0.001	0.003	0.01	0.009	0
11	0.553	0.372	0.009	0.009	0	0.041	0.016	0
12	0.553	0.372	0.009	0.009	0	0.041	0.016	0
13	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001
14	0.605	0.308	0.027	0.002	0.009	0.005	0.043	0.001
15	0.669	0.302	0.006	0.001	0.003	0.01	0.009	0
16	0.669	0.302	0.006	0.001	0.003	0.01	0.009	0
17	0.669	0.302	0.006	0.001	0.003	0.01	0.009	0
18	0.669	0.302	0.006	0.001	0.003	0.01	0.009	0
19	0.771	0.186	0.016	0.001	0.012	0.003	0.01	0.001
20	0.771	0.186	0.016	0.001	0.012	0.003	0.01	0.001
21	0.657	0.248	0.004	0.002	0.001	0.013	0.075	0
22	0.657	0.248	0.004	0.002	0.001	0.013	0.075	0
23	0.657	0.248	0.004	0.002	0.001	0.013	0.075	0
24	0.657	0.248	0.004	0.002	0.001	0.013	0.075	0
25	0.657	0.248	0.004	0.002	0.001	0.013	0.075	0
26	0.657	0.248	0.004	0.002	0.001	0.013	0.075	0
27	0.657	0.248	0.004	0.002	0.001	0.013	0.075	0
28	0.657	0.248	0.004	0.002	0.001	0.013	0.075	0
29	0.657	0.248	0.004	0.002	0.001	0.013	0.075	0
30	0.657	0.248	0.004	0.002	0.001	0.013	0.075	0

APPENDIX G-4

Fuel Consumption Rates By Vehicle Type - 1980 (gallons/1000 miles) BRENTWOOD I-65 CORRIDOR FULL-TDM IMPLEMENTATION

LINK ID NO	LDGV	LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC
1	36.9	66.8	66.8	199.7	48.2	149.7	199.7	25.7
2	36.9	66.8	66.8	199.7	48.2	149.7	199.7	25.7
3	33.7	54.1	54.1	203.9	40.5	155.5	203.9	26.9
4	33.7	54.7	54.7	202.7	41.7	153.7	202.7	25.7
5	35.2	60.7	60.7	199.7	44.7	149.7	199.7	25.7
6	35.2	60.7	60.7	199.7	44.7	149.7	199.7	25.7
7	33.7	54.7	54.7	202.7	41.7	153.7	202.7	25.7
8	34.2	57.7	57.7	200.9	43.4	149.7	200.9	25.1
9	33.5	56.3	56.3	201.1	43.0	147.3	201.1	24.1
10	36.3	52.8	52.8	204.9	41.2	170.9	204.9	31.5
11	33.6	55.9	55.9	201.5	42.6	148.9	201.5	24.5
12	33.6	55.9	55.9	201.5	42.6	148.9	201.5	24.5
13	33.7	54.7	54.7	202.7	41.7	153.7	202.7	25.7
14	33.7	54.7	54.7	202.7	41.7	153.7	202.7	25.7
15	35.2	60.7	60.7	199.7	44.7	149.7	199.7	25.7
16	35.2	60.7	60.7	199.7	44.7	149.7	199.7	25.7
17	35.2	60.7	60.7	199.7	44.7	149.7	199.7	25.7
18	35.2	60.7	60.7	199.7	44.7	149.7	199.7	25.7
19	33.7	53.7	53.7	204.7	39.8	156.7	204.7	27.7
20	33.7	53.7	53.7	204.7	39.8	156.7	204.7	27.7
21	23.5	31.4	31.4	9.5	32.7	18.4	9.5	14.3
22	55.7	109.7	109.7	374.7	71.7	332.7	374.7	39.7
23	52.9	107.7	107.7	301.7	67.7	277.7	301.7	38.2
24	28.6	46.4	46.4	137.7	39.5	104.3	137.7	17.7
25	46.4	82.7	82.7	210.7	60.7	163.7	210.7	32.2
26	38.9	68.2	68.2	202.7	51.7	153.7	202.7	26.2
27	51.2	98.8	98.8	304.9	65.3	275.9	304.9	37.1
28	26.4	38.9	38.9	33.5	35.9	38.2	33.5	16.9
29	44.7	76.9	76.9	209.5	58.6	160.9	209.5	30.8
30	44.7	76.9	76.9	209.5	58.6	160.9	209.5	30.8

APPENDIX G-5

Daily Fuel Consumption By Vehicle Type - 1993 (Gallons/Day)
 1993 Fuel Consumption Rates/1980 Fuel Consumption Rates = .685
 BRENTWOOD I-65 CORRIDOR
 FULL-TDM IMPLEMENTATION

LINK									Segment	
ID NO	LDGV	LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC	Totals	
1	487.0	336.1	7.6	3.8	5.5	56.8	22.7	0.5	920.1	
2	487.0	336.1	7.6	3.8	5.5	56.8	22.7	0.5	920.1	
3	369.7	226.1	5.1	3.2	3.8	49.1	19.3	0.4	676.7	
4	369.3	228.6	5.2	3.2	3.9	48.5	19.2	0.4	678.4	
5	203.1	133.5	3.0	1.7	2.2	24.9	9.9	0.2	378.5	
6	203.1	133.5	3.0	1.7	2.2	24.9	9.9	0.2	378.5	
7	108.1	87.8	0.0	0.0	1.8	3.8	0.0	0.6	202.2	
8	109.9	92.6	0.0	0.0	1.9	3.7	0.0	0.6	208.7	
9	124.4	94.3	1.9	1.1	0.7	8.2	10.0	0.0	240.5	
10	134.8	88.5	1.8	1.1	0.7	9.5	10.2	0.0	246.6	
11	120.9	135.4	3.3	11.8	0.0	39.8	21.0	0.0	332.1	
12	120.9	135.4	3.3	11.8	0.0	39.8	21.0	0.0	332.1	
13	147.2	121.6	10.7	2.9	2.7	5.5	62.9	0.2	353.7	
14	147.2	121.6	10.7	2.9	2.7	5.5	62.9	0.2	353.7	
15	383.2	298.4	5.9	3.3	2.2	24.4	29.3	0.0	746.6	
16	383.2	298.4	5.9	3.3	2.2	24.4	29.3	0.0	746.6	
17	673.8	524.6	10.4	5.7	3.8	42.8	51.4	0.0	1312.6	
18	673.8	524.6	10.4	5.7	3.8	42.8	51.4	0.0	1312.6	
19	114.9	44.1	3.8	0.9	2.1	2.1	9.0	0.1	177.0	
20	114.9	44.1	3.8	0.9	2.1	2.1	9.0	0.1	177.0	
21	103.1	51.9	0.8	0.1	0.2	1.6	4.8	0.0	162.6	
22	244.2	181.5	2.9	5.0	0.5	28.9	187.5	0.0	650.5	
23	494.5	379.7	6.1	8.6	1.0	51.3	321.7	0.0	1262.9	
24	267.5	163.5	2.6	3.9	0.6	19.3	146.9	0.0	604.2	
25	1559.3	1048.1	16.9	21.5	3.1	108.8	807.7	0.0	3565.4	
26	1307.4	864.3	13.9	20.7	2.6	102.1	777.0	0.0	3088.1	
27	243.9	177.8	2.9	4.4	0.5	26.0	165.8	0.0	621.3	
28	125.7	69.9	1.1	0.5	0.3	3.6	18.2	0.0	219.3	
29	1337.1	867.8	14.0	19.1	2.7	95.2	715.1	0.0	3051.0	
30	1337.1	867.8	14.0	19.1	2.7	95.2	715.1	0.0	3051.0	
Totals By Vehicle Type									Area	
	11264	6555	570	191	222	254	3653	12	Total	26970

APPENDIX G-6

Energy Consumption (million btu/day)
BRENTWOOD I-65 CORRODOR
FULL-TDM IMPLEMENTATION

LINK										Road Segment Totals
ID NO	LDGV	LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC		
1	62.170	42.904	0.971	0.484	0.741	7.674	3.071	0.062		118.078
2	62.170	42.904	0.971	0.484	0.741	7.674	3.071	0.062		118.078
3	47.187	28.864	0.654	0.411	0.518	6.628	2.607	0.054		86.923
4	47.145	29.184	0.661	0.408	0.533	6.551	2.592	0.052		87.126
5	25.920	17.046	0.386	0.212	0.301	3.359	1.344	0.027		48.594
6	25.920	17.046	0.386	0.212	0.301	3.359	1.344	0.027		48.594
7	13.804	11.205	0.000	0.000	0.249	0.510	0.000	0.080		25.848
8	14.025	11.820	0.000	0.000	0.259	0.496	0.000	0.079		26.679
9	15.875	12.032	0.239	0.142	0.097	1.103	1.356	0.000		30.844
10	17.210	11.296	0.224	0.145	0.093	1.280	1.381	0.000		31.630
11	15.430	17.282	0.418	1.508	0.000	5.371	2.836	0.000		42.844
12	15.430	17.282	0.418	1.508	0.000	5.371	2.836	0.000		42.844
13	18.784	15.525	1.361	0.374	0.366	0.750	8.503	0.024		45.685
14	18.784	15.525	1.361	0.374	0.366	0.750	8.503	0.024		45.685
15	48.918	38.088	0.757	0.415	0.295	3.292	3.953	0.000		95.718
16	48.918	38.088	0.757	0.415	0.295	3.292	3.953	0.000		95.718
17	86.006	66.965	1.330	0.730	0.518	5.789	6.950	0.000		168.288
18	86.006	66.965	1.330	0.730	0.518	5.789	6.950	0.000		168.288
19	14.663	5.630	0.484	0.115	0.285	0.280	1.221	0.016		22.695
20	14.663	5.630	0.484	0.115	0.285	0.280	1.221	0.016		22.695
21	13.165	6.626	0.107	0.016	0.030	0.216	0.645	0.000		20.805
22	31.166	23.173	0.374	0.638	0.065	3.899	25.337	0.000		84.653
23	63.118	48.469	0.782	1.095	0.130	6.934	43.462	0.000		163.990
24	34.145	20.868	0.337	0.500	0.076	2.605	19.841	0.000		78.371
25	199.04	133.79	2.158	2.749	0.419	14.694	109.116	0.000		461.969
26	166.89	110.33	1.779	2.645	0.357	13.796	104.972	0.000		400.769
27	31.138	22.690	0.366	0.564	0.064	3.514	22.401	0.000		80.738
28	16.046	8.921	0.144	0.062	0.035	0.486	2.465	0.000		28.159
29	170.68	110.78	1.787	2.434	0.361	12.861	96.611	0.000		395.510
30	170.68	110.78	1.787	2.434	0.361	12.861	96.611	0.000		395.510
Totals By Vehicle Type										Area Total
	1595.1	1107.7	22.81	21.92	8.66	141.47	585.16	0.52		3483.33

APPENDIX G-7

CO₂ EMISSIONS BRENTWOOD I-65 CORRIDOR FULL-TDM IMPLEMENTATION

LINK ID NO	CO ₂ Emissions From Gasoline	CO ₂ Emissions From Diesel	Fuel
	lb./day	lb./day	Segment Totals
1	16373.9	1845.0	18218.9
2	16373.9	1845.0	18218.9
3	11907.1	1566.7	13473.8
4	11947.3	1554.3	13501.5
5	6708.3	803.7	7512.0
6	6708.3	803.7	7512.0
7	3742.1	121.8	3863.9
8	3867.2	121.3	3988.5
9	4424.4	410.5	4834.9
10	4516.0	442.4	4958.4
11	5583.7	1318.3	6902.0
12	5583.7	1318.3	6902.0
13	6595.2	1544.9	8140.1
14	6595.2	1544.9	8140.1
15	13752.7	1211.2	14963.8
16	13752.7	1211.2	14963.8
17	24179.6	2129.4	26309.0
18	24179.6	2129.4	26309.0
19	3298.8	287.0	3585.8
20	3298.8	287.0	3585.8
21	3071.0	143.1	3214.1
22	11864.2	4706.4	16570.6
23	23121.8	8115.7	31237.5
24	11161.6	3617.5	14779.0
25	65961.8	19953.9	85915.6
26	56982.4	19134.2	76116.6
27	11360.5	4172.8	15533.2
28	4115.0	479.6	4594.6
29	56403.9	17641.6	74045.5
30	56403.9	17641.6	74045.5
Totals	Gasoline	Diesel	Area Total
	493834	118102	611936

APPENDIX G-8

**Emission Factors For Greenhouse Gases
BRENTWOOD I-65 CORRIDOR
FULL-TDM IMPLEMENTATION**

LINK ID NO	Emission Factors (g/v-mi)	CO2	CO	NOx	THC	NMHC	MHC
1	298.601	14.782	1.997	2.324	2.164	0.160	
2	298.601	14.782	1.997	2.324	2.164	0.160	
3	265.586	19.215	1.912	2.857	2.782	0.075	
4	266.133	17.914	1.920	2.671	2.621	0.050	
5	281.319	14.533	2.163	2.168	2.112	0.056	
6	281.319	14.533	2.163	2.168	2.112	0.056	
7	244.772	16.631	1.884	2.525	2.460	0.065	
8	252.664	16.011	1.897	2.442	2.386	0.056	
9	271.142	17.199	1.995	2.588	2.522	0.066	
10	278.068	24.720	1.912	3.520	3.423	0.097	
11	329.578	15.391	2.039	2.322	2.256	0.066	
12	329.578	15.391	2.039	2.322	2.256	0.066	
13	350.558	16.602	2.462	2.523	2.457	0.066	
14	350.558	16.602	2.462	2.523	2.457	0.066	
15	285.817	15.399	2.092	2.322	2.263	0.059	
16	285.817	15.399	2.092	2.322	2.263	0.059	
17	285.817	15.399	2.092	2.322	2.263	0.059	
18	285.817	15.399	2.092	2.322	2.263	0.059	
19	252.471	20.070	1.935	2.967	2.890	0.077	
20	252.471	20.070	1.935	2.967	2.890	0.077	
21	149.769	18.522	5.127	2.639	2.555	0.084	
22	772.157	14.125	3.208	2.127	2.071	0.056	
23	683.243	18.522	5.127	2.639	2.555	0.084	
24	323.255	14.125	3.208	2.127	2.071	0.056	
25	522.727	18.522	5.127	2.639	2.555	0.084	
26	463.108	14.125	3.208	2.127	2.071	0.056	
27	666.168	33.633	4.807	2.524	2.446	0.078	
28	197.048	33.633	4.807	2.524	2.446	0.078	
29	505.917	33.633	4.807	2.524	2.446	0.078	
30	505.917	33.633	4.807	2.524	2.446	0.078	

APPENDIX G-9

Masses of Greenhouse Gases Emitted (lbm/day)
BRENTWOOD I-65 CORRIDOR
FULL-TDM IMPLEMENTATION

LINK ID NO	CO2	CO	NOx	NMHC	MHC
1	18218.9	901.9	121.8	132.0	9.8
2	18218.9	901.9	121.8	132.0	9.8
3	13473.8	974.8	97.0	141.1	3.8
4	13501.5	908.8	97.4	133.0	2.5
5	7512.0	388.1	57.8	56.4	1.5
6	7512.0	388.1	57.8	56.4	1.5
7	3863.9	262.5	29.7	38.8	1.0
8	3988.5	252.7	29.9	37.7	0.9
9	4834.9	306.7	35.6	45.0	1.2
10	4958.4	440.8	34.1	61.0	1.7
11	6902.0	322.3	42.7	47.2	1.4
12	6902.0	322.3	42.7	47.2	1.4
13	8140.1	385.5	57.2	57.1	1.5
14	8140.1	385.5	57.2	57.1	1.5
15	14963.8	806.2	109.5	118.5	3.1
16	14963.8	806.2	109.5	118.5	3.1
17	26309.0	1417.5	192.6	208.3	5.4
18	26309.0	1417.5	192.6	208.3	5.4
19	3585.8	285.0	27.5	41.0	1.1
20	3585.8	285.0	27.5	41.0	1.1
21	3214.1	397.5	110.0	54.8	1.8
22	16570.6	303.1	68.8	44.4	1.2
23	31237.5	846.8	234.4	116.8	3.8
24	14779.0	645.8	146.7	94.7	2.6
25	85915.6	3044.3	842.7	419.9	13.8
26	76116.6	2321.6	527.3	340.4	9.2
27	15533.2	784.2	112.1	57.0	1.8
28	4594.6	784.2	112.1	57.0	1.8
29	74045.5	4922.5	703.5	358.0	11.4
30	74045.5	4922.5	703.5	358.0	11.4
Totals	611936	31132	5103	3679	118

APPENDIX G-10

Global Warming Potentials of Greenhouse
Gases Emitted (lbm of CO2-Equiv./day)
BRENTWOOD I-65 CORRIDOR
FULL-TDM IMPLEMENTATION

Global Warming Potential Factors (lbm CO2/lbm Greenhouse Gas)
1 7 150 5 37

LINK ID NO	CO2	CO	NOx	NMHC	MHC	Segment Totals CO2-Equiv (tons/day)
1	18218.91	6313.395	18276.83	660.1749	361.2047	26.789303
2	18218.91	6313.395	18276.83	660.1749	361.2047	26.789303
3	13473.80	6823.758	14550.04	705.6873	140.7823	22.029747
4	13501.54	6361.738	14610.92	664.8478	93.85490	21.771794
5	7512.015	2716.509	8663.744	281.9822	55.32833	11.758766
6	7512.015	2716.509	8663.744	281.9822	55.32833	11.758766
7	3863.919	1837.734	4461.065	194.1652	37.96483	5.1832128
8	3988.498	1769.224	4491.847	188.3245	32.70816	5.2208618
9	4834.867	2146.787	5336.075	224.8551	43.54451	6.2930653
10	4958.371	3085.562	5114.073	305.1860	63.99724	6.7635956
11	6901.963	2256.212	6405.064	236.2240	51.13999	7.9253024
12	6901.963	2256.212	6405.064	236.2240	51.13999	7.9253024
13	8140.056	2698.519	8575.243	285.2609	56.70388	9.8778925
14	8140.056	2698.519	8575.243	285.2609	56.70388	9.8778925
15	14963.83	5643.462	16428.88	592.3925	114.2901	18.871430
16	14963.83	5643.462	16428.88	592.3925	114.2901	18.871430
17	26309.00	9922.179	28884.80	1041.528	200.9417	33.179228
18	26309.00	9922.179	28884.80	1041.528	200.9417	33.179228
19	3585.761	1995.329	4122.317	205.2281	40.46333	4.9745497
20	3585.761	1995.329	4122.317	205.2281	40.46333	4.9745497
21	3214.066	2782.396	16503.94	274.1536	66.69819	11.420627
22	16570.60	2121.873	10326.63	222.2200	44.46546	14.642899
23	31237.49	5927.713	35160.56	584.0663	142.0961	36.525970
24	14779.04	4520.513	22000.21	473.4252	94.73076	20.933963
25	85915.64	21309.99	126401.4	2099.704	510.8323	118.11879
26	76116.56	16251.14	79090.25	1701.952	340.5548	86.750233
27	15533.22	5489.605	16812.90	285.1700	67.29360	19.094098
28	4594.619	5489.605	16812.90	285.1700	67.29360	13.624798
29	74045.49	34457.42	105532.0	1789.969	422.3918	108.12369
30	74045.49	34457.42	105532.0	1789.969	422.3918	108.12369
Total CO2 Equivalents By Greenhouse Gas						Area Total
611936 217924 765451 18394 4352						831.37

APPENDIX H

FUEL CONSUMPTION DATA

APPENDIX H-1

FUEL CONSUMPTION AT CONSTANT SPEED ON POSITIVE GRADES
GAL/1000 VEHICLE MILES
SMALL AUTOS

GRADE CLASS	SPEED												
	5	10	15	20	25	30	35	40	45	50	55	60	65
0.0-0.4	67.00	64.00	58.00	36.00	29.50	27.00	24.00	24.00	24.00	25.00	25.50	26.00	31.50
0.5-2.4	72.50	71.50	57.50	41.50	36.25	30.00	30.75	31.50	30.65	30.25	32.50	34.75	37.50
2.5-4.4	78.50	77.00	59.25	43.50	39.90	33.75	34.90	36.00	36.30	36.50	38.75	41.00	43.85
4.5-6.4	82.50	80.00	51.00	46.50	41.75	35.50	36.50	37.50	38.00	39.25	42.00	44.75	49.00
6.5-8.4	86.00	84.00	58.75	50.25	44.65	39.00	42.05	44.50	44.75	45.00	49.30	53.50	58.65
8.5 +	90.00	88.00	70.50	57.50	51.35	45.50	50.20	55.25	54.50	53.75	59.95	66.00	70.35

FUEL CONSUMPTION AT CONSTANT SPEED ON POSITIVE GRADES
GAL/1000 VEHICLE MILES
MED/LG AUTOS

GRADE CLASS	SPEED												
	5	10	15	20	25	30	35	40	45	50	55	60	65
0.0-0.4	57.60	57.60	49.62	41.44	40.32	39.13	40.47	41.04	44.16	46.40	50.71	54.93	60.04
0.5-2.4	70.09	70.09	63.77	57.42	53.02	48.36	51.06	53.59	54.39	45.90	50.20	61.12	67.05
2.5-4.4	77.31	77.31	72.39	67.44	63.68	59.68	62.18	64.44	65.71	66.81	70.90	74.77	81.24
4.5-6.4	79.93	79.93	75.89	71.00	69.79	67.72	70.62	73.42	77.06	82.13	88.07	93.73	101.12
6.5-8.4	84.82	84.82	80.92	76.78	76.97	77.07	81.00	84.96	86.74	100.12	112.54	116.36	131.79
8.5 +	91.57	91.57	87.95	82.68	85.54	88.39	93.71	98.71	119.73	139.69	160.44	161.36	169.40

FUEL CONSUMPTION AT CONSTANT SPEED ON POSITIVE GRADES
GAL/1000 VEHICLE MILES
PICKUP TRUCK

GRADE CLASS	SPEED												
	5	10	15	20	25	30	35	40	45	50	55	60	65
0.0-0.4	77.90	77.90	64.00	51.60	52.30	53.00	54.00	55.00	59.70	64.00	67.50	70.00	81.90
0.5-2.4	91.90	91.90	80.00	68.50	70.75	73.00	73.25	73.50	75.40	77.25	84.90	92.50	107.00
2.5-4.4	105.00	105.00	95.00	85.00	83.50	82.00	82.25	82.50	89.50	96.50	100.50	110.50	132.50
4.5-6.4	115.00	115.00	106.50	97.50	91.50	85.50	87.90	90.25	103.90	117.50	128.50	139.00	150.00
6.5-8.4	132.00	132.00	118.50	114.00	105.50	96.50	103.25	109.50	125.50	141.00	149.50	157.00	166.00
8.5 +	151.50	151.50	149.50	136.00	125.25	112.50	124.25	134.00	150.50	165.00	171.50	176.50	181.50

FUEL CONSUMPTION AT CONSTANT SPEED ON POSITIVE GRADES
GAL/1000 VEHICLE MILES
2A 80 TRUCK

GRADE CLASS	SPEED												
	5	10	15	20	25	30	35	40	45	50	55	60	65
0.0-0.4	212.00	207.00	167.00	132.00	121.00	112.00	113.00	115.00	123.00	133.00	139.00	144.00	150.00
0.5-2.4	265.00	259.00	216.00	179.00	166.50	155.50	155.50	157.50	158.00	156.50	158.00	161.00	166.00
2.5-4.4	314.50	307.50	256.00	210.50	201.50	193.50	193.50	195.50	185.50	178.00	173.50	170.00	183.50
4.5-6.4	352.50	344.50	258.00	226.00	216.50	209.00	215.50	225.00	206.00	191.00	186.50	181.50	194.00
6.5-8.4	402.50	393.00	318.00	252.50	238.50	225.00	233.00	244.00	220.00	208.00	200.00	199.50	202.50
8.5 +	456.50	445.00	363.00	290.00	269.00	246.50	251.50	260.00	232.00	218.50	208.00	200.00	208.50

FUEL CONSUMPTION AT CONSTANT SPEED ON POSITIVE GRADES
GAL/1000 VEHICLE MILES
3A 80 TRUCK

GRADE CLASS	SPEED												
	5	10	15	20	25	30	35	40	45	50	55	60	65
0.0-0.4	226.00	217.00	198.00	179.00	160.00	156.00	153.00	149.00	149.00	149.00	153.00	156.00	163.00
0.5-2.4	182.00	296.50	294.00	290.50	275.50	260.00	256.00	251.50	251.50	251.50	262.50	272.50	277.50
2.5-4.4	450.50	415.50	372.50	328.50	324.50	320.00	322.50	324.00	328.50	332.00	332.50	332.50	338.50
4.5-6.4	685.00	543.00	481.00	339.00	341.50	343.00	346.50	349.50	359.00	368.00	367.00	365.50	372.50
6.5-8.4	837.00	672.50	508.00	343.00	349.50	355.00	350.50	361.50	375.50	389.50	388.00	386.00	396.00
8.5 +	1028.50	802.00	575.50	347.00	356.00	364.00	366.00	369.00	387.00	405.50	405.00	403.00	414.00

FUEL CONSUMPTION AT CONSTANT SPEED ON POSITIVE GRADES
GAL/1000 VEHICLE MILES
2-62 SEMI

GRADE CLASS	SPEED												
	5	10	15	20	25	30	35	40	45	50	55	60	65
0.0-0.4	465.00	367.00	294.00	293.00	198.00	192.00	186.00	180.00	174.00	169.00	168.00	170.00	171.00
0.5-2.4	519.50	458.50	394.50	331.50	340.50	347.00	307.00	268.00	234.50	202.00	226.50	253.00	282.00
2.5-4.4	584.00	523.50	461.00	401.00	401.50	405.00	361.50	316.00	276.00	236.00	267.00	301.00	332.00
4.5-6.4	623.50	549.50	514.50	421.00	414.00	420.00	367.50	318.00	276.00	236.00	267.00	301.00	338.00
6.5-8.4	712.50	630.00	544.00	448.50	462.50	463.50	395.00	330.00	288.50	249.00	278.50	311.50	363.00
8.5 +	821.00	720.00	616.00	514.00	517.00	519.00	435.00	353.50	313.50	270.00	303.00	333.00	398.50

FUEL CONSUMPTION AT CONSTANT SPEED ON POSITIVE GRADES
GAL/1000 VEHICLE MILES
1-62 SEMI

GRADE CLASS	SPEED												
	5	10	15	20	25	30	35	40	45	50	55	60	65
0.0-0.4	470.00	370.00	287.00	205.00	204.00	204.00	202.00	201.00	199.00	199.00	202.00	207.00	210.00
0.5-2.4	527.50	470.50	412.50	355.00	378.50	404.50	372.00	330.50	305.50	272.50	296.00	309.50	301.00
2.5-4.4	592.50	539.00	480.00	436.50	457.50	488.00	457.00	423.00	381.00	348.50	374.00	393.00	382.50
4.5-6.4	635.00	578.00	546.50	461.00	476.50	512.50	473.00	432.50	391.00	348.50	386.00	410.00	403.50
6.5-8.4	725.00	653.00	578.00	546.00	535.50	569.50	513.00	453.00	414.00	374.50	411.50	434.50	446.00
8.5 +	877.50	748.00	654.00	560.00	601.50	640.50	563.00	487.50	454.50	423.00	454.50	471.50	490.50

APPENDIX H-2

**FUEL CONSUMPTION AT CONSTANT SPEED ON NEGATIVE GRADES
GAL/1000 VEHICLE MILES
SMALL AUTOS**

GRADE CLASS	SPEED												
	5	10	15	20	25	30	35	40	45	50	55	60	65
0.0-0.4	67.00	64.00	58.00	36.00	29.50	27.00	24.00	24.00	24.00	25.00	25.50	26.00	31.50
0.5-2.4	53.00	53.00	38.50	24.50	21.00	17.50	19.75	22.00	20.25	18.50	20.65	22.90	25.65
2.5-4.4	40.50	40.50	30.50	20.00	17.45	14.90	17.10	19.25	17.00	14.75	16.55	18.25	20.90
4.5-6.4	34.75	34.75	27.25	19.50	16.75	14.25	16.15	18.00	14.90	11.75	13.90	16.00	18.00
6.5-8.4	34.75	34.75	25.75	16.75	15.00	13.25	14.85	16.50	13.15	9.75	11.65	13.50	16.00
8.5 +	35.50	35.50	24.60	13.75	13.00	12.25	12.50	14.75	10.85	7.00	9.10	11.25	13.60

**FUEL CONSUMPTION AT CONSTANT SPEED ON NEGATIVE GRADES
GAL/1000 VEHICLE MILES
MED/LG AUTOS**

GRADE CLASS	SPEED												
	5	10	15	20	25	30	35	40	45	50	55	60	65
0.0-0.4	57.60	57.60	49.62	41.44	40.32	39.13	40.67	41.84	44.16	46.60	50.71	54.93	60.04
0.5-2.4	53.99	53.99	42.70	31.10	31.37	31.34	33.00	34.55	37.00	40.21	44.52	48.71	54.71
2.5-4.4	52.93	52.93	40.30	27.74	26.53	25.19	25.35	25.38	29.36	33.32	37.56	41.90	47.76
4.5-6.4	52.94	52.94	40.06	27.10	24.82	20.80	19.35	17.83	22.32	26.78	29.60	30.54	34.63
6.5-8.4	53.24	53.24	40.07	26.81	22.89	17.33	14.34	12.42	15.50	19.43	20.07	20.60	22.63
8.5 +	53.51	53.51	40.29	26.66	19.85	13.64	10.20	7.43	9.41	11.40	11.10	12.77	13.57

**FUEL CONSUMPTION AT CONSTANT SPEED ON NEGATIVE GRADES
GAL/1000 VEHICLE MILES
PICKUP TRUCK**

GRADE CLASS	SPEED												
	5	10	15	20	25	30	35	40	45	50	55	60	65
0.0-0.4	77.90	77.90	64.00	51.60	52.30	53.00	54.00	55.00	59.70	64.00	67.50	70.60	81.90
0.5-2.4	71.00	71.00	53.65	36.25	35.55	34.75	36.15	37.50	42.25	47.00	50.50	54.00	59.00
2.5-4.4	68.00	68.00	51.65	35.25	31.40	27.50	28.25	29.00	31.75	34.50	38.00	41.50	46.25
4.5-6.4	69.25	69.25	53.50	37.65	31.85	26.00	26.70	27.25	29.15	31.00	34.25	37.50	43.00
6.5-8.4	71.75	71.75	55.15	38.50	32.30	26.00	25.75	25.50	25.90	26.25	29.40	32.50	35.25
8.5 +	74.50	74.50	56.50	38.60	32.35	26.00	24.70	23.50	22.35	21.25	23.85	26.50	25.00

**FUEL CONSUMPTION AT CONSTANT SPEED ON NEGATIVE GRADES
GAL/1000 VEHICLE MILES
2 1/2 TON TRUCK**

GRADE CLASS	SPEED												
	5	10	15	20	25	30	35	40	45	50	55	60	65
0.0-0.4	212.00	207.00	167.00	132.00	121.00	112.00	113.00	115.00	123.00	132.00	139.00	144.00	150.00
0.5-2.4	135.50	132.50	117.50	104.50	96.10	88.00	79.60	72.20	83.65	95.85	109.85	122.50	128.50
2.5-4.4	122.50	119.50	100.00	98.30	85.70	73.90	63.20	53.95	61.05	69.15	83.70	97.50	104.25
4.5-6.4	128.50	125.50	111.00	100.35	82.05	64.70	54.95	46.35	51.65	57.70	74.60	79.00	87.20
6.5-8.4	132.00	129.00	111.10	96.50	76.35	56.95	40.85	41.90	44.15	47.10	58.55	69.00	77.65
8.5 +	135.50	132.50	100.00	88.50	68.05	49.60	43.20	37.85	37.30	37.40	45.30	63.10	70.25

FUEL CONSUMPTION AT CONSTANT SPEED ON NEGATIVE GRADES
GAL/1000 VEHICLE MILES
1A 80 TRUCK

GRADE CLASS	SPEED												
	5	10	15	20	25	30	35	40	45	50	55	60	65
0.0-0.4	236.00	217.00	198.00	179.00	160.00	156.00	153.00	149.00	149.00	149.00	153.00	154.00	163.00
0.5-2.4	174.50	139.00	103.50	67.50	62.00	56.50	49.00	43.00	51.00	59.50	50.00	56.00	56.00
2.5-4.4	118.00	89.00	60.25	31.50	27.75	24.00	16.00	13.00	16.75	20.50	23.00	26.30	26.50
4.5-6.4	86.00	64.00	42.00	20.00	16.50	13.00	10.25	7.50	12.50	17.50	10.00	20.00	20.50
6.5-8.4	55.50	41.50	27.50	13.50	9.75	6.00	5.75	5.50	10.50	15.50	14.65	13.70	13.50
8.5 +	21.75	17.00	12.25	7.50	4.25	1.00	2.25	3.50	8.50	13.50	10.70	7.00	7.00

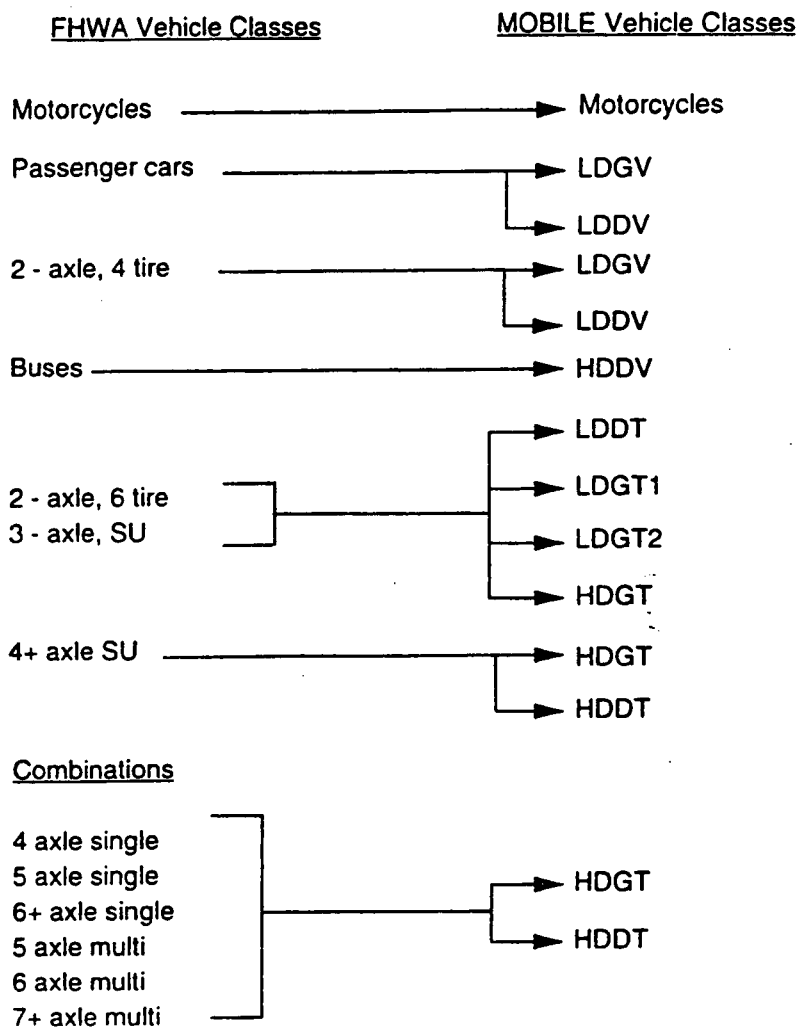
FUEL CONSUMPTION AT CONSTANT SPEED ON NEGATIVE GRADES
GAL/1000 VEHICLE MILES
2-82 SEMI

GRADE CLASS	SPEED												
	5	10	15	20	25	30	35	40	45	50	55	60	65
0.0-0.4	465.00	367.00	284.00	203.00	198.00	193.00	186.00	180.00	174.00	169.00	160.00	170.00	171.00
0.5-2.4	287.00	193.50	126.10	51.00	50.00	48.25	46.75	44.75	43.50	42.20	42.65	44.05	107.90
2.5-4.4	49.45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.70
4.5-6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.5-8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.5 +	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

FUEL CONSUMPTION AT CONSTANT SPEED ON NEGATIVE GRADES
GAL/1000 VEHICLE MILES
3-82 SEMI

GRADE CLASS	SPEED												
	5	10	15	20	25	30	35	40	45	50	55	60	65
0.0-0.4	470.00	370.00	287.00	205.00	204.00	204.00	202.00	201.00	199.00	199.00	202.00	207.00	210.00
0.5-2.4	0.0	0.0	0.0	0.0	0.0	17.05	24.95	29.10	31.90	44.95	45.85	45.45	52.95
2.5-4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.5-6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.5-8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.5 +	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX H-3



Notes

- LDGV - light-duty gas vehicles
- LDGT1 - light-duty gas trucks up to 6,000 lbs. GVW
- LDGT2 - light-duty gas trucks between 6,001 and 8,500 lbs. GVW
- HDGT - heavy-duty gas trucks over 8,500 lbs. GVW
- LDDV - light-duty diesel vehicles
- LDDT - heavy-duty diesel trucks up to 8,500 lbs. GVW
- HDDT - heavy-duty diesel trucks over 8,500 lbs. GVW
- SU - single unit trucks

Match Between FHWA and MOBILE Vehicle Classifications

APPENDIX H-4

U.S. Car MPG 1980 - 1993 ('91-'93 extrapolated)

	Actual Values	Regressed Values		
1980	15.46	15.46		
1981	15.94	16.00		
1982	16.65	16.55		
1983	17.14	17.09		
1984	17.83	17.64		
1985	18.20	18.19		
1986	18.27	18.73		
1987	19.20	19.28		
1988	19.95	19.82		
1989	20.40	20.37		
1990	21.00	20.91		
1991	21.46	21.46		
1992	22.00	22.00		
1993	22.55	22.55		

Regression Output:

Constant	-1064.54
Std Err of Y Est	0.181353
R Squared	0.991037
No. of Observations	11
Degrees of Freedom	9
X Coefficient(s)	0.545455
Std Err of Coef.	0.017291

APPENDIX I

MATRICES OF CORRIDOR EMISSIONS AND VMT CHANGES AMONG PROJECT PHASES

APPENDIX I-1

Absolute Changes in Corridor Total GWP Emissions tons/day CO2 eq
(change from vertical axis heading to horizontal axis heading)

Corridor Total GWP Emissions (tons/day)	674.4	651.5	699.8	809.1
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0	-22.9	25.4	134.7
Pre-TDM Implementation	22.9	0	48.3	157.6
Interim TDM Implementation	-25.4	-48.3	0	109.3
Full Term TDM Implementation	-134.7	-157.6	-109.3	0

Percent Changes in Corridor Daily Total GWP Emissions
(change from vertical axis heading to horizontal axis heading)

Corridor Total GWP Emissions (tons/day)	674.4	651.5	699.8	809.1
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0.0%	-3.4%	3.8%	20.0%
Pre-TDM Implementation	3.5%	0.0%	7.4%	24.2%
Interim TDM Implementation	-3.6%	-6.9%	0.0%	15.6%
Full Term TDM Implementation	-16.6%	-19.5%	-13.5%	0.0%

APPENDIX I-2

Absolute Changes in Corridor VMT (change from vertical axis heading to horizontal axis heading)

Corridor VMT	656704	667697	708468	704654
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0	10993	51764	47950
Pre-TDM Implementation	-10993	0	40771	36957
Interim TDM Implementation	-51764	-40771	0	-3814
Full Term TDM Implementation	-47950	-36957	3814	0

Percent Changes in Corridor VMT (change from vertical axis heading to horizontal axis heading)

Corridor VMT	656704	667697	708468	704654
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0.0%	1.7%	7.9%	7.3%
Pre-TDM Implementation	-1.6%	0.0%	6.1%	5.5%
Interim TDM Implementation	-7.3%	-5.8%	0.0%	-0.5%
Full Term TDM Implementation	-6.8%	-5.2%	0.5%	0.0%

APPENDIX I-3

Absolute Changes in Corridor CO2 Emissions (lbm/day)
(change from vertical axis heading to horizontal axis heading)

Corridor CO2 Emissions (lbm/day)	518440	491595	557568	611936
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0	-26845	39128	93496
Pre-TDM Implementation	26845	0	65973	120341
Interim TDM Implementation	-39128	-65973	0	54368
Full Term TDM Implementation	-93496	-120341	-54368	0

Percent Changes in Corridor Daily CO2 Emissions
(change from vertical axis heading to horizontal axis heading)

Corridor CO2 Emissions (lbm/day)	518440	491595	557568	611936
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0.0%	-5.2%	7.5%	18.0%
Pre-TDM Implementation	5.5%	0.0%	13.4%	24.5%
Interim TDM Implementation	-7.0%	-11.8%	0.0%	9.8%
Full Term TDM Implementation	-15.3%	-19.7%	-8.9%	0.0%

APPENDIX I-4

Absolute Changes in Corridor Daily CO Emissions lbm/day CO2 eq
(change from vertical axis heading to horizontal axis heading)

Corridor CO Emissions (lbm/day CO2 equiv.)	196033	200991	211628	217924
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0	4958	15595	21891
Pre-TDM Implementation	-4958	0	10637	16933
Interim TDM Implementation	-15595	-10637	0	6296
Full Term TDM Implementation	-21891	-16933	-6296	0

Percent Changes in Corridor Daily CO Emissions
(change from vertical axis heading to horizontal axis heading)

Corridor CO Emissions (lbm/day CO2 equiv.)	196033	200991	211628	217924
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0.0%	2.5%	8.0%	11.2%
Pre-TDM Implementation	-2.5%	0.0%	5.3%	8.4%
Interim TDM Implementation	-7.4%	-5.0%	0.0%	3.0%
Full Term TDM Implementation	-10.0%	-7.8%	-2.9%	0.0%

APPENDIX I-5

Absolute Changes in Corridor Daily NOx Emissions lbm/day CO2 eq
(change from vertical axis heading to horizontal axis heading)

Corridor NOx Emissions (lbm/day CO2 equiv.)	614158	589706	608547	765451
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0	-24452	-5611	151293
Pre-TDM Implementation	24452	0	18841	175745
Interim TDM Implementation	5611	-18841	0	156904
Full Term TDM Implementation	-151293	-175745	-156904	0

Percent Changes in Corridor Daily NOx Emissions
(change from vertical axis heading to horizontal axis heading)

Corridor NOx Emissions (lbm/day CO2 equiv.)	614158	589706	608547	765451
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0.0%	-4.0%	-0.9%	24.6%
Pre-TDM Implementation	4.1%	0.0%	3.2%	29.8%
Interim TDM Implementation	0.9%	-3.1%	0.0%	25.8%
Full Term TDM Implementation	-19.8%	-23.0%	-20.5%	0.0%

APPENDIX I-6

Absolute Changes in Corridor Daily MHC Emissions 1bm/day CO2 eq
(change from vertical axis heading to horizontal axis heading)

Corridor MHC Emissions (1bm/day CO2 equiv.)	3311	3516	3689	4352
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0	205	378	1041
Pre-TDM Implementation	-205	0	173	836
Interim TDM Implementation	-378	-173	0	663
Full Term TDM Implementation	-1041	-836	-663	0

Percent Changes in Corridor Daily MHC Emissions
(change from vertical axis heading to horizontal axis heading)

Corridor MHC Emissions (1bm/day CO2 equiv.)	3311	3516	3689	4352
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0.0%	6.2%	11.4%	31.4%
Pre-TDM Implementation	-5.8%	0.0%	4.9%	23.8%
Interim TDM Implementation	-10.2%	-4.7%	0.0%	18.0%
Full Term TDM Implementation	-23.9%	-19.2%	-15.2%	0.0%

APPENDIX I-7

Absolute Changes in Corridor Daily NMHC Emissions lbm/day CO2 eq
(change from vertical axis heading to horizontal axis heading)

Corridor NMHC Emissions (lbm/day CO2 equiv.)	16915	17251	18226	18394
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0	336	1311	1479
Pre-TDM Implementation	-336	0	975	1143
Interim TDM Implementation	-1311	-975	0	168
Full Term TDM Implementation	-1479	-1143	-168	0

Percent Changes in Corridor Daily NMHC Emissions
(change from vertical axis heading to horizontal axis heading)

Corridor NMHC Emissions (lbm/day CO2 equiv.)	16915	17251	18226	18394
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0.0%	2.0%	7.8%	8.7%
Pre-TDM Implementation	-1.9%	0.0%	5.7%	6.6%
Interim TDM Implementation	-7.2%	-5.3%	0.0%	0.9%
Full Term TDM Implementation	-8.0%	-6.2%	-0.9%	0.0%

APPENDIX J

MATICES AND ANALYSIS OF SPEED, NO-NO_x EMISSIONS AND VEHICLE AND ROADWAY VMT CHANGES AMONG PROJECT PHASES

APPENDIX J-1

Pre-construction VMT Weighted Corridor Speed

LINK ID NO	Speed (mph)	VMT	Speed x VMT
1	44	18762	825528
2	44	18762	825528
3	28	23329	653198
4	32	23329	746512
5	50	9833	491665
6	50	9833	491665
7	40	5668	226706
8	41	5668	232374
9	33	8503	280591
10	24	8503	204066
11	39	10568	412144
12	37	10568	391009
13	40	10734	429341
14	40	10734	429341
15	45	23424	1054061
16	45	23424	1054061
17	45	31840	1432800
18	45	31840	1432800
19	33	6096	201183
20	33	6096	201183
21	55	9495	522211
22	50	9495	474737
23	65	20228	1314816
24	50	20228	1011397
25	65	72719	4726732
26	50	72719	3635948
27	46	10603	487729
28	48	10603	508934
29	46	66552	3061399
30	48	66552	3194503
Totals		656704	30954160

Corridor 47 mph
 Avg. Speed
 $\text{Total}(\text{speed} \times \text{VMT}) / \text{Total}(\text{VMT})$

APPENDIX J-2

Pre-TDM
VMT Weighted Corridor Speed

LINK ID NO	Speed (mph)	VMT	Speed x VMT
1	45	27647	1244133
2	44	27647	1216486
3	28	23458	656824
4	32	23458	750656
5	49	12252	600324
6	48	12252	588072
7	40	6259	250376
8	40	6259	250376
9	32	7623	243936
10	24	7623	182952
11	40	9627	385092
12	39	9627	375465
13	40	10836	433440
14	40	10836	433440
15	45	22487	1011893
16	45	22487	1011893
17	45	32238	1450710
18	45	32238	1450710
19	33	6200	204600
20	33	6200	204600
21	63	12352	778156
22	50	6174	308718
23	63	26314	1657812
24	50	13154	657703
25	63	94600	5959794
26	50	47289	2364425
27	47	13793	648294
28	49	6897	337940
29	47	86580	4069241
30	49	43290	2121200

Totals 667697 31849258

Corridor 48 mph
Avg. Speed
Total(speed x VMT)/Total(VMT)

APPENDIX J-3

Interim-TDM VMT Weighted Corridor Speed

LINK ID NO	Speed (mph)	VMT	Speed x VMT
1	44	20815	915869
2	43	20815	895054
3	28	24420	683760
4	32	24420	781440
5	50	12856	642803
6	50	12856	642803
7	40	6391	255636
8	41	6391	262027
9	45	8519	383333
10	45	8519	383333
11	39	9884	385468
12	37	9884	365701
13	40	10836	433440
14	40	10836	433440
15	45	21845	983036
16	45	21845	983036
17	45	41352	1860849
18	45	41352	1860849
19	33	6222	205316
20	33	6222	205316
21	65	10221	664385
22	50	10221	511066
23	65	21776	1415430
24	50	21776	1088792
25	65	78284	5088437
26	50	78284	3914183
27	46	11106	510857
28	48	11106	533069
29	46	69708	3206575
30	48	69708	3345991
Totals		708468	33841292

Corridor 48 mph
Avg. Speed
Total(speed x VMT)/Total(VMT)

APPENDIX J-4

Full-TDM
VMT Weighted Corridor Speed

LINK ID NO	Speed (mph)	VMT	Speed x VMT
1	47	27701	1301924
2	47	27701	1301924
3	32	23033	737040
4	35	23033	806138
5	50	12123	606155
6	50	12123	606155
7	40	7167	286670
8	42	7167	301004
9	38	8096	307629
10	24	8096	194292
11	36	9508	342274
12	36	9508	342274
13	40	10542	421680
14	40	10542	421680
15	45	23769	1069605
16	45	23769	1069605
17	45	41790	1880550
18	45	41790	1880550
19	30	6448	193440
20	30	6448	193440
21	65	9743	633289
22	50	9743	487146
23	65	20757	1349182
24	50	20757	1037832
25	65	74620	4850277
26	50	74620	3730983
27	63	10586	666920
28	63	10586	666920
29	63	66447	4186158
30	63	66447	4186158

Totals	704654	36058891
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Corridor 51 mph
Avg. Speed
Total(speed x VMT)/Total(VMT)

APPENDIX J-5

Absolute Changes in Corridor Avg. Speeds (mph)
(change from vertical axis heading to horizontal axis heading)

Corridor Avg. Speed (mph)	47	48	48	51
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0	1	1	4
Pre-TDM Implementation	-1	0	0	3
Interim TDM Implementation	-1	0	0	3
Full Term TDM Implementation	-4	-3	-3	0

Percent Changes in Corridor Avg. Speeds
(change from vertical axis heading to horizontal axis heading)

Corridor Avg. Speed	47	48	48	51
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0.0%	2.1%	2.1%	8.5%
Pre-TDM Implementation	-2.1%	0.0%	0.0%	6.3%
Interim TDM Implementation	-2.1%	0.0%	0.0%	6.3%
Full Term TDM Implementation	-7.8%	-5.9%	-5.9%	0.0%

APPENDIX J-6

Pre-construction
VMT by vehicle type
and road segment

LINK ID NO	Vehicle Type LDGV	LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC
1	14466	3490	300	19	225	56	188	19
2	14466	3490	300	19	225	56	188	19
3	17986	4339	373	23	280	70	233	23
4	17986	4339	373	23	280	70	233	23
5	7581	1829	157	10	118	29	98	10
6	7581	1829	157	10	118	29	98	10
7	3429	1746	153	11	51	28	244	6
8	3429	1746	153	11	51	28	244	6
9	6556	1582	136	9	102	26	85	9
10	6556	1582	136	9	102	26	85	9
11	6394	3255	285	21	95	53	454	11
12	6394	3255	285	21	95	53	454	11
13	6494	3306	290	21	97	54	462	11
14	6494	3306	290	21	97	54	462	11
15	18060	4357	375	23	281	70	234	23
16	18060	4357	375	23	281	70	234	23
17	24549	5922	509	32	382	96	318	32
18	24549	5922	509	32	382	96	318	32
19	4700	1134	98	6	73	18	61	6
20	4700	1134	98	6	73	18	61	6
21	6238	2288	199	28	95	38	598	9
22	6238	2288	199	28	95	38	598	9
23	13290	4875	425	61	202	81	1274	20
24	13290	4875	425	61	202	81	1274	20
25	47776	17525	1527	218	727	291	4581	73
26	47776	17525	1527	218	727	291	4581	73
27	6966	2555	223	32	106	42	668	11
28	6966	2555	223	32	106	42	668	11
29	43725	16039	1398	200	666	266	4193	67
30	43725	16039	1398	200	666	266	4193	67
Totals	456417	148483	12897	1429	7000	2437	27384	657
VMT weighted vehicle mix	0.695	0.226	0.020	0.002	0.011	0.004	0.042	0.001

APPENDIX J-7

Pre-TDM
VMT by vehicle type
and road segment

LINK ID NO	Vehicle Type LDGV	LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC
1	21565	5087	470	28	166	55	249	28
2	21565	5087	470	28	166	55	249	28
3	18297	4316	399	23	141	47	211	23
4	18297	4316	399	23	141	47	211	23
5	9556	2254	208	12	74	25	110	12
6	9556	2254	208	12	74	25	110	12
7	4457	1515	94	13	25	19	138	0
8	4457	1515	94	13	25	19	138	0
9	5839	1502	130	8	46	15	76	8
10	5839	1502	130	8	46	15	76	8
11	6479	2590	212	67	48	19	212	0
12	6479	2590	212	67	48	19	212	0
13	6556	3337	293	22	98	54	466	11
14	6556	3337	293	22	98	54	466	11
15	17225	4430	382	22	135	45	225	22
16	17225	4430	382	22	135	45	225	22
17	24694	6351	548	32	193	64	322	32
18	24694	6351	548	32	193	64	322	32
19	4780	1153	99	6	74	19	62	6
20	4780	1153	99	6	74	19	62	6
21	8646	2767	235	25	62	25	581	12
22	4322	1383	117	12	31	12	290	6
23	18420	5894	500	53	132	53	1237	26
24	9208	2947	250	26	66	26	618	13
25	66220	21190	1797	189	473	189	4446	95
26	33102	10593	898	95	236	95	2223	47
27	9655	3090	262	28	69	28	648	14
28	4828	1545	131	14	34	14	324	7
29	60606	19394	1645	173	433	173	4069	87
30	30303	9697	823	87	216	87	2035	43
Totals	484207	143570	12327	1168	3751	1425	20613	636
VMT weighted vehicle mix	0.725	0.215	0.018	0.002	0.006	0.002	0.031	0.001

APPENDIX J-8

Interim-TDM
VMT by vehicle type
and road segment

LINK ID NO	Vehicle Type LDGV	LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC
1	16049	3872	333	21	250	62	208	21
2	16049	3872	333	21	250	62	208	21
3	18828	4542	391	24	293	73	244	24
4	18828	4542	391	24	293	73	244	24
5	9912	2391	206	13	154	39	129	13
6	9912	2391	206	13	154	39	129	13
7	3866	1968	173	13	58	32	275	6
8	3866	1968	173	13	58	32	275	6
9	6568	1584	136	9	102	26	85	9
10	6568	1584	136	9	102	26	85	9
11	5980	3044	267	20	89	49	425	10
12	5980	3044	267	20	89	49	425	10
13	6556	3337	293	22	98	54	466	11
14	6556	3337	293	22	98	54	466	11
15	16843	4063	350	22	262	66	218	22
16	16843	4063	350	22	262	66	218	22
17	31883	7692	662	41	496	124	414	41
18	31883	7692	662	41	496	124	414	41
19	4797	1157	100	6	75	19	62	6
20	4797	1157	100	6	75	19	62	6
21	6715	2463	215	31	102	41	644	10
22	6715	2463	215	31	102	41	644	10
23	14307	5248	457	65	218	87	1372	22
24	14307	5248	457	65	218	87	1372	22
25	51432	18866	1644	235	783	313	4932	78
26	51432	18866	1644	235	783	313	4932	78
27	7296	2676	233	33	111	44	700	11
28	7296	2676	233	33	111	44	700	11
29	45798	16800	1464	209	697	279	4392	70
30	45798	16800	1464	209	697	279	4392	70
Totals	493659	159411	13843	1527	7575	2616	29130	708
VMT weighted vehicle mix	0.697	0.225	0.020	0.002	0.011	0.004	0.041	0.001

APPENDIX J-9

Full-TDM
VMT by vehicle type
and road segment

LINK ID NO	Vehicle LDGV	Type LDGT-1	LDGT-2	HDGV	LDDV	LDDT	HDDV	MC
1	19252	7341	166	28	166	554	166	28
2	19252	7341	166	28	166	554	166	28
3	16008	6104	138	23	138	461	138	23
4	16008	6104	138	23	138	461	138	23
5	8426	3213	73	12	73	242	73	12
6	8426	3213	73	12	73	242	73	12
7	4687	2344	0	0	65	36	0	36
8	4687	2344	0	0	65	36	0	36
9	5416	2445	49	8	24	81	73	0
10	5416	2445	49	8	24	81	73	0
11	5258	3537	86	86	0	390	152	0
12	5258	3537	86	86	0	390	152	0
13	6378	3247	285	21	95	53	453	11
14	6378	3247	285	21	95	53	453	11
15	15901	7178	143	24	71	238	214	0
16	15901	7178	143	24	71	238	214	0
17	27958	12621	251	42	125	418	376	0
18	27958	12621	251	42	125	418	376	0
19	4971	1199	103	6	77	19	64	6
20	4971	1199	103	6	77	19	64	6
21	6401	2416	39	19	10	127	731	0
22	6401	2416	39	19	10	127	731	0
23	13637	5148	83	42	21	270	1557	0
24	13637	5148	83	42	21	270	1557	0
25	49025	18506	298	149	75	970	5596	0
26	49025	18506	298	149	75	970	5596	0
27	6955	2625	42	21	11	138	794	0
28	6955	2625	42	21	11	138	794	0
29	43656	16479	266	133	66	864	4984	0
30	43656	16479	266	133	66	864	4984	0
Totals	467856	188802	4042	1228	2034	9719	30743	231
VMT weighted vehicle mix	0.664	0.268	0.006	0.002	0.003	0.014	0.044	0.000

APPENDIX J-10

LDGV

Absolute Changes in Corridor Avg. Speeds (mph)
(change from vertical axis heading to horizontal axis heading)

Corridor Avg. Speed (mph)	47 Preconst	47 PreTDM	51 Int.TDM	51 FullTDM
Preconstruction	0	0	4	4
Pre-TDM Implementation	0	0	4	4
Interim TDM Implementation	-4	-4	0	0
Full Term TDM Implementation	-4	-4	0	0

LDGV

Percent Changes in Corridor Avg. Speeds
(change from vertical axis heading to horizontal axis heading)

Corridor Avg. Speed	47 Preconst	47 PreTDM	51 Int.TDM	51 FullTDM
Preconstruction	0.0%	0.0%	8.5%	8.5%
Pre-TDM Implementation	0.0%	0.0%	8.5%	8.5%
Interim TDM Implementation	-7.8%	-7.8%	0.0%	0.0%
Full Term TDM Implementation	-7.8%	-7.8%	0.0%	0.0%

APPENDIX J-11

LDGT

Absolute Changes in Corridor Avg. Speeds (mph)
(change from vertical axis heading to horizontal axis heading)

Corridor Avg. Speed	47	48	52	51
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0	1	5	4
Pre-TDM Implementation	-1	0	4	3
Interim TDM Implementation	-5	-4	0	-1
Full Term TDM Implementation	-4	-3	1	0

LDGT

Percent Changes in Corridor Avg. Speeds
(change from vertical axis heading to horizontal axis heading)

Corridor Avg. Speed	47	48	52	51
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0.0%	2.1%	10.6%	8.5%
Pre-TDM Implementation	-2.1%	0.0%	8.3%	6.3%
Interim TDM Implementation	-9.6%	-7.7%	0.0%	-1.9%
Full Term TDM Implementation	-7.8%	-5.9%	2.0%	0.0%

APPENDIX J-12

HDDV

Absolute Changes in Corridor Avg. Speeds (mph)
(change from vertical axis heading to horizontal axis heading)

Corridor Avg. Speed (mph)	51 Preconst	51 PreTDM	55 Int.TDM	57 FullTDM
Preconstruction	0	0	4	6
Pre-TDM Implementation	0	0	4	6
Interim TDM Implementation	-4	-4	0	2
Full Term TDM Implementation	-6	-6	-2	0

HDDV

Percent Changes in Corridor Avg. Speeds
(change from vertical axis heading to horizontal axis heading)

Corridor Avg. Speed	51 Preconst	51 PreTDM	55 Int.TDM	57 FullTDM
Preconstruction	0%	0%	7.8%	11.8%
Pre-TDM Implementation	0%	0%	7.8%	11.8%
Interim TDM Implementation	-7.3%	-7.3%	0%	3.6%
Full Term TDM Implementation	-10.5%	-10.5%	-3.5%	0%

APPENDIX J-13

Absolute Changes in Corridor Total GWP Emissions (tons/day CO2 eq
Without NOx
(change from vertical axis heading to horizontal axis heading)

Corridor Total GWP Emissions (tons/day)	367.3	356.6	395.5	426.4
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0	-10.7	28.2	59.1
Pre-TDM Implementation	10.7	0	38.9	69.8
Interim TDM Implementation	-28.2	-38.9	0	30.9
Full Term TDM Implementation	-59.1	-69.8	-30.9	0

Percent Changes in Corridor Daily Total GWP Emissions
Without NOx
(change from vertical axis heading to horizontal axis heading)

Corridor Total GWP Emissions (tons/day)	367.3	356.6	395.5	426.4
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0.0%	-2.9%	7.7%	16.1%
Pre-TDM Implementation	3.0%	0.0%	10.9%	19.6%
Interim TDM Implementation	-7.1%	-9.8%	0.0%	7.8%
Full Term TDM Implementation	-13.9%	-16.4%	-7.2%	0.0%

APPENDIX J-14

Absolute Changes in Corridor Passenger Automobile (LDGV) VMT
(v-mi/day)
(change from vertical axis heading to horizontal axis heading)

Corridor LDGV VMT (mi/day)	456417	484206	493659	467856
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0	27789	37242	11439
Pre-TDM Implementation	-27789	0	9453	-16350
Interim TDM Implementation	-37242	-9453	0	-25803
Full Term TDM Implementation	-11439	16350	25803	0

Percent Changes in Corridor Passenger Automobile (LDGV) VMT
(change from vertical axis heading to horizontal axis heading)

Corridor LDGV VMT (mi/day)	456417	484206	493659	467856
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0.0%	6.1%	8.2%	2.5%
Pre-TDM Implementation	-5.7%	0.0%	2.0%	-3.4%
Interim TDM Implementation	-7.5%	-1.9%	0.0%	-5.2%
Full Term TDM Implementation	-2.4%	3.5%	5.5%	0.0%

APPENDIX J-15

Absolute Changes in Corridor Van and Pick-Up Truck(LDGT1,LDGT2) VMT
(v-mi/day)
(change from vertical axis heading to horizontal axis heading)

Corridor LDGT1,LDGT2 VMT (mi/day)	161379	155897	173253	192844
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0	-5482	11874	31465
Pre-TDM Implementation	5482	0	17356	36947
Interim TDM Implementation	-11874	-17356	0	19591
Full Term TDM Implementation	-31465	-36947	-19591	0

Percent Changes in Corridor Van and Pick-Up Truck(LDGT1,LDGT2) VMT
(change from vertical axis heading to horizontal axis heading)

Corridor LDGT1,LDGT2 VMT (mi/day)	161379	155897	173253	192844
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0.0%	-3.4%	7.4%	19.5%
Pre-TDM Implementation	3.5%	0.0%	11.1%	23.7%
Interim TDM Implementation	-6.9%	-10.0%	0.0%	11.3%
Full Term TDM Implementation	-16.3%	-19.2%	-10.2%	0.0%

APPENDIX J-16

Absolute Changes in Heavy Diesel Truck (HDDV) VMT (v-mi/day)
(change from vertical axis heading to horizontal axis heading)

Corridor HDDV VMT (v-mi/day)	27384	20613	29130	30743
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0	-6771	1746	3359
Pre-TDM Implementation	6771	0	8517	10130
Interim TDM Implementation	-1746	-8517	0	1613
Full Term TDM Implementation	-3359	-10130	-1613	0

Percent Changes in Heavy Diesel Truck (HDDV) VMT
(change from vertical axis heading to horizontal axis heading)

Corridor HDDV VMT	27384	20613	29130	30743
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0.0%	-24.7%	6.4%	12.3%
Pre-TDM Implementation	32.8%	0.0%	41.3%	49.1%
Interim TDM Implementation	-6.0%	-29.2%	0.0%	5.5%
Full Term TDM Implementation	-10.9%	-33.0%	-5.2%	0.0%

APPENDIX J-17

pre-construction roadway average speeds
Franklin Rd., Old Hickory Blvd., I-65

Franklin Rd.	Speed	VMT	Speed x VMT
1 N/B	44	18762	825528
2 S/B	44	18762	825528
3 N/B	28	23329	653198
4 S/B	32	23329	746512
5 N/B	50	9833	491665
6 S/B	50	9833	491665
Totals		103848	4034096
Roadway Average Speed			38.8
Total (VMT x Speed)/Total VMT			

Old Hickory Blvd.	Speed	VMT	Speed x VMT
9 E/B	33	8503	280591
10 W/B	24	8503	204066
15 E/B	45	23424	1054061
16 W/B	45	23424	1054061
17 E/B	45	31840	1432800
18 W/B	45	31840	1432800
Totals		127533	5458379
Roadway Average Speed			42.8
Total (VMT x Speed)/Total VMT			

I-65	Speed	VMT	Speed x VMT
21 N/B	55	9495	522211
22 S/B	50	9495	474737
23 N/B	65	20228	1314816
24 S/B	50	20228	1011397
25 N/B	65	72719	4726732
26 S/B	50	72719	3635948
27 N/B	46	10603	487729
28 S/B	48	10603	508934
29 N/B	46	66552	3061399
30 S/B	48	66552	3194503
Totals		359193	18938405
Roadway Average Speed			52.7
Total (VMT x Speed)/Total VMT			

APPENDIX J-18

full-TDM roadway average speeds

Franklin Rd., Old Hickory Blvd., I-65

Franklin Rd	Speed	VMT	Speed x VMT
1 N/B	47	27701	1301947
2 S/B	47	27701	1301947
3 N/B	32	23033	737056
4 S/B	35	23033	806155
5 N/B	50	12123	606150
6 S/B	50	12123	606150
Totals		125714	5359405
Roadway Average Speed			42.6
Total (VMT x Speed)/Total VMT			

Old Hickory Blvd.	Speed	VMT	Speed x VMT
9 E/B	38	8096	307648
10 W/B	24	8096	194304
15 E/B	45	23769	1069605
16 W/B	45	23769	1069605
17 E/B	45	41790	1880550
18 W/B	45	41790	1880550
Totals		147310	6402262
Roadway Average Speed			43.5

I-65	Speed	VMT	Speed x VMT
21 N/B	65	9743	633295
22 S/B	50	9743	487150
23 N/B	65	20757	1349205
24 S/B	50	20757	1037850
25 N/B	65	74620	4850300
26 S/B	50	74620	3731000
27 N/B	63	10586	666918
28 S/B	63	10586	666918
29 N/B	63	66447	4186161
30 S/B	63	66447	4186161
Totals		364306	21794958
Roadway Average Speed			59.8

APPENDIX J-19

VMT changes for selected roadways (v-mi/day)

	Pre-const.	Full-TDM	absolute change	percent change
Franklin Rd.	103848	125712	21864	21.1%
Old Hickory Blvd.	127533	147309	19776	15.5%
I-65	359193	364304	5111	1.4%

APPENDIX K

BREAKDOWN AND ANALYSIS OF CORRIDOR ENERGY CONSUMPTION, CORRIDOR GWP EMISSIONS AND VAN POOLING EMISSIONS MITIGATION

APPENDIX K-1

Absolute Changes in Corridor Energy Consumption (million btu/day)
(change from vertical axis heading to horizontal axis heading)

Corridor Energy Consumption (million btu/day)	2930.97	2889.95	3178.33	3483.33
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0	-41.02	247.36	552.36
Pre-TDM Implementation	41.02	0	288.38	593.38
Interim TDM Implementation	-247.36	-288.38	0	305
Full Term TDM Implementation	-552.36	-593.38	-305	0

Percent Changes in Corridor Energy Consumption (million btu/day)
(change from vertical axis heading to horizontal axis heading)

Corridor Energy Consumption (million btu/day)	2930.97	2889.95	3178.33	3483.33
	Preconst	PreTDM	Int.TDM	FullTDM
Preconstruction	0.0%	-1.4%	8.4%	18.8%
Pre-TDM Implementation	1.4%	0.0%	10.0%	20.5%
Interim TDM Implementation	-7.8%	-9.1%	0.0%	9.6%
Full Term TDM Implementation	-15.9%	-17.0%	-8.8%	0.0%

APPENDIX K-2

Total CO2 Equivalents (with NOx contribution)
(g/v-mi)

Speed	LDGV	LDGT-1 LDGT-2	HDDV
2.5	1937.3	2475.1	6185.7
5	1374.7	1742.6	7282.6
7.5	1124.2	1413.3	6542.4
10	999.0	1251.0	5873.0
14	840.6	1065.8	5011.2
18	739.7	942.0	4267.8
22	660.7	866.3	3830.8
24	648.3	844.5	3747.8
28	620.7	829.2	3635.2
32	602.1	818.6	3574.3
33	597.9	816.7	3566.5
37	589.3	811.2	3566.3
39	586.4	809.4	3587.0
40	584.5	808.1	3602.4
41	584.5	812.9	3619.9
44	581.9	826.7	3694.1
45	580.4	830.6	3725.2
46	581.7	835.8	3763.8
48	582.7	845.7	3855.2
50	606.1	882.9	3962.9
55	671.1	968.5	4348.9
58	765.4	1132.2	4663.8
60	834.1	1229.4	4921.6
63	1015.8	1348.5	5374.4
65	1093.2	1456.4	5736.2

APPENDIX K-3

Changes in daily GWP emissions by vehicle type:
Pre-construction to Full-TDM

	LDGV	LDGT	HDDV
Pre-construction GWP emission factor (grams CO ₂ equiv./v-mi)	582	840	4040
Full-TDM emission factor	617	899	4559
Pre-construction VMT (v-mi/day)	456417	161379	27384
Full-TDM VMT	467856	192844	30743
Pre-construction emissions (tons CO ₂ equiv./day)	292.5	149.2	121.8
Full-TDM emissions	317.9	190.9	154.3
Change in daily emissions (tons CO ₂ equiv./day)	25.4	41.7	32.5

APPENDIX K-4

Accounting for increased GWP emissions
Pre-construction to Full-TDM

135 tons/day CO₂ equivalent increase in GWP

From LDGV: 25.4 tons/day -- 19%

From LDGT: 41.7 tons/day -- 31%

From HDDV: 32.5 tons/day -- 24%

Total GWP Accounted For: 99.6 tons CO₂ equivalent/day -- 74%

APPENDIX K-5

GWP Reduction From Van Pooling

	# incr./decr.	GWP emiss. factor (lbm/ CO ₂ eq./day)	Avg. rnd. trip length (miles/day)	Total GWP incr./decr. (lbm CO ₂ eq./
Vans (LDGT)	30	1.98	20	1188
Private Cars (LDGV)	-210	1.36	20	-5712
Net GWP Change				-4524
Full-TDM Corridor Total GWP (lbm CO ₂ eq./ day)				1618056
Percent Change of total GWP				-0.28%

APPENDIX K-6

	LDGV	LDGT	HDDV
Total change in vehicle GWP emissions (tons CO2 equiv./day)	25.4	41.7	32.5
Pre-construction GWP emissions	292.5	149.2	121.8
Percent Change in GWP emissions (total change/Pre-construction GWP)	8.7%	27.9%	26.7%
Percent change in GWP emissions factor	6.0%	7.0%	12.8%
Percent change in VMT	2.5%	19.5%	12.3%
Approximate proportion of GWP change attributable to emission factor increase	69.0%	25.0%	48.0%
Approximate proportion of GWP change attributable to VMT increase	31.0%	75.0%	51.0%

APPENDIX L

CAL3QHC, MICROSCALE CO MODELING OUTPUT

APPENDIX L-1

pre-construction

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0, JANUARY 1992

PAGE 1

JOB: BRENTWOOD PROJECT, OHINT.DAT
DATE: 02/07/94 TIME: 16:13

RUN: XXXXXXXXXX

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 100. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MDXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	* X1	Y1	X2	Y2	* (M)	(DEG)	LENGTH (G/M)	BRG (M)	TYPE (M)	VPH (VEH)	EF	H	W	V/C	QUEUE
1. LINK INEDC+.022	* 3255.0	4789.9	3495.8	6437.4	* 1665.	8. AG	3370.	19.0	0.0	13.4					
2. LINK ISEDC-.022	* 3213.5	4789.9	3454.3	6437.4	* 1665.	8. AG	1680.	11.0	0.0	13.4					
3. LINK INF	* 3495.8	6437.4	3592.4	7128.7	* 698.	8. AG	3370.	17.0	0.0	17.1					
4. LINK ISF	* 3454.3	6437.4	3550.9	7128.7	* 698.	8. AG	1680.	17.0	0.0	17.1					
5. LINK ING -.03 C	* 3592.4	7128.7	3688.7	7564.8	* 447.	12. AG	4250.	12.0	0.0	17.1					
6. LINK ISG +.03 C	* 3550.9	7128.7	3622.2	7586.8	* 464.	9. AG	2030.	25.0	0.0	17.1					
7. LINK WNQ2 WLSN N	* 3547.9	6461.8	3549.6	6443.3	* 18.	175. AG	619.	100.0	0.0	3.7	0.53	3.1			
8. LINK WNQF2 WLSN N	* 3547.9	6461.8	3947.8	2276.2	* 4205.	175. AG	370.	17.0	0.0	9.8					
9. LINK WSQ1 WLSN S	* 3944.1	2276.2	3943.6	2281.9	* 6.	355. AG	619.	100.0	0.0	3.7	0.16	0.9			
10. LINK WSQ1FWLSN S	* 3944.1	2276.2	3544.2	6461.8	* 4205.	355. AG	113.	16.0	0.0	9.8					
11. LINK FSQ2FFKLN S	* 1936.7	4187.0	3013.9	5593.7	* 1772.	37. AG	960.	19.0	0.0	13.4					
12. LINK FNQ3 FKL N	* 3034.6	5593.7	3034.6	5246.4	* 347.	180. AG	1207.	100.0	0.0	7.3	1.13	57.9			
13. LINK FNQ3FFKLN S	* 3034.6	5593.7	3034.6	4187.0	* 1407.	180. AG	1563.	21.0	0.0	13.4					
14. LINK FSQ3 FKL N S	* 3013.9	5593.7	3017.3	5617.4	* 24.	8. AG	1207.	100.0	0.0	7.3	0.69	4.0			
15. LINK FSQ3FFKLN S	* 3013.9	5593.7	3206.8	6911.6	* 1332.	8. AG	960.	19.0	0.0	13.4					
16. LINK FNQ4A FKL N	* 3210.5	6911.6	3065.5	5902.3	* 1020.	188. AG	1092.	100.0	0.0	3.7	4.29	169.9			
17. LINK FNQ4AFFKLN N	* 3210.5	6911.6	3021.2	5593.7	* 1331.	188. AG	375.	21.0	0.0	9.8					
18. LINK FNQ4B FKL N	* 3217.8	6911.6	3215.1	6893.1	* 19.	188. AG	690.	100.0	0.0	7.3	0.35	3.1			
19. LINK FNQ4BFFKLN N	* 3217.8	6911.6	3028.5	5593.7	* 1331.	188. AG	750.	21.0	0.0	13.4					
20. LINK FNQ4C FKL N	* 3222.0	6910.4	3118.8	6194.4	* 723.	188. AG	1035.	100.0	0.0	3.7	2.25	120.6			
21. LINK FNQ4CFFKLN N	* 3222.0	6910.4	3032.2	5593.7	* 1330.	188. AG	375.	21.0	0.0	9.8					
22. LINK FN1 FKL N	* 3214.1	6911.6	3688.7	7755.6	* 968.	29. AG	402.	15.0	0.0	13.4					
23. LINK FN2 FKL N	* 3688.7	7755.6	4138.9	8205.5	* 636.	45. AG	402.	15.0	0.0	13.4					
24. LINK FS3 FKL N S	* 3685.0	7755.6	4206.2	8880.7	* 1240.	25. AG	403.	15.0	0.0	13.4					
25. LINK FSQ4A FKL N S	* 3210.5	6911.6	3235.1	6946.2	* 42.	36. AG	1035.	100.0	0.0	3.7	0.99	7.1			
26. LINK FSQ4AFFKLN S	* 3210.5	6911.6	4135.2	8205.5	* 1590.	36. AG	165.	15.0	0.0	9.8					
27. LINK FSQ4B FKL N S	* 3205.0	6911.6	3209.8	6918.4	* 8.	36. AG	690.	100.0	0.0	7.3	0.15	1.4			
28. LINK FSQ4BFFKLN S	* 3205.0	6911.6	4129.7	8205.5	* 1590.	36. AG	330.	15.0	0.0	13.4					
29. LINK FSQ4C FKL N S	* 3201.3	6911.6	3242.3	6968.9	* 70.	36. AG	1035.	100.0	0.0	3.7	1.05	11.7			
30. LINK FSQ4CFFKLN S	* 3201.3	6911.6	4129.1	8205.5	* 1592.	36. AG	175.	15.0	0.0	9.8					
31. LINK HW1 OH W	* 3206.8	7182.6	2129.6	7032.3	* 1088.	262. AG	900.	24.0	0.0	17.1					
32. LINK HW2 OH W	* 2129.6	7033.6	715.1	7152.7	* 1420.	275. AG	900.	24.0	0.0	13.4					
33. LINK HEQ1A OH E	* 3206.8	7162.8	3191.9	7160.9	* 15.	263. AG	1035.	100.0	0.0	11.0	0.28	2.5			
34. LINK HEQ1AFOH E	* 3206.8	7162.8	2129.6	7028.7	* 1085.	263. AG	900.	19.0	0.0	17.1					
35. LINK HEQ1B OH E	* 3206.8	7186.6	2732.8	7121.1	* 479.	262. AG	2069.	100.0	0.0	7.3	1.80	79.8			
36. LINK HEQ1BFOH E	* 3206.8	7186.6	2129.6	7037.8	* 1087.	262. AG	600.	19.0	0.0	13.4					
37. LINK HEQ1C OH E	* 3206.8	7155.5	2731.9	7096.4	* 479.	263. AG	1035.	100.0	0.0	3.7	1.80	79.8			
38. LINK HEQ1CFOH E	* 3206.8	7155.5	2129.6	7021.4	* 1085.	263. AG	300.	19.0	0.0	9.8					
39. LINK HEQ2 OH E	* 3584.4	7128.7	3546.3	7132.1	* 38.	275. AG	1035.	100.0	0.0	11.0	0.71	6.4			
40. LINK HEQ2FOH E	* 3584.4	7128.7	3206.8	7162.8	* 379.	275. AG	2300.	19.0	0.0	17.1					
41. LINK HWQ1A OH W	* 3206.8	7179.9	3927.7	7119.4	* 723.	95. AG	1035.	100.0	0.0	3.7	2.25	120.6			
42. LINK HWQ1AFOH W	* 3206.8	7179.9	3584.4	7148.2	* 379.	95. AG	375.	24.0	0.0	9.8					
43. LINK HWQ1B OH W	* 3206.8	7175.6	3219.3	7174.5	* 12.	95. AG	1035.	100.0	0.0	11.0	0.23	2.1			
44. LINK HWQ1BFOH W	* 3206.8	7175.6	3584.4	7141.5	* 379.	95. AG	750.	24.0	0.0	17.1					

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PAGE 2

JOB: BRENTWOOD PROJECT, OHINT.DAT
DATE: 02/07/94 TIME: 16:13

RUN: XXXXXXXXXX

LINK VARIABLES

LINK DESCRIPTION	* X1	Y1	X2	Y2	* (M)	(DEG)	LENGTH (G/MI)	BRG (M)	TYPE (M)	VPH	EF	H	W	V/C	QUEUE
45. LINK HWQ1C OH W	*	3206.8	7171.9	3241.0	7168.8	*	34.	95.	AG	632.	100.0	0.0	3.7	0.54	5.7
46. LINK HWQ1C OH W	*	3206.8	7171.9	3584.4	7137.8	*	379.	95.	AG	375.	24.0	0.0	9.8		
47. LINK HE1 OH E	*	2129.6	7017.1	715.1	7137.5	*	1420.	275.	AG	900.	24.0	0.0	13.4		
48. LINK HE2 OH E	*	3584.4	7128.1	3921.9	7321.0	*	389.	60.	AG	900.	19.0	0.0	13.4		
49. LINK HE3 OH E	*	3921.9	7321.6	6196.3	7200.9	*	2278.	93.	AG	900.	19.0	0.0	13.4		
50. LINK HW3 OH W	*	3921.9	7336.2	6196.3	7208.5	*	2278.	93.	AG	900.	24.0	0.0	13.4		
51. LINK HWQ3 OH W	*	3584.4	7143.3	3604.0	7154.5	*	23.	60.	AG	690.	100.0	0.0	7.3	0.42	3.8
52. LINK HWQ3FOH W	*	3584.4	7143.3	3921.9	7336.2	*	389.	60.	AG	900.	24.0	0.0	13.4		
53. LINK MDEQ1 MD E	*	3013.9	6467.6	3003.9	6466.6	*	10.	265.	AG	805.	100.0	0.0	7.3	0.20	1.7
54. LINK MDEQ1FMD E	*	3013.9	6467.6	2226.3	6395.0	*	791.	265.	AG	400.	21.0	0.0	13.4		
55. LINK MDW1	*	3013.9	6485.8	2226.3	6413.3	*	791.	265.	AG	400.	21.0	0.0	13.4		

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JOB: BRENTWOOD PROJECT, OHINT.DAT
DATE: 02/07/94 TIME: 16:13

RUN: XXXXXXXXX

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	* CYCLE	RED	CLEARANCE	APPROACH	SATURATION	IDLE	SIGNAL	ARRIVAL
* LENGTH	TIME	LOST TIME	VOL	FLOW RATE	EM FAC	TYPE	RATE	
* (SEC)	(SEC)	(SEC)	(VPH)	(VPH)	(gm/hr)			
7. LINK WNQ2 WLSN N	*	60	30	2.0	370	1600	461.40	1 3
9. LINK WSQ1 WLSN S	*	60	30	2.0	113	1600	461.40	1 3
12. LINK FNQ3 FKL N	*	60	30	2.0	1563	1600	450.00	1 3
14. LINK FSQ3 FKL N	*	60	30	2.0	960	1600	450.00	1 3
16. LINK FNQ4A FKL N	*	105	95	2.0	390	1600	450.00	1 3
18. LINK FNQ4B FKL N	*	105	30	2.0	750	1600	450.00	1 3
20. LINK FNQ4C FKL N	*	105	90	2.0	375	1600	450.00	1 3
25. LINK FSQ4A FKL N	*	105	90	2.0	165	1600	450.00	1 3
27. LINK FSQ4B FKL N	*	105	30	2.0	330	1600	450.00	1 3
29. LINK FSQ4C FKL N	*	105	90	2.0	175	1600	450.00	1 3
33. LINK HEQ1A OH E	*	105	30	2.0	900	1600	450.00	1 3
35. LINK HEQ1B OH E	*	105	90	2.0	600	1600	450.00	1 3
37. LINK HEQ1C OH E	*	105	90	2.0	300	1600	450.00	1 3
39. LINK HEQ2 OH E	*	105	30	2.0	2300	1600	450.00	1 3
41. LINK HWQ1A OH W	*	105	90	2.0	375	1600	450.00	1 3
43. LINK HWQ1B OH W	*	105	30	2.0	750	1600	450.00	1 3
45. LINK HWQ1C OH W	*	105	55	2.0	375	1600	450.00	1 3
51. LINK HWQ3 OH W	*	105	30	2.0	900	1600	450.00	1 3
53. LINK MDEQ1 MD E	*	90	30	2.0	400	1600	450.00	1 3

RECEPTOR LOCATIONS

RECEPTOR	* X	Y	Z	*
1. R1 OH NE	*	3225.1	6931.2	1.5 *
2. R2 OH NW	*	3198.0	6931.2	1.5 *
3. R3 OH SW	*	3198.0	6894.9	1.5 *
4. R4 OH SE	*	3225.1	6894.9	1.5 *
5. R5	*	2348.8	6251.4	1.5 *
6. R6	*	2576.2	6185.9	1.5 *
7. R7	*	2803.6	6120.4	1.5 *
8. R8	*	3030.9	6055.2	1.5 *
9. R9	*	3258.3	5989.6	1.5 *
10. R10	*	3485.7	5924.1	1.5 *
11. R11	*	3713.1	5858.9	1.5 *
12. R12	*	2210.1	6588.9	1.5 *
13. R13	*	2437.2	6523.3	1.5 *
14. R14	*	2664.6	6457.8	1.5 *
15. R15	*	2891.9	6392.6	1.5 *
16. R16	*	3119.3	6327.0	1.5 *
17. R17	*	3346.7	6261.5	1.5 *
18. R18	*	3574.1	6196.0	1.5 *
19. R19	*	3801.5	6130.7	1.5 *
20. R20	*	2298.5	6860.7	1.5 *
21. R21	*	2525.6	6795.2	1.5 *
22. R22	*	2753.0	6729.7	1.5 *
23. R23	*	2980.3	6664.5	1.5 *
24. R24	*	3207.7	6598.9	1.5 *

25. R25	*	3435.1	6533.4	1.5	*
26. R26	*	3662.5	6468.2	1.5	*
27. R27	*	3889.9	6402.6	1.5	*
28. R28	*	2386.9	7132.6	1.5	*
29. R30	*	2614.0	7067.1	1.5	*
30. R31	*	2841.3	7001.9	1.5	*
31. R32	*	3068.7	6936.3	1.5	*
32. R33	*	3296.1	6870.8	1.5	*
33. R34	*	3523.5	6805.3	1.5	*
34. R35	*	3750.9	6740.0	1.5	*
35. R36	*	3978.2	6674.5	1.5	*
36. R37	*	2475.3	6588.9	1.5	*
37. R38	*	2702.4	6523.3	1.5	*
38. R39	*	2929.7	6457.8	1.5	*
39. R40	*	3157.1	6392.6	1.5	*
40. R41	*	3384.5	6327.0	1.5	*
41. R42	*	3611.9	6261.5	1.5	*
42. R43	*	3839.3	6196.0	1.5	*
43. R44	*	4066.6	6130.7	1.5	*
44. R45	*	2563.7	7676.4	1.5	*
45. R46	*	2790.7	7611.2	1.5	*
46. R47	*	3018.1	7545.6	1.5	*
47. R48	*	3245.5	7480.1	1.5	*
48. R49	*	3472.9	7414.6	1.5	*
49. R50	*	3700.3	7349.3	1.5	*
50. R51	*	3927.7	7283.8	1.5	*
51. R52	*	4155.0	7218.3	1.5	*
52. R53	*	2652.1	7948.6	1.5	*
53. R54	*	2879.1	7883.0	1.5	*
54. R57	*	3561.3	7686.8	1.5	*
55. R58	*	3788.7	7621.2	1.5	*
56. R59	*	4016.0	7555.7	1.5	*
57. R60	*	4243.4	7490.5	1.5	*

MAX * 13.8 7.1 7.5 9.2 0.4 0.6 1.0 2.4 1.3 1.5 0.8 0.5 0.5 1.3 1.3 8.7 1.1 1.6 0.8 1.0
 DEGR * 200 170 180 320 50 50 40 20 340 340 320 50 40 90 40 20 330 320 320 70

MAX * 1.1 0.8 1.3 3.5 1.4 0.9 0.7 1.8 4.0 1.9 1.3 2.1 2.1 0.9 0.7 0.6 0.7 1.8 6.7 1.1
 DEGR * 50 20 50 340 20 300 310 90 70 60 110 290 10 290 300 40 110 80 350 330

MAX * 1.3 0.8 0.6 0.7 1.1 1.4 1.4 1.4 2.1 2.1 1.1 0.7 0.8 1.3 1.3 1.0 1.0
 DEGR * 320 320 310 140 160 170 180 170 220 260 270 160 170 180 210 220 240

THE HIGHEST CONCENTRATION IS 13.80 PPM AT 200 DEGREES FROM REC1 .
 RECEPTOR * X Y Z *

1. R1	*	2475.0	6395.0	1.5	*
2. R2	*	2689.9	6290.5	1.5	*
3. R3	*	2904.4	6186.2	1.5	*
4. R4	*	3119.0	6081.7	1.5	*
5. R5	*	3333.9	5977.4	1.5	*
6. R6	*	3548.5	5872.9	1.5	*
7. R7	*	3763.4	5768.3	1.5	*
8. R8	*	3977.9	5664.1	1.5	*
9. R9	*	2548.7	6621.5	1.5	*
10. R10	*	2763.3	6516.9	1.5	*
11. R11	*	2978.2	6412.7	1.5	*
12. R12	*	3192.8	6308.1	1.5	*
13. R13	*	3407.7	6203.9	1.5	*
14. R14	*	3622.2	6099.4	1.5	*
15. R15	*	3836.8	5994.8	1.5	*
16. R16	*	4051.7	5890.6	1.5	*
17. R17	*	2622.2	6847.9	1.5	*
18. R18	*	2837.1	6743.7	1.5	*
19. R19	*	3051.7	6639.2	1.5	*
20. R20	*	3266.5	6534.6	1.5	*
21. R21	*	3481.1	6430.4	1.5	*
22. R22	*	3696.0	6325.8	1.5	*
23. R23	*	3910.6	6221.6	1.5	*
24. R24	*	4125.5	6117.0	1.5	*
25. R25	*	2696.0	7074.4	1.5	*
26. R26	*	2910.8	6970.2	1.5	*
27. R27	*	3125.4	6865.6	1.5	*
28. R28	*	3340.0	6761.1	1.5	*
29. R29	*	3554.9	6656.8	1.5	*
30. R30	*	3769.5	6552.3	1.5	*

31. R31	*	3984.3	6448.0	1.5	*
32. R32	*	4198.9	6343.5	1.5	*
33. R33	*	2769.7	6621.5	1.5	*
34. R34	*	2984.3	6516.9	1.5	*
35. R35	*	3199.2	6412.7	1.5	*
36. R36	*	3413.8	6308.1	1.5	*
37. R37	*	3628.6	6203.9	1.5	*
38. R38	*	3843.2	6099.4	1.5	*
39. R39	*	4057.8	5994.8	1.5	*
40. R40	*	4272.7	5890.6	1.5	*
41. R41	*	2843.5	7527.6	1.5	*
42. R42	*	3058.1	7423.1	1.5	*
43. R43	*	3272.6	7318.6	1.5	*
44. R44	*	3487.5	7214.3	1.5	*
45. R45	*	3702.1	7109.8	1.5	*
46. R46	*	3917.0	7005.2	1.5	*
47. R47	*	4131.6	6901.0	1.5	*
48. R48	*	4346.4	6796.4	1.5	*
49. R49	*	2916.9	7754.1	1.5	*
50. R50	*	3131.8	7649.6	1.5	*
51. R51	*	3346.4	7545.0	1.5	*
52. R52	*	3561.3	7440.8	1.5	*
53. R53	*	3775.9	7336.2	1.5	*
54. R54	*	3990.4	7232.0	1.5	*
55. R55	*	4205.3	7127.4	1.5	*
56. R56	*	4419.9	7022.9	1.5	*

MAX * 0.7 0.6 1.3 3.9 1.1 1.1 0.6 0.5 0.7 0.7 1.6 2.7 1.7 1.1 0.6 0.5 1.2 0.8 1.7 1.8
 DEGR. * 60 50 40 0 340 330 320 330 30 110 30 350 20 330 320 320 40 10 40 340

MAX * 2.5 0.9 0.7 0.5 5.8 1.5 2.4 1.7 2.0 0.8 0.7 0.6 0.6 1.3 2.9 1.5 1.1 0.7 0.6 0.5
 DEGR. * 180 310 310 310 70 30 170 310 310 300 300 300 10 40 350 20 320 320 310 310

MAX * 1.3 1.9 2.1 2.9 4.1 1.5 0.8 0.7 0.8 1.1 1.1 1.9 1.8 1.6 1.0 0.7
 DEGR. * 160 170 190 260 280 290 290 290 170 180 190 180 220 260 270 280

THE HIGHEST CONCENTRATION IS 5.80 PPM AT 70 DEGREES FROM REC25.
 RECEPTOR * X Y Z *

1. R1	*	3404.0	5694.3	1.5	*
2. R2	*	3426.6	5844.8	1.5	*
3. R3	*	3449.1	5995.7	1.5	*
4. R4	*	3471.7	6146.3	1.5	*
5. R5	*	3494.2	6297.2	1.5	*
6. R6	*	3503.4	6357.5	1.5	*
7. R7	*	3512.2	6417.6	1.5	*
8. R8	*	3518.9	6467.6	1.5	*
9. R9	*	3536.0	6588.3	1.5	*
10. R10	*	3557.0	6739.1	1.5	*
11. R11	*	3578.4	6890.0	1.5	*
12. R12	*	3599.7	7041.2	1.5	*
13. R13	*	3618.6	7158.5	1.5	*
14. R14	*	3631.7	7218.0	1.5	*
15. R15	*	3644.8	7277.4	1.5	*
16. R16	*	3611.0	7129.9	1.5	*
17. R17	*	3716.7	7190.2	1.5	*
18. R18	*	3822.5	7250.9	1.5	*
19. R19	*	3902.0	7296.3	1.5	*
20. R20	*	3267.5	7143.9	1.5	*
21. R21	*	3328.1	7138.4	1.5	*
22. R22	*	3419.2	7130.2	1.5	*
23. R23	*	3540.9	7119.2	1.5	*
24. R24	*	2553.0	7068.0	1.5	*
25. R25	*	2674.0	7082.9	1.5	*
26. R26	*	2795.0	7098.2	1.5	*
27. R27	*	2946.2	7117.1	1.5	*
28. R28	*	3127.9	7139.6	1.5	*
29. R29	*	3188.2	7147.0	1.5	*
30. R30	*	3094.0	5955.8	1.5	*
31. R31	*	3115.7	6106.7	1.5	*
32. R32	*	3137.3	6257.5	1.5	*
33. R33	*	3158.9	6408.4	1.5	*
34. R34	*	3193.7	6649.5	1.5	*
35. R35	*	3215.3	6800.4	1.5	*
36. R36	*	3228.1	6890.9	1.5	*
37. R37	*	3242.5	6938.2	1.5	*

38. R38	*	3332.1	7097.6	1.5	*
39. R39	*	3451.6	7310.0	1.5	*
40. R40	*	3600.9	7575.8	1.5	*
41. R41	*	3048.0	5558.6	1.5	*
42. R42	*	2499.4	6406.9	1.5	*
43. R43	*	2651.2	6420.6	1.5	*
44. R44	*	2802.9	6434.6	1.5	*
45. R45	*	2954.7	6448.7	1.5	*

MAX * 2.7 2.6 2.6 2.5 2.4 2.4 2.4 2.4 2.5 2.7 3.5 8.8 4.1 3.5 8.6 4.2 3.1 2.8 5.6
 DEGR. * 340 340 340 340 330 330 320 320 0 300 350 350 260 210 210 280 260 260 280

MAX * 5.0 4.7 8.3 4.0 5.9 9.2 8.6 8.4 8.4 4.3 4.9 6.8 6.8 6.6 6.8 7.5 5.1 2.9 2.1 2.3
 DEGR. * 80 80 60 80 70 70 70 280 280 0 0 0 350 200 200 320 200 70 250 170

MAX * 4.5 0.9 1.0 1.2 1.6
 DEGR. * 190 60 60 60 50

THE HIGHEST CONCENTRATION IS 9.20 PPM AT 70 DEGREES FROM REC26.

RECEPTOR	*	X	Y	Z	*
1. R1	*	3476.2	6437.4	1.5	*
2. R2	*	3454.3	6286.5	1.5	*
3. R3	*	3432.0	6135.9	1.5	*
4. R4	*	3410.1	5985.1	1.5	*
5. R5	*	3388.2	5834.2	1.5	*
6. R6	*	3568.6	7098.5	1.5	*
7. R7	*	3560.1	7038.1	1.5	*
8. R8	*	3539.0	6887.3	1.5	*
9. R9	*	3509.5	6675.7	1.5	*
10. R10	*	3484.2	6494.7	1.5	*
11. R11	*	3598.2	7556.6	1.5	*
12. R12	*	3574.7	7406.0	1.5	*
13. R13	*	3555.8	7285.6	1.5	*
14. R14	*	3534.8	7150.0	1.5	*
15. R15	*	3602.7	7586.8	1.5	*
16. R16	*	3548.5	7412.1	1.5	*
17. R17	*	3460.1	7288.1	1.5	*
18. R18	*	3371.4	7164.0	1.5	*
19. R19	*	3282.7	7040.0	1.5	*
20. R20	*	3211.7	6940.9	1.5	*
21. R21	*	3183.0	6881.5	1.5	*
22. R22	*	3160.8	6730.6	1.5	*
23. R23	*	3134.3	6549.8	1.5	*
24. R24	*	3098.9	6308.4	1.5	*
25. R25	*	3019.7	5765.6	1.5	*
26. R26	*	3032.8	5856.1	1.5	*
27. R27	*	3002.0	5644.9	1.5	*
28. R28	*	3187.3	6911.6	1.5	*
29. R29	*	3895.3	7340.5	1.5	*
30. R30	*	3789.6	7280.1	1.5	*
31. R31	*	3710.3	7234.7	1.5	*
32. R32	*	3617.7	7181.7	1.5	*
33. R33	*	3554.0	7170.1	1.5	*
34. R34	*	3432.7	7180.5	1.5	*
35. R35	*	3311.0	7190.5	1.5	*
36. R36	*	3235.1	7196.9	1.5	*
37. R37	*	3176.6	7197.9	1.5	*
38. R38	*	2995.6	7172.6	1.5	*
39. R39	*	2814.2	7147.3	1.5	*
40. R40	*	2663.3	7126.2	1.5	*
41. R41	*	2482.3	7100.9	1.5	*
42. R42	*	2983.4	6502.6	1.5	*
43. R43	*	2831.9	6488.6	1.5	*
44. R44	*	2710.3	6477.3	1.5	*
45. R45	*	2589.0	6466.3	1.5	*
46. R46	*	2497.8	6457.8	1.5	*

MAX * 2.0 2.0 2.1 2.0 2.1 4.9 3.2 2.4 2.2 2.0 2.4 2.7 3.1 11.8 2.3 2.2 2.1 12.4 3.7 10.8
 DEGR. * 10 10 10 20 20 10 10 10 10 10 170 180 180 90 180 170 210 90 200 180

MAX * 4.5 4.5 4.4 4.4 2.3 3.2 3.8 4.7 1.8 2.2 2.6 5.8 7.6 5.1 6.5 8.1 7.9 8.2 8.4 6.0
 DEGR. * 60 170 30 20 10 20 160 60 210 230 220 220 180 260 260 250 250 100 100 90

MAX * 3.1 1.6 0.9 0.8 0.8 0.7
 DEGR. * 90 140 100 90 100 100

THE HIGHEST CONCENTRATION IS 12.40 PPM AT 90 DEGREES FROM REC18.

APPENDIX L-2

1

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0, JANUARY 1992

PAGE 1

JOB: BRENTWOOD PROJECT, OHINT.DAT
DATE: 02/08/94 TIME: 15:49

RUN: XXXXXXXXXX

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 100. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MDX = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	* X1	Y1	LINK COORDINATES (M)	* X2	Y2	* (M) (DEG)	LENGTH BRG TYPE	VPH	EF	H	W	V/C	QUEUE
							(G/MI) (M) (M)		(VEH)				
1. LINK INEDC+.022	*	3255.0	4789.9	3495.8	6437.4	* 1665.	8. AG 3370.	42.0	0.0	13.4			
2. LINK ISDC-.022	*	3213.5	4789.9	3454.3	6437.4	* 1665.	8. AG 1680.	24.0	0.0	13.4			
3. LINK INF	*	3495.8	6437.4	3592.4	7128.7	* 698.	8. AG 3370.	33.0	0.0	17.1			
4. LINK ISF	*	3454.3	6437.4	3550.9	7128.7	* 698.	8. AG 1680.	33.0	0.0	17.1			
5. LINK ING -.03 C	*	3592.4	7128.7	3688.7	7564.8	* 447.	12. AG 4340.	26.0	0.0	17.1			
6. LINK ISG +.03 C	*	3550.9	7128.7	3622.2	7586.8	* 464.	9. AG 2170.	19.0	0.0	17.1			
7. LINK WNQ2 WLSN N	*	3547.9	6461.8	3549.3	6447.0	* 15.	175. AG 619.	100.0	0.0	3.7	0.43	2.5	
8. LINK WNFQ2 WLSN N	*	3547.9	6461.8	3947.8	2276.2	* 4205.	175. AG 296.	16.0	0.0	9.8			
9. LINK WSQ1 WLSN S	*	3944.1	2276.2	3943.5	2282.8	* 7.	355. AG 619.	100.0	0.0	3.7	0.19	1.1	
10. LINK WSQ1FWLSN S	*	3944.1	2276.2	3544.2	6461.8	* 4205.	355. AG 132.	16.0	0.0	9.8			
11. LINK FSQ2FFKLN S	*	1936.7	4187.0	3013.9	5593.7	* 1772.	37. AG 998.	18.0	0.0	13.4			
12. LINK FNQ3 FKL N	*	3034.6	5593.7	3034.6	5246.4	* 347.	180. AG 1207.	100.0	0.0	7.3	1.13	57.9	
13. LINK FNQ3FFKLN N	*	3034.6	5593.7	3034.6	4187.0	* 1407.	180. AG 1563.	17.0	0.0	13.4			
14. LINK FSQ3 FKL N S	*	3013.9	5593.7	3017.5	5618.4	* 25.	8. AG 1207.	100.0	0.0	7.3	0.72	4.2	
15. LINK FSQ3FFKLN S	*	3013.9	5593.7	3206.8	6911.6	* 1332.	8. AG 998.	19.0	0.0	13.4			
16. LINK FNQ4A FKL N	*	3210.5	6911.6	3072.6	5951.5	* 970.	188. AG 1092.	100.0	0.0	3.7	4.12	161.7	
17. LINK FNQ4AFFKLN N	*	3210.5	6911.6	3021.2	5593.7	* 1331.	188. AG 375.	19.0	0.0	9.8			
18. LINK FNQ4B FKL N	*	3217.8	6911.6	3215.0	6892.3	* 20.	188. AG 690.	100.0	0.0	7.3	0.36	3.3	
19. LINK FNQ4BFFKLN N	*	3217.8	6911.6	3028.5	5593.7	* 1331.	188. AG 780.	19.0	0.0	13.4			
20. LINK FNQ4C FKL N	*	3222.0	6910.4	3111.3	6142.7	* 776.	188. AG 1035.	100.0	0.0	3.7	2.34	129.3	
21. LINK FNQ4CFFKLN N	*	3222.0	6910.4	3032.2	5593.7	* 1330.	188. AG 391.	19.0	0.0	9.8			
22. LINK FN1 FKL N	*	3214.1	6911.6	3688.7	7755.6	* 968.	29. AG 420.	15.0	0.0	13.4			
23. LINK FN2 FKL N	*	3688.7	7755.6	4138.9	8205.5	* 636.	45. AG 420.	15.0	0.0	13.4			
24. LINK FS3 FKL N S	*	3685.0	7755.6	4206.2	8880.7	* 1240.	25. AG 423.	15.0	0.0	13.4			
25. LINK FSQ4A FKL N S	*	3210.5	6911.6	3235.1	6946.2	* 42.	36. AG 1035.	100.0	0.0	3.7	0.99	7.1	
26. LINK FSQ4AFFKLN S	*	3210.5	6911.6	4135.2	8205.5	* 1590.	36. AG 165.	15.0	0.0	9.8			
27. LINK FSQ4B FKL N	*	3205.0	6911.6	3209.8	6918.4	* 8.	36. AG 690.	100.0	0.0	7.3	0.15	1.4	
28. LINK FSQ4BFFKLN S	*	3205.0	6911.6	4129.7	8205.5	* 1590.	36. AG 330.	25.0	0.0	13.4			
29. LINK FSQ4C FKL N S	*	3201.3	6911.6	3242.3	6968.9	* 70.	36. AG 1035.	100.0	0.0	3.7	1.05	11.7	
30. LINK FSQ4CFFKLN S	*	3201.3	6911.6	4129.1	8205.5	* 1592.	36. AG 175.	15.0	0.0	9.8			
31. LINK HW1 OH W	*	3206.8	7182.6	2129.6	7032.3	* 1088.	262. AG 900.	25.0	0.0	17.1			
32. LINK HW2 OH W	*	2129.6	7032.3	715.1	7152.7	* 1420.	275. AG 900.	25.0	0.0	13.4			
33. LINK HEQ1A OH E	*	3206.8	7162.8	3191.9	7160.9	* 15.	263. AG 1035.	100.0	0.0	11.0	0.28	2.5	
34. LINK HEQ1AFOH E	*	3206.8	7162.8	2129.6	7028.7	* 1085.	263. AG 900.	17.0	0.0	17.1			
35. LINK HEQ1B OH E	*	3206.8	7186.6	2732.8	7121.1	* 479.	262. AG 2069.	100.0	0.0	7.3	1.80	79.8	
36. LINK HEQ1BFOH E	*	3206.8	7186.6	2129.6	7037.8	* 1087.	262. AG 600.	17.0	0.0	13.4			
37. LINK HEQ1C OH E	*	3206.8	7155.5	2731.9	7096.4	* 479.	263. AG 1035.	100.0	0.0	3.7	1.80	79.8	
38. LINK HEQ1CFOH E	*	3206.8	7155.5	2129.6	7021.4	* 1085.	263. AG 300.	17.0	0.0	9.8			
39. LINK HEQ2 OH E	*	3584.4	7128.7	3546.3	7132.1	* 38.	275. AG 1035.	100.0	0.0	11.0	0.71	6.4	
40. LINK HEQ2FOH E	*	3584.4	7128.7	3206.8	7162.8	* 379.	275. AG 2300.	19.0	0.0	17.1			
41. LINK HWQ1A OH W	*	3206.8	7179.9	3927.7	7119.4	* 723.	95. AG 1035.	100.0	0.0	3.7	2.25	120.6	
42. LINK HWQ1AFOH W	*	3206.8	7179.9	3584.4	7148.2	* 379.	95. AG 375.	25.0	0.0	9.8			
43. LINK HWQ1B OH W	*	3206.8	7175.6	3219.3	7174.5	* 12.	95. AG 1035.	100.0	0.0	11.0	0.23	2.1	
44. LINK HWQ1BFOH W	*	3206.8	7175.6	3584.4	7141.5	* 379.	95. AG 750.	25.0	0.0	17.1			

1

PAGE 2

JOB: BRENTWOOD PROJECT, OHINT.DAT
DATE: 02/08/94 TIME: 15:49

RUN: XXXXXXXXXX

LINK VARIABLES

LINK DESCRIPTION	* X1	Y1	X2	Y2	(M)	(DEG)	LENGTH (G/M)	BRG (M)	TYPE (M)	VPH	EF (VEH)	H	W	V/C	QUEUE
45. LINK HWQ1C OH W	*	3206.8	7171.9	3241.0	7168.8	*	34.	95.	AG	632.	100.0	0.0	3.7	0.54	5.7
46. LINK HWQ1C OH W	*	3206.8	7171.9	3584.4	7137.8	*	379.	95.	AG	375.	25.0	0.0	9.8		
47. LINK HE1 OH E	*	2129.6	7017.1	715.1	7137.5	*	1420.	275.	AG	936.	17.0	0.0	13.4		
48. LINK HE3 OH E	*	3921.9	7321.6	6196.3	7200.9	*	2278.	93.	AG	936.	17.0	0.0	13.4		
49. LINK HW3 OH W	*	3921.9	7336.2	6196.3	7208.5	*	2278.	93.	AG	936.	25.0	0.0	13.4		
50. LINK HWQ3 OH W	*	3584.4	7143.3	3604.8	7154.9	*	23.	60.	AG	690.	100.0	0.0	7.3	0.43	3.9
51. LINK HE2 OH E	*	3584.4	7128.1	3921.9	7321.0	*	389.	60.	AG	936.	17.0	0.0	13.4		
52. LINK HWQ3FOH W	*	3584.4	7143.3	3921.9	7336.2	*	389.	60.	AG	936.	25.0	0.0	13.4		
53. LINK MDEQ1 MD E	*	3013.9	6467.6	3003.9	6466.9	*	10.	266.	AG	805.	100.0	0.0	7.3	0.20	1.7
54. LINK MDEQ1FMD E	*	3013.9	6467.6	2226.3	6413.3	*	789.	266.	AG	400.	21.0	0.0	13.4		
55. LINK MDW1	*	3013.9	6485.8	2226.3	6736.4	*	826.	288.	AG	400.	21.0	0.0	13.4		

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JOB: BRENTWOOD PROJECT, OHINT.DAT
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RUN: XXXXXXXXX

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	* CYCLE	RED	CLEARANCE	APPROACH	SATURATION	IDLE	SIGNAL	ARRIVAL
* LENGTH TIME	LOST TIME	VOL	FLOW RATE	EM FAC	TYPE	RATE		
* (SEC)	(SEC)	(SEC)	(VPH)	(VPH)	(gm/hr)			
7. LINK WNQ2 WLSN N	*	60	30	2.0	296	1600	461.40	1 3
9. LINK WSQ1 WLSN S	*	60	30	2.0	132	1600	461.40	1 3
12. LINK FNQ3 FKLN N	*	60	30	2.0	1563	1600	450.00	1 3
14. LINK FSQ3 FKLN S	*	60	30	2.0	998	1600	450.00	1 3
16. LINK FNQ4A FKLN N	*	105	95	2.0	375	1600	450.00	1 3
18. LINK FNQ4B FKLN N	*	105	30	2.0	780	1600	450.00	1 3
20. LINK FNQ4C FKLN N	*	105	90	2.0	391	1600	450.00	1 3
25. LINK FSQ4A FKLN S	*	105	90	2.0	165	1600	450.00	1 3
27. LINK FSQ4B FKLN S	*	105	30	2.0	330	1600	450.00	1 3
29. LINK FSQ4C FKLN S	*	105	90	2.0	175	1600	450.00	1 3
33. LINK HEQ1A OH E	*	105	30	2.0	900	1600	450.00	1 3
35. LINK HEQ1B OH E	*	105	90	2.0	600	1600	450.00	1 3
37. LINK HEQ1C OH E	*	105	90	2.0	300	1600	450.00	1 3
39. LINK HEQ2 OH E	*	105	30	2.0	2300	1600	450.00	1 3
41. LINK HWQ1A OH W	*	105	90	2.0	375	1600	450.00	1 3
43. LINK HWQ1B OH W	*	105	30	2.0	750	1600	450.00	1 3
45. LINK HWQ1C OH W	*	105	55	2.0	375	1600	450.00	1 3
50. LINK HWQ3 OH W	*	105	30	2.0	936	1600	450.00	1 3
53. LINK MDEQ1 MD E	*	90	30	2.0	400	1600	450.00	1 3

RECEPTOR LOCATIONS

RECEPTOR	* X	Y	Z	*
1. R1 OH NE	*	3225.1	6931.2	1.5 *
2. R2 OH NW	*	3198.0	6931.2	1.5 *
3. R3 OH SW	*	3198.0	6894.9	1.5 *
4. R4 OH SE	*	3225.1	6894.9	1.5 *
5. R5	*	2348.8	6251.4	1.5 *
6. R6	*	2576.2	6185.9	1.5 *
7. R7	*	2803.6	6120.4	1.5 *
8. R8	*	3030.9	6055.2	1.5 *
9. R9	*	3258.3	5989.6	1.5 *
10. R10	*	3485.7	5924.1	1.5 *
11. R11	*	3713.1	5858.9	1.5 *
12. R12	*	2210.1	6588.9	1.5 *
13. R13	*	2437.2	6523.3	1.5 *
14. R14	*	2664.6	6457.8	1.5 *
15. R15	*	2891.9	6392.6	1.5 *
16. R16	*	3119.3	6327.0	1.5 *
17. R17	*	3346.7	6261.5	1.5 *
18. R18	*	3574.1	6196.0	1.5 *
19. R19	*	3801.5	6130.7	1.5 *
20. R20	*	2298.5	6860.7	1.5 *
21. R21	*	2525.6	6795.2	1.5 *
22. R22	*	2753.0	6729.7	1.5 *
23. R23	*	2980.3	6664.5	1.5 *
24. R24	*	3207.7	6598.9	1.5 *
25. R25	*	3435.1	6533.4	1.5 *
26. R26	*	3662.5	6468.2	1.5 *

JOB: BRENTWOOD PROJECT, OHINT.DAT
DATE: 02/08/94 TIME: 15:49

RUN: XXXXXXXXXX

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M)			
	X	Y	Z	
27. R27	3889.9	6402.6	1.5	*
28. R28	2386.9	7132.6	1.5	*
29. R30	2614.0	7067.1	1.5	*
30. R31	2841.3	7001.9	1.5	*
31. R32	3068.7	6936.3	1.5	*
32. R33	3296.1	6870.8	1.5	*
33. R34	3523.5	6805.3	1.5	*
34. R35	3750.9	6740.0	1.5	*
35. R36	3978.2	6674.5	1.5	*
36. R37	2475.3	6588.9	1.5	*
37. R38	2702.4	6523.3	1.5	*
38. R39	2929.7	6457.8	1.5	*
39. R40	3157.1	6392.6	1.5	*
40. R41	3384.5	6327.0	1.5	*
41. R42	3611.9	6261.5	1.5	*
42. R43	3839.3	6196.0	1.5	*
43. R44	4066.6	6130.7	1.5	*
44. R45	2563.7	7676.4	1.5	*
45. R46	2790.7	7611.2	1.5	*
46. R47	3018.1	7545.6	1.5	*
47. R48	3245.5	7480.1	1.5	*
48. R49	3472.9	7414.6	1.5	*
49. R50	3700.3	7349.3	1.5	*
50. R51	3927.7	7283.8	1.5	*
51. R52	4155.0	7218.3	1.5	*
52. R53	2652.1	7948.6	1.5	*
53. R54	2879.1	7883.0	1.5	*
54. R57	3561.3	7686.8	1.5	*
55. R58	3788.7	7621.2	1.5	*
56. R59	4016.0	7555.7	1.5	*
57. R60	4243.4	7490.5	1.5	*

MAX * 13.8 7.3 7.8 9.2 0.5 0.8 1.1 2.9 1.3 2.5 1.0 0.5 0.6 1.0 1.4 8.7 1.5 2.2 0.9 1.1
DEGR. * 200 170 180 320 50 50 40 30 340 340 330 50 120 100 50 20 30 340 310 70

MAX * 1.1 0.8 1.4 3.4 2.5 1.3 0.9 2.0 3.8 1.9 1.6 2.1 3.7 1.2 0.9 0.7 0.9 1.8 6.6 1.8
DEGR. * 50 20 50 200 20 260 310 90 70 60 160 290 10 290 300 40 60 40 350 20

MAX * 1.9 0.9 0.7 0.9 1.3 1.6 1.7 2.0 2.9 2.1 1.2 0.8 1.0 1.9 2.1 1.2 1.0
DEGR. * 320 320 310 140 160 170 180 170 210 260 260 150 170 180 210 230 240

THE HIGHEST CONCENTRATION IS 13.80 PPM AT 200 DEGREES FROM REC1.

RECEPTOR	COORDINATES (M)			
	X	Y	Z	
1. R1	2475.0	6395.0	1.5	*
2. R2	2689.9	6290.5	1.5	*
3. R3	2904.4	6186.2	1.5	*
4. R4	3119.0	6081.7	1.5	*
5. R5	3333.9	5977.4	1.5	*
6. R6	3548.5	5872.9	1.5	*
7. R7	3763.4	5768.3	1.5	*
8. R8	3977.9	5664.1	1.5	*
9. R9	2548.7	6621.5	1.5	*
10. R10	2763.3	6516.9	1.5	*
11. R11	2978.2	6412.7	1.5	*
12. R12	3192.8	6308.1	1.5	*
13. R13	3407.7	6203.9	1.5	*
14. R14	3622.2	6099.4	1.5	*
15. R15	3836.8	5994.8	1.5	*
16. R16	4051.7	5890.6	1.5	*
17. R17	2622.2	6847.9	1.5	*
18. R18	2837.1	6743.7	1.5	*
19. R19	3051.7	6639.2	1.5	*
20. R20	3266.5	6534.6	1.5	*

21. R21	*	3481.1	6430.4	1.5	*
22. R22	*	3696.0	6325.8	1.5	*
23. R23	*	3910.6	6221.6	1.5	*
24. R24	*	4125.5	6117.0	1.5	*
25. R25	*	2696.0	7074.4	1.5	*
26. R26	*	2910.8	6970.2	1.5	*
27. R27	*	3125.4	6865.6	1.5	*
28. R28	*	3340.0	6761.1	1.5	*
29. R29	*	3554.9	6656.8	1.5	*
30. R30	*	3769.5	6552.3	1.5	*
31. R31	*	3984.3	6448.0	1.5	*
32. R32	*	4198.9	6343.5	1.5	*
33. R33	*	2769.7	6621.5	1.5	*
34. R34	*	2984.3	6516.9	1.5	*
35. R35	*	3199.2	6412.7	1.5	*
36. R36	*	3413.8	6308.1	1.5	*
37. R37	*	3628.6	6203.9	1.5	*
38. R38	*	3843.2	6099.4	1.5	*
39. R39	*	4057.8	5994.8	1.5	*
40. R40	*	4272.7	5890.6	1.5	*
41. R41	*	2843.5	7527.6	1.5	*
42. R42	*	3058.1	7423.1	1.5	*
43. R43	*	3272.6	7318.6	1.5	*
44. R44	*	3487.5	7214.3	1.5	*
45. R45	*	3702.1	7109.8	1.5	*
46. R46	*	3917.0	7005.2	1.5	*
47. R47	*	4131.6	6901.0	1.5	*
48. R48	*	4346.4	6796.4	1.5	*
49. R49	*	2916.9	7754.1	1.5	*
50. R50	*	3130.3	7649.6	1.5	*
51. R51	*	3346.4	7545.0	1.5	*
52. R52	*	3561.3	7440.8	1.5	*
53. R53	*	3775.9	7336.2	1.5	*
54. R54	*	3990.4	7232.0	1.5	*
55. R55	*	4205.3	7127.4	1.5	*
56. R56	*	4419.9	7022.9	1.5	*

MAX * 0.7 0.8 1.5 4.5 1.8 1.6 0.9 0.6 0.9 0.9 1.6 2.7 3.5 1.5 0.8 0.8 1.2 1.0 1.9 1.8
 DEGR. * 60 50 40 0 20 330 330 300 30 60 30 350 20 330 320 320 40 150 40 340

MAX * 5.6 1.3 0.8 0.7 5.6 1.4 2.5 1.7 3.5 1.1 0.8 0.8 0.8 1.7 2.9 2.8 1.6 0.9 0.7 0.7
 DEGR. * 180 310 310 310 70 50 170 310 350 300 300 300 140 160 350 180 320 320 310 310

MAX * 1.5 2.1 2.1 3.0 4.3 1.7 1.0 0.9 1.1 1.3 1.2 2.8 2.1 1.8 1.1 0.9
 DEGR. * 160 170 190 180 280 290 290 290 170 170 190 180 220 260 270 280

THE HIGHEST CONCENTRATION IS 5.60 PPM AT 180 DEGREES FROM REC21.
 RECEPTOR * X Y Z *

1. R1	*	3404.0	5694.3	1.5	*
2. R2	*	3426.6	5844.8	1.5	*
3. R3	*	3449.1	5995.7	1.5	*
4. R4	*	3471.7	6146.3	1.5	*
5. R5	*	3494.2	6297.2	1.5	*
6. R6	*	3503.4	6357.5	1.5	*
7. R7	*	3512.2	6417.6	1.5	*
8. R8	*	3518.9	6467.6	1.5	*
9. R9	*	3536.0	6588.3	1.5	*
10. R10	*	3557.0	6739.1	1.5	*
11. R11	*	3578.4	6890.0	1.5	*
12. R12	*	3599.7	7041.2	1.5	*
13. R13	*	3618.6	7158.5	1.5	*
14. R14	*	3631.7	7218.0	1.5	*
15. R15	*	3644.8	7277.4	1.5	*
16. R16	*	3611.0	7129.9	1.5	*
17. R17	*	3716.7	7190.2	1.5	*
18. R18	*	3822.5	7250.9	1.5	*
19. R19	*	3902.0	7296.3	1.5	*
20. R20	*	3267.5	7143.9	1.5	*
21. R21	*	3328.1	7138.4	1.5	*
22. R22	*	3419.2	7130.2	1.5	*
23. R23	*	3540.9	7119.2	1.5	*
24. R24	*	2553.0	7068.0	1.5	*
25. R25	*	2674.0	7082.9	1.5	*
26. R26	*	2795.0	7098.2	1.5	*
27. R27	*	2946.2	7117.1	1.5	*

28. R28	*	3127.9	7139.6	1.5	*
29. R29	*	3188.2	7147.0	1.5	*
30. R30	*	3094.0	5955.8	1.5	*
31. R31	*	3115.7	6106.7	1.5	*
32. R32	*	3137.3	6257.5	1.5	*
33. R33	*	3158.9	6408.4	1.5	*
34. R34	*	3193.7	6649.5	1.5	*
35. R35	*	3215.3	6800.4	1.5	*
36. R36	*	3228.1	6890.9	1.5	*
37. R37	*	3242.5	6938.2	1.5	*
38. R38	*	3332.1	7097.6	1.5	*
39. R39	*	3451.6	7310.0	1.5	*
40. R40	*	3600.9	7575.8	1.5	*
41. R41	*	3048.0	5558.6	1.5	*
42. R42	*	2499.4	6406.9	1.5	*
43. R43	*	2651.2	6420.6	1.5	*
44. R44	*	2802.9	6434.6	1.5	*
45. R45	*	2954.7	6448.7	1.5	*

MAX * 5.4 5.1 5.2 5.0 4.9 4.8 4.8 4.9 4.5 4.4 4.6 4.8 10.3 5.9 5.4 9.7 4.7 3.2 2.8 5.5
 DEGR. * 350 0 350 200 200 200 200 200 200 200 350 350 260 210 210 280 260 260 260 280

MAX * 5.0 5.2 9.8 3.8 5.8 9.1 8.4 8.4 8.4 4.3 5.9 6.7 6.7 6.6 6.8 7.5 5.0 3.2 2.1 3.0
 DEGR. * 80 80 60 80 70 70 70 280 280 0 0 0 350 200 200 310 200 70 250 180

MAX * 4.3 0.8 0.9 1.2 1.8
 DEGR. * 190 60 60 50 50

THE HIGHEST CONCENTRATION IS 10.30 PPM AT 260 DEGREES FROM REC13.

RECEPTOR	*	X	Y	Z	*
1. R1	*	3476.2	6437.4	1.5	*
2. R2	*	3454.3	6286.5	1.5	*
3. R3	*	3432.0	6135.9	1.5	*
4. R4	*	3410.1	5985.1	1.5	*
5. R5	*	3388.2	5834.2	1.5	*
6. R6	*	3568.6	7098.5	1.5	*
7. R7	*	3560.1	7038.1	1.5	*
8. R8	*	3539.0	6887.3	1.5	*
9. R9	*	3509.5	6675.7	1.5	*
10. R10	*	3484.2	6494.7	1.5	*
11. R11	*	3598.2	7556.6	1.5	*
12. R12	*	3574.7	7406.0	1.5	*
13. R13	*	3555.8	7285.6	1.5	*
14. R14	*	3534.8	7150.0	1.5	*
15. R15	*	3602.7	7586.8	1.5	*
16. R16	*	3548.5	7412.1	1.5	*
17. R17	*	3460.1	7288.1	1.5	*
18. R18	*	3371.4	7164.0	1.5	*
19. R19	*	3282.7	7040.0	1.5	*
20. R20	*	3211.7	6940.9	1.5	*
21. R21	*	3183.0	6881.5	1.5	*
22. R22	*	3160.8	6730.6	1.5	*
23. R23	*	3134.3	6549.8	1.5	*
24. R24	*	3098.9	6308.4	1.5	*
25. R25	*	3019.7	5765.6	1.5	*
26. R26	*	3032.8	5856.1	1.5	*
27. R27	*	3002.0	5644.9	1.5	*
28. R28	*	3187.3	6911.6	1.5	*
29. R29	*	3895.3	7340.5	1.5	*
30. R30	*	3789.6	7280.1	1.5	*
31. R31	*	3710.3	7234.7	1.5	*
32. R32	*	3617.7	7181.7	1.5	*
33. R33	*	3554.0	7170.1	1.5	*
34. R34	*	3432.7	7180.5	1.5	*
35. R35	*	3311.0	7190.5	1.5	*
36. R36	*	3235.1	7196.9	1.5	*
37. R37	*	3176.6	7197.9	1.5	*
38. R38	*	2995.6	7172.6	1.5	*
39. R39	*	2814.2	7147.3	1.5	*
40. R40	*	2663.3	7126.2	1.5	*
41. R41	*	2482.3	7100.9	1.5	*
42. R42	*	2983.4	6502.6	1.5	*
43. R43	*	2831.9	6488.6	1.5	*
44. R44	*	2710.3	6477.3	1.5	*
45. R45	*	2589.0	6466.3	1.5	*

46. R46 * 2497.8 6457.8 1.5 *

MAX * 4.4 4.4 4.3 4.3 4.4 6.5 4.5 4.1 4.1 4.3 3.0 3.4 3.8 12.3 3.0 3.0 2.4 12.7 3.9 11.2
DEGR. * 180 180 180 180 20 20 20 180 180 180 180 180 180 90 180 180 170 90 200 180

MAX * 5.0 4.7 4.6 4.3 2.4 3.0 4.0 5.0 2.3 2.6 3.2 8.5 8.9 5.1 6.5 8.1 7.8 8.3 8.5 6.1
DEGR. * 40 170 30 20 20 20 160 60 220 220 220 210 180 260 260 250 250 100 100 90

MAX * 3.2 2.1 1.0 0.9 0.8 0.8
DEGR. * 90 140 50 110 100 110

THE HIGHEST CONCENTRATION IS 12.70 PPM AT 90 DEGREES FROM REC18.

APPENDIX L-3

Coordinates		pre-const	full-TDM	conc.	conc.
X	Y	CO conc.	CO conc.	change	change
(meters)	(meters)	(ppm)	(ppm)	(ppm)	
3225	6931	13.8	13.8	0	0%
3198	6931	7.1	7.3	0.2	3%
3198	6895	7.5	7.8	0.3	4%
3225	6895	9.2	9.2	0	0%
2349	6251	0.4	0.5	0.1	25%
2576	6186	0.6	0.8	0.2	33%
2804	6120	1	1.1	0.1	10%
3031	6055	2.4	2.9	0.5	21%
3258	5990	1.3	1.3	0	0%
3486	5924	1.5	2.5	1	67%
3713	5859	0.8	1	0.2	25%
2210	6589	0.5	0.5	0	0%
2437	6523	0.5	0.6	0.1	20%
2665	6458	1.3	1	-0.3	-23%
2892	6393	1.3	1.4	0.1	8%
3119	6327	8.7	8.7	0	0%
3347	6262	1.1	1.5	0.4	36%
3574	6196	1.6	2.2	0.6	38%
3802	6131	0.8	0.9	0.1	12%
2299	6861	1	1.1	0.1	10%
2526	6795	1.1	1.1	0	0%
2753	6730	0.8	0.8	0	0%
2980	6665	1.3	1.4	0.1	8%
3208	6599	3.5	3.4	-0.1	-3%
3435	6533	1.4	2.5	1.1	79%
3663	6468	0.9	1.3	0.4	44%
3890	6403	0.7	0.9	0.2	29%
2387	7133	1.8	2	0.2	11%
2614	7067	4	3.8	-0.2	-5%
2841	7002	1.9	1.9	0	0%
3069	6936	1.3	1.6	0.3	23%
3296	6871	2.1	2.1	0	0%
3524	6805	2.1	3.7	1.6	76%
3751	6740	0.9	1.2	0.3	33%
3978	6675	0.7	0.9	0.2	29%
2475	6589	0.6	0.7	0.1	17%
2702	6523	0.7	0.9	0.2	29%
2930	6458	1.8	1.8	0	0%
3157	6393	6.7	6.6	-0.1	-1%
3385	6327	1.1	1.8	0.7	64%
3612	6262	1.3	1.9	0.6	46%

3839	6196	0.8	0.9	0.1	12%
4067	6131	0.6	0.7	0.1	17%
2564	7676	0.7	0.9	0.2	29%
2791	7611	1.1	1.3	0.2	18%
3018	7546	1.4	1.6	0.2	14%
3246	7480	1.4	1.7	0.3	21%
3473	7415	1.4	2	0.6	43%
3700	7349	2.1	2.9	0.8	38%
3928	7284	2.1	2.1	0	0%
4155	7218	1.1	1.2	0.1	9%
2652	7949	0.7	0.8	0.1	14%
2879	7883	0.8	1	0.2	25%
3561	7687	1.3	1.9	0.6	46%
3789	7621	1.3	2.1	0.8	62%
4016	7556	1	1.2	0.2	20%
4243	7491	1	1	0	0%
2475	6395	0.7	0.7	0	0%
2690	6291	0.6	0.8	0.2	33%
2904	6186	1.3	1.5	0.2	15%
3119	6082	3.9	4.5	0.6	15%
3334	5977	1.1	1.8	0.7	64%
3549	5873	1.1	1.6	0.5	45%
3763	5768	0.6	0.9	0.3	50%
3978	5664	0.5	0.6	0.1	20%
2549	6622	0.7	0.9	0.2	29%
2763	6517	0.7	0.9	0.2	29%
2978	6413	1.6	1.6	0	0%
3193	6308	2.7	2.7	0	0%
3408	6204	1.7	3.5	1.8	106%
3622	6099	1.1	1.5	0.4	36%
3837	5995	0.6	0.8	0.2	33%
4052	5891	0.5	0.8	0.3	60%
2622	6848	1.2	1.2	0	0%
2837	6744	0.8	1	0.2	25%
3052	6639	1.7	1.9	0.2	12%
3267	6535	1.8	1.8	0	0%
3481	6430	2.5	5.6	3.1	124%
3696	6326	0.9	1.3	0.4	44%
3911	6222	0.7	0.8	0.1	14%
4126	6117	0.5	0.7	0.2	40%
2696	7074	5.8	5.6	-0.2	-3%
2911	6970	1.5	1.4	-0.1	-7%
3125	6866	2.4	2.5	0.1	4%
3340	6761	1.7	1.7	0	0%
3555	6657	2	3.5	1.5	75%
3770	6552	0.8	1.1	0.3	38%
3984	6448	0.7	0.8	0.1	14%
4199	6344	0.6	0.8	0.2	33%
2770	6622	0.6	0.8	0.2	33%
2984	6517	1.3	1.7	0.4	31%
3199	6413	2.9	2.9	0	0%

3414	6308	1.5	2.8	1.3	87%
3629	6204	1.1	1.6	0.5	45%
3843	6099	0.7	0.9	0.2	29%
4058	5995	0.6	0.7	0.1	17%
4273	5891	0.5	0.7	0.2	40%
2844	7528	1.3	1.5	0.2	15%
3058	7423	1.9	2.1	0.2	11%
3273	7319	2.1	2.1	0	0%
3488	7214	2.9	3	0.1	3%
3702	7110	4.1	4.3	0.2	5%
3917	7005	1.5	1.7	0.2	13%
4132	6901	0.8	1	0.2	25%
4346	6796	0.7	0.9	0.2	29%
2917	7754	0.8	1.1	0.3	38%
3132	7650	1.1	1.3	0.2	18%
3346	7545	1.1	1.2	0.1	9%
3561	7441	1.9	2.8	0.9	47%
3776	7336	1.8	2.1	0.3	17%
3990	7232	1.6	1.8	0.2	12%
4205	7127	1	1.1	0.1	10%
4420	7023	0.7	0.9	0.2	29%
3404	5694	2.7	5.4	2.7	100%
3427	5845	2.6	5.1	2.5	96%
3449	5996	2.6	5.2	2.6	100%
3472	6146	2.5	5	2.5	100%
3494	6297	2.4	4.9	2.5	104%
3503	6358	2.4	4.8	2.4	100%
3512	6418	2.4	4.8	2.4	100%
3519	6468	2.4	4.9	2.5	104%
3536	6588	2.4	4.5	2.1	88%
3557	6739	2.5	4.4	1.9	76%
3578	6890	2.7	4.6	1.9	70%
3600	7041	3.5	4.8	1.3	37%
3619	7159	8.8	10.3	1.5	17%
3632	7218	4.1	5.9	1.8	44%
3645	7277	3.5	5.4	1.9	54%
3611	7130	8.6	9.7	1.1	13%
3717	7190	4.2	4.7	0.5	12%
3823	7251	3.1	3.2	0.1	3%
3902	7296	2.8	2.8	0	0%
3268	7144	5.6	5.5	-0.1	-2%
3328	7138	5	5	0	0%
3419	7130	4.7	5.2	0.5	11%
3541	7119	8.3	9.8	1.5	18%
2553	7068	4	3.8	-0.2	-5%
2674	7083	5.9	5.8	-0.1	-2%
2795	7098	9.2	9.1	-0.1	-1%
2946	7117	8.6	8.4	-0.2	-2%
3128	7140	8.4	8.4	0	0%
3188	7147	8.4	8.4	0	0%
3094	5956	4.3	4.3	0	0%

3116	6107	4.9	5.9	1	20%
3137	6258	6.8	6.7	-0.1	-1%
3159	6408	6.8	6.7	-0.1	-1%
3194	6650	6.6	6.6	0	0%
3215	6800	6.8	6.8	0	0%
3228	6891	7.5	7.5	0	0%
3243	6938	5.1	5	-0.1	-2%
3332	7098	2.9	3.2	0.3	10%
3452	7310	2.1	2.1	0	0%
3601	7576	2.3	3	0.7	30%
3048	5559	4.5	4.3	-0.2	-4
2499	6407	0.9	0.8	-0.1	-11%
2651	6421	1	0.9	-0.1	-10%
2803	6435	1.2	1.2	0	0%
2955	6449	1.6	1.8	0.2	12%
3476	6437	2	4.4	2.4	120%
3454	6287	2	4.4	2.4	120%
3432	6136	2.1	4.3	2.2	105%
3410	5985	2	4.3	2.3	115%
3388	5834	2.1	4.4	2.3	110%
3569	7099	4.9	6.5	1.6	33%
3560	7038	3.2	4.5	1.3	41%
3539	6887	2.4	4.1	1.7	71%
3510	6676	2.2	4.1	1.9	86%
3484	6495	2	4.3	2.3	115%
3598	7557	2.4	3	0.6	25%
3575	7406	2.7	3.4	0.7	26%
3556	7286	3.1	3.8	0.7	23%
3535	7150	11.8	12.3	0.5	4%
3603	7587	2.3	3	0.7	30%
3549	7412	2.2	3	0.8	36%
3460	7288	2.1	2.4	0.3	14%
3371	7164	12.4	12.7	0.3	2%
3283	7040	3.7	3.9	0.2	5%
3212	6941	10.8	11.2	0.4	4%
3183	6882	4.5	5	0.5	11%
3161	6731	4.5	4.7	0.2	4%
3134	6550	4.4	4.6	0.2	5%
3099	6308	4.4	4.3	-0.1	-2%
3020	5766	2.3	2.4	0.1	4%
3033	5856	3.2	3	-0.2	-6%
3002	5645	3.8	4	0.2	5%
3187	6912	4.7	5	0.3	6%
3895	7341	1.8	2.3	0.5	28%
3790	7280	2.2	2.6	0.4	18%
3710	7235	2.6	3.2	0.6	23%
3618	7182	5.8	8.5	2.7	47%
3554	7170	7.6	8.9	1.3	17%
3433	7181	5.1	5.1	0	0%
3311	7191	6.5	6.5	0	0%
3235	7197	8.1	8.1	0	0%

3177	7198	7.9	7.8	-0.1	-1%
2996	7173	8.2	8.3	0.1	1%
2814	7147	8.4	8.5	0.1	1%
2663	7126	6	6.1	0.1	2%
2482	7101	3.1	3.2	0.1	3%
2983	6503	1.6	2.1	0.5	31%
2832	6489	0.9	1	0.1	11%
2710	6477	0.8	0.9	0.1	12%
2589	6466	0.8	0.8	0	0%
2498	6458	0.7	0.8	0.1	14%

	pre-const.	full-TDM
average concentration (ppm)	2.8691	3.3715
maximum concentration	13.8	13.8
minimum concentration	0.4	0.5
average concentration change (pre-construction to full-TDM)		17.5%

VITA

Christopher Richard Rys was born in Birmingham, England on April 30, 1954. He grew up in Lexington, Kentucky, attended the University of Kentucky and received the degree of Bachelor of Science in Mechanical Engineering in 1979. He worked as an engineer in the aerospace and petroleum industries until 1985 when he attended Purdue University. There he earned the degree of Master of Science in Industrial Administration in 1986. Upon earning the master's degree he embarked on a new career as a commodity trader at the Chicago Board of Trade. In 1992 he returned to school to earn the degree of Master of Science with a major in Environmental Engineering at the University of Tennessee, Knoxville.