

Draft Deliberative Policy Process Do Not Quote or Cite

On Road Mobile Potential Control Strategies for DFW Attainment Demonstration

Control Strategy Description	Base Year 1999 Emission (TPD)	Future Year 2010 Emission Projection (TPD)	Reduction in Tons Per Day (TPD)	Estimated Percent Reduction	Comments
<p>1) Light-Duty Vehicle Idling - Limits idling for more than 5 minutes.</p>					<p>Enforcement would be difficult. Air benefits would not outweigh enforcement costs. Therefore, this measure would be largely voluntary and focused on public education.</p> <p>Extended idling from light-duty vehicles not in onroad inventory; therefore, cannot quantify benefit. Can use NO_x idling emission rate of 2.308 grams/hour and VOC idling emission rate of 8.5230 grams/hour.</p>
<p>2) Surcharge on Drive-Thru Use - Pass local ordinances levying a surcharge on products/services purchased through the drive-thru lane.</p>					<p>As proposed by Austin EAC area, another drive-thru idea is to ask businesses to post signs on Ozone Action Days asking customers to park instead of using drive-through. Could be locally enforceable. More research is needed on how to accommodate or exempt persons with disabilities needing to use drive-through on Ozone Action Days. Would primarily affect light-duty vehicles.</p> <p>Cannot quantify at this time</p>

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					due to insufficient data on how high surcharge would need to be to discourage drive-thru service. Drive-thru idling not in onroad inventory. See comment to Item #1.
<p>3) Control of Extended Vehicle Idling-It has recently been suggested to reduce vehicle emissions in the 9-County Dallas/Fort Worth (DFW) non-attainment area through implementation of restrictions on extended idling from both light-duty and heavy-duty vehicles. The amount of extended idling emissions is estimated for the heavy-duty “18-wheeler” vehicle classes in MOBILE6.2 for a 2010 “average weekday” in the 9-County DFW non-attainment area.</p> <p>At this time, extended idling emissions from the light-duty “passenger fleet” are not included in the onroad mobile source inventory. This factor is due primarily to a lack of available information with respect to the magnitude, temporal allocation, and geographic distribution of extended idling activity from passenger vehicles. Unlike the HDDV8a and HDDV8b 18-wheeler vehicle classes in EPA’s MOBILE6.2 model, the gram/mile emission rates for the light-duty vehicle/truck classes do not include an extended idling component. Therefore, it is not currently possible to calculate SIP-creditable emission benefits for reduction of extended idling emissions from the light-duty passenger fleet at “non-travel network” locations like drive-thru’s, schools, parking lots, etc.</p>			NOx - 1.7526 VOC - 0.0724		<p>It does not necessarily represent the amount that will be reduced through an extended idling control strategy, unless that strategy happens to have 100% effectiveness and 100% compliance.</p> <p>Figures are for 2010 based on 3.4% methodology from EPA guidance for HDDV8a and HDDV8b “18-wheeler” categories.</p>

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<p>4) Non - Metro Area Transit (Express Bus Service) - To provide transit service to the metropolitan area that is not currently serviced by the public transit system. This analysis looks into expanding the express bus service to accommodate outlying areas.</p>					<p>Legislative authority may be needed in order to carry out the non-metro area transit. Since transit is contingent upon sales tax levied, only those areas that are in the sales tax area receive transit service.</p> <p>Needs to be modeled by NCTCOG in coordination with travel demand model.</p>
<p>5) Non - Metro Area Transit -To provide transit service to the metropolitan area that is not currently serviced by the public transit system. This practice can be accomplished by bus service and/or para transit service to the area not currently served.</p>					<p>Legislative authority may be needed in order to carry out the non-metro area transit. Since transit is contingent upon sales tax levied, only those areas that are in the sales tax area receive transit service. Transit service to areas that are not currently serviced could be a valuable asset not only in the short term but also in the long term.</p> <p>Needs to be modeled by NCTCOG in coordination with travel demand model.</p>

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<p>6) Transit Standard- Raise the percent of ULEV & SULEV transit vehicles that must be part of a fleet (e.g., from 50% to 80%).</p>					<p>Amend Sec. 114.150, which became effective 1998. However, there is a Fleet Emission Controls Measure as part of HGA's VMEP program. This measure includes clean vehicle purchases and retrofits. In 2001, Metro bought 50 Low emitting Diesel buses.</p> <p>Needs to be modeled by NCTCOG in coordination with travel demand model. Data from local transit entities will also be required.</p>
<p>7) Fare-free transit, system wide on ozone action days.</p>				NOx - 1% to 3%	<p>Would require sponsorship and /or commitment of significant public funds. This policy should by itself generate long-term increases in ridership. To be effective, this would require expanded transit fleet and possibly support facilities. Funds could come from peak-hour commuter parking space tax.</p> <p>Potential TCM - applicable to non-attainment and near non-attainment areas.</p>

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					Needs to be modeled by NCTCOG in coordination with travel demand model. Will also need data on how much ridership will increase to quantify benefit.
8) Coordinate transit service with event schedules to accommodate event traffic.					<p>Cities with “regular” special events; e.g. Houston’s Livestock Show and Rodeo (transit provided to arena); sports event.</p> <p>Needs to be modeled by NCTCOG in coordination with travel demand model. Will probably be difficult because travel demand models are for “average days” and modeling days with “special events” can be difficult. Also, hard to apply benefit for “special event” day to “average ozone” episode day.</p>
9) Transit Off-Peak Pass- Provide an off-peak unlimited-ride pass. This practice would encourage use of transit for midday, evening, and weekend trips by those who do not commute by transit. Incremental cost to provide service would be negligible due to unused midday transit capacity. May encourage reduction in					<p>Potential TCM - applicable to non-attainment areas. 0.1% to 1% reduction in VMT</p> <p>Needs to be modeled by NCTCOG in coordination with</p>

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peak load.					travel demand model. Need data on how much VMT would be reduced from increased ridership.
10) Transit Measures (Environmental Defense) Real time traffic and transit passenger information and para transit dispatching systems, and extensive transit priority treatment.					Needs to be modeled by NCTCOG in coordination with travel demand model. Very hard to quantify benefits from public posting of information.
11) Light Rail, Heavy Commuter Rail, People Movers					There is a light rail (from downtown to Astrodome) TCM in the HGA December 2000 SIP. DFW already has a light rail system and the travel demand modeling incorporates these benefits.
12) Bike space on rail and buses (TTI)					Most effective if bicycle lanes/access available in transit-served areas. Rail and buses already exist in DFW, so it is very hard to predict how much extra VMT will be reduced by adding additional bike storage space.
13.1) Parking Management -A program to limit vehicle use in downtown areas or other areas of emission concentration particularly during periods of					Parking management strategies are most effective when implemented in dense CBDs

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<p>peak use; and programs and ordinances to facilitate non-automobile travel, etc. Parking management strategies can include: preferential parking for HOV, public sector pricing, parking requirements in zoning codes, and control of parking supply.</p>					<p>that have limited available parking. Excess of parking will diminish the effectiveness of the parking management program. Parking Management can be an effective tool for local government to reduce traffic and associated emissions in congested areas by encouraging travelers to use modes other than driving alone. Four strategies can be applied with the public sector: preferential parking policies for high occupancy vehicles (HOV); public sector pricing policies; parking requirements in zoning codes; and control of parking supply. Parking management has the potential of reducing period trips by 6.25% and off-peak trips by 2.6%. This reduction is due to the elimination of trips.</p> <p>Needs to be modeled by NCTCOG in coordination with travel demand model. Need data on how much VMT would be reduced.</p>
13.2) Parking Management (Employer Based)-A					Needs to be modeled by

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program to limit or restrict vehicle use in downtown areas or other areas of emission concentration, particularly during periods of peak use; and programs and ordinances to facilitate non-automobile travel, etc. Parking management strategies can include preferential parking for HOV, public sector pricing, and control of parking supply.					NCTCOG in coordination with travel demand model. Need data on how much VMT would be reduced.
13.3) Parking Tax -Institute a parking tax, which could be used to subsidize transit service. Tax parking either by the space (where fees are not collected) or as a percentage or flat fee per parking transaction. Measure acts as disincentive to driving where parking fees are collected or as disincentive to provide free parking where fees are not collected.					May require 2-5 years to implement. Requires paid parking to reduce driving trips. <0.1% reduction in VMT Needs to be modeled by NCTCOG in coordination with travel demand model. Need data on how much VMT would be reduced.
14) Increased Parking Fees During Peak Commuter Arrival Hours (mg) -Charge higher (rather than current lower) rates than normal daily rates for vehicles arriving before 9 or 9:30 a.m. Two possible methods for increasing commuter-parking fees are the elimination of commuter “Early Bird” discounts and the addition of a commuter parking tax. The higher cost of parking for morning commuters will encourage commuters to seek alternate modes of transportation.				NOx - 0.1% to 1%	Potential TCM - applicable to non-attainment and near non-attainment areas. TTI: “Prohibiting free parking requires state or regional application to be effective, equitable. Will be effective only if other free/inexpensive parking is not available within a short walking distance. Would likely require an

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					ordinance. Needs to be modeled by NCTCOG in coordination with travel demand model. Need data on how much VMT would be reduced.
15) Telecommuting (Home-Based Work Site)- Working at a location other than one's usual office: therefore, avoiding the trip to the office, while performing the same duties as would otherwise be performed in the central office. For this analysis, home as the work site was evaluated.				NOx - 0.1% to 1%	A reduction in vehicle trips due to this program could and would have positive air quality benefits to the area. Positive air quality benefits include reduced trips and VMT during peak and non-peak periods and reduced hot and cold starts. Unfortunately a thorough survey of employees and employers would need to be conducted in order to assist in the evaluation of this program. Needs to be modeled by NCTCOG in coordination with travel demand model. Need data on how much VMT would be reduced.
16) Flexible Work Schedules- Changes in work schedule to provide greater flexibility in work schedules and reduce the volume of commute and travel during peak periods.				NOx - 0.1% to 1%	This program can be combined with the ETR or ECO program. Flexible work schedules may provide greater flexibility in arrival and departure times to support ridesharing activities. Positive air quality impacts

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					<p>include reduced peak period congestion and a shift to carpools, vanpools, and mass transit. Flexible work schedules cause some transit users to drive alone thus offsetting the initial benefit.</p> <p>Needs to be modeled by NCTCOG in coordination with travel demand model. Need data on how much VMT would be reduced.</p>
16.1) 4 day work weeks					<p>Allow employees to work more hours in fewer days than the usual 8-hour per day schedule. The 4/10 work week is a common option in which employees work 10 hours per day over four days.</p> <p>http://yosemite.epa.gov/aa/tcm/sitei.nsf/9bd6f3b7217f80c28525652f0053e105/cc28801da5d24468852565da006518b7/\$FILE/S98014.pdf</p> <p>Needs to be modeled by NCTCOG in coordination with travel demand model. Need data on how much VMT would be reduced.</p>

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17) Miles-per-gallon surcharge- One-time fee on new vehicles based on fuel efficiency of vehicle - ranges from \$0 to several hundred - encourages smaller, fuel-efficient vehicles.					<p>Would encourage vehicle purchasers to consider the fuel economy of the vehicle at the time of purchase and may encourage the purchase of more fuel-efficient vehicles.</p> <p>Need data on how many very fuel efficient vehicles would replace “average” vehicles. Very hard to quantify and convert to NO_x/VOC benefits.</p>
18) Divert trucks out of non-attainment areas- Require through-traffic trucks to travel around rather than through non-attainment areas.					<p>Extremely difficult to model due to changes needed in travel demand model network. Would probably require additional freeway capacity around DFW area and therefore would take 10-20 years to implement. If trucks had to travel more miles to go from A to B, could increase regional NO_x because more miles would be driven. Will not likely reduce NO_x, but rather shift it somewhere else. Hard to enforce based on sorting out trucks making necessary local trips from those passing through.</p>
19) Congestion pricing					Similar strategy in London is

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<ul style="list-style-type: none"> -Establish a pricing system on freeways, or entering downtown business district during peak periods. - Charge drivers a fee that is variable depending on the amount of congestion on that toll way. 					<p>working well to reduce congestion, improve transit, and generate revenues.</p> <p>Needs to be modeled by NCTCOG in coordination with travel demand model. Need data on how much VMT would be reduced.</p>
<p>20) Smart Growth -Work with EPA to develop better Smart Growth SIP crediting. Award cities with progressive Smart Growth programs air quality benefits associated with the program.</p>					<p>Encourage cities to implement programs to prevent sprawl, and associated air impacts. This measure is a long-term solution, which may not be well suited to immediate short-term SIP crediting.</p> <p>The VMEP program contains a Smart Growth measure in HGA area.</p> <p>Needs to be modeled by NCTCOG in coordination with travel demand model. Need data on how much VMT would be reduced.</p>
<p>21) More strenuous driver education-</p> <ul style="list-style-type: none"> - Improving road safety in general. - Improving knowledge of how to act in an emergency 					<p>Some information could be given at time of car purchase.</p>

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<p>situation.</p> <ul style="list-style-type: none"> - Reducing environmental damage, with a special focus on reduction of fuel consumption. 					Very hard to quantify the emission reduction impacts that public information/education will have.
<p>22) Education To Explain Transportation Options for Special Events</p> <ul style="list-style-type: none"> - Use advertising describing the scarcity of parking and difficulty of SUV travel for special events. - Promote transit, special shuttles or other HOV travel modes as more convenient alternatives. 				NO _x < 0.1%	<p>Potential TCM - applicable to non-attainment and near non-attainment areas.</p> <p>Research is needed on how credit would be calculated.</p> <p>Very hard to quantify the emission reduction impacts that public information/education will have.</p>
<p>23) Surcharge on new subdivisions not connected to existing transit lines- surcharge is progressive and linked to travel time to central business district by transit (puts money into transit and makes peripheral land less attractive to developers).</p>					<p>Encourage cities to implement programs to prevent sprawl, and associated air impacts. This measure is a long-term solution, which may not be well suited to immediate short-term SIP crediting.</p> <p>Needs to be modeled by NCTCOG in coordination with travel demand model. Need data on how much VMT would be reduced.</p>
<p>24) Progressive Registration Fees for Higher-</p>				NO _x - 0.1%	Potential TCM - applicable to

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<p>Emitting Vehicles- Institute increasing vehicle registration fees for higher emission vehicles. Registration fees would be based on vehicle's EPA certified emissions standard (i.e. EPA Green Vehicle Guide). Program implementation would vary depending on whether the state or a county was collecting the fees.</p>					<p>non-attainment and near non-attainment areas.</p> <p>Need data on how much VMT will be reduced.</p>
<p>25) VMT-based registration fees (TTI)- -Base vehicle registration fees on VMT driven in previous year. e.g: 25K VMT/year - \$700 20K VMT/year - \$400 15K VMT/year - \$200- \$300 etc. 6K VMT/year - base fee</p>					<p>Could be applied statewide or by region, but would have most impact in urban areas with public transit, bike/pedestrian facilities or other alternative modes of travel.</p> <p>Car insurance companies already use VMT per year as a measure; no special equipment needed to implement; fee collection could be part of annual safety inspection. Less effective in rural areas, where people have few choices other than to drive. Fee would have to be 10¢ per mile or more for major impact.</p> <p>Need data on how much VMT will be reduced.</p>
<p>26) Discount on annual registration fee for vehicles</p>					Need data on how much VMT

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driven less than a pre-established standard number of miles per year.					will be reduced.
27) Property Tax Breaks (Environmental Defense) - Give them to people who live closer to work.					Would require constitutional amendment Needs to be modeled by NCTCOG in coordination with travel demand model. Need data on how much VMT would be reduced.
28) College/University VMT reduction (Environmental Defense)- - Parking fees and incentives to use mass transit eliminate internal streets, more on-campus housing, and on-campus retail. - Eliminate internal streets and prohibit all but service vehicle traffic within college/university campuses.					See example of Cornell University. Needs to be modeled by NCTCOG in coordination with travel demand model. Need data on how much VMT would be reduced.
29) “Clean Contractor Initiative” or New York-Style 191A Laws- Ask areas to consider entering into MOU stating they will give preference to a construction company during bidding if that company uses low emitting engines/low sulfur gas, etc. New York City ‘s 191A requires city construction contracts to call for ultra-low sulfur diesel (ULSD at 15 ppm) and best available pollution control technology on heavy diesel construction machinery above 50 horsepower. There is some similar work being done at the local level - a Clean Contractor Initiative. There is a Clean Contractor Committee composed of various					Need data on participation rates and miles traveled before quantification can occur. Needs to be modeled by NCTCOG in coordination with travel demand model.

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cities/counties/political subdivisions/AGC to try to come up with some consistent method to "give preference" to contractors with cleaner equipment/fuels. This practice is entirely voluntary and far from the mandatory requirements that New York signed onto.					
30) Positive reinforcement for alternative travel- Positive reinforcement in form of incentives or rewards for alternative travel arrangements, such as extra vacation or holidays, priority parking, additional transportation allowance, priority in work schedule selection or vacation time selection, preferential work space assignment.					TXDOT Fort Worth District Office does this. Applicable to many other measures as incentives. Key is to provide incentives that truly motivate employees, such as extra vacation days. Can be expanded to 8-hr Ozone NA counties. Needs to be modeled by NCTCOG in coordination with travel demand model. Need data on how much VMT would be reduced.
31) I/M Pre-1975 Vehicle Exemption- Replace Rolling 24-year Exemption with Exemption of pre-1975 Vehicles.					In California, they are looking at possibly changing the 30-year rolling exemption with a set exemption of pre-1975 vehicles.

Draft Deliberative Policy Process Do Not Quote or Cite

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					<p>In Texas, the rolling exemption is 24 years. Changing this exemption to a set pre model year like 1975 will help with keeping the gross emitters off the street. However, vehicles registered, as antique will be excluded from this requirement.</p> <p>MOBILE6.2 model only goes back 1-25 (or "0-24") model years. Cannot model incremental I/M benefit from extending I/M coverage. VMT on these very old vehicles is very low.</p>
<p>32) I/M Gasoline-Fueled Trucks Loaded-Mode Testing- Gasoline-Fueled trucks between 8,500 and 10,000 pounds GVWR to be tested with the loaded mode test instead of two speed idle test.</p>					<p>Currently, gasoline fueled trucks between 8,500 and 10,000 pounds GVWR are subject to the two-speed idle test, but excluded from the loaded mode test.</p> <p>This measure will require that these trucks be tested with the loaded mode test instead of two speeds idle that will mean NOx can now be measured for this category.</p> <p>However, new cut-points will</p>

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					<p>need to be developed.</p> <p>MOBILE6.2 model does not allow modeling of loaded test for heavy-duty gasoline vehicles. OBD on some heavy-duty gasoline vehicles is being phased-in. ASM dynamometers may not be able to handle heavier weights from HDGVs.</p>
<p>33) I/M Waivers (RC)- Repeal or limit the waivers allowed under current I/M program Sec. 114.50 - 114.53.</p>					<p>The Existing Waivers: “Program requirements are waived if, - The registered owner of the vehicle cannot afford to comply with the program, based on reasonable income standards - A vehicle cannot be brought into compliance with emissions standards by performing repairs - A vehicle on which at least \$100 has been spent, has been driven fewer than 5000 miles since the last safety inspection and will be driven less than 5000 miles before the next safety inspection; or if parts are not readily available for a vehicle.”</p>

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					Will model effect of 0% waivers when 2009 inventory received from NCTCOG.
34) CARB ZEV- Require a percentage of vehicles sold in Texas to be zero emission (or partially zero emissions, or PZEVs, such as hybrid electric vehicles).					<p>In 1990, CARB adopted a requirement that required that in 1998, 2% of the vehicles produced for sale in California had to be ZEVs, increasing to 5% in 2001 and 10% in 2003. The aim of this program is to encourage auto manufacturers to develop clean vehicle technologies and make these available to the consumer. Since 1990, this program has undergone several changes and recent litigation. As of April 2003, the CARB regulation requires:</p> <ul style="list-style-type: none"> -10% ZEV beginning in MY2005 -Compliance options including using PZEVs and various vehicle types are allowed. This practice involves a formula that initially allows a mix of credits from three categories of vehicles - 2 percent from "gold" pure

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<p style="text-align: center; font-size: 48px; opacity: 0.2; font-weight: normal;">DRAFT</p>					<p>ZEVs, 2 percent from "silver" advanced technology partial ZEV allowance vehicles (AT PZEVs), and 6 percent from "bronze" partial ZEV allowance vehicles (PZEVs). The manufacturer would also have the option of electing a new alternative ZEV compliance path, under which the manufacturer would meet part of its ZEV requirement by producing its sales-weighted market share of approximately 250 fuel cell ZEVs by the 2008 model year. Under this alternative path, the remainder of the manufacturer's ZEV obligations could initially be achieved with a credit mix of 4 percent from AT PZEVs and 6 percent from PZEVs. http://www.arb.ca.gov/msprog/zevprog/factsheets/2003zevchanges.pdf</p> <p>ZEV requirements included as part of modeling CA LEV standards in Item #35.</p>
<p>35) CARB LEV standards (EH)-Adopt CARB Low Emission Vehicle (LEV) standards in lieu of Federal standards (NLEV). This strategy was proposed in</p>				<p>NOx - 0.114 VOC - 0.115</p>	<p>This strategy was proposed in December 1999. Analysis found only a small NOx</p>

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December 1999.				Benefits are for 2010 only. No 2009 figures can be provided because CA LEV vehicles could not enter fleet until 2010 model year.	benefit (1.5-2 tpd) compared with NLEV. Benefit found to decline over time. If the California Low Emission Vehicle II (LEVII) standards were adopted by the State of Texas. The critical assumptions for this analysis were: <ul style="list-style-type: none"> - Legislative authority would be required to adopt the LEVII standards. - Such authority could not be granted until at least the Spring of 2007 during the next Texas Legislative session - Upon passage of such legislation, automobile manufacturers would need a minimum of two years lead-time to introduce LEVII vehicles in Texas. - LEVII vehicles would start entering the Texas fleet in the Fall of 2009 with the 2010 model year.
36) CARB Refuse Hauler Requirements (EH) -This rule will be phased-in from 2004 to 2009. This rule is scheduled for adoption during the Sept 25, 2003					CARB proposes to mandate solid waste collection vehicles owners and municipalities that

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<p>hearing. This measure follows upon the fleet rule for transit agencies, which requires transit agencies to reduce diesel, PM emissions from urban buses and was adopted by the Board in February 2000 and amended in October 2002. The TCEQ could potentially adopt a similar strategy for NOx.</p>					<p>authorize owners through a contract, franchise agreement, permit, license or similar approval for residential and commercial solid waste collection service to reduce diesel PM emissions from these vehicles. This rule requires owners of solid waste collection vehicles to use Best Available Control Technology (BACT). There are three options to meet the requirement: (1) Use a diesel engine or power system alone or in combination with a verified diesel emission control strategy (DECS) that is certified to the 0.01 g/bhp-hr particulate emission standard, (2) use an alternative fuel engine, or a heavy-duty pilot ignition engine, (3) apply the highest level diesel emission.</p> <p>Will need data on number of refuse trucks in area. Currently cannot obtain such data from TxDOT database, so</p>

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					NCTCOG or other local entity will likely be needed to obtain fleet and activity data for garbage trucks in DFW area.
37) Fleets (Government Fleets) (Environmental Defense) -“Government fleets should be converted to hybrids or other Super Ultra-Low Emitting Vehicles (SULEV) for all vehicles.”					Similar to Texas Clean Fleet requirements which have little benefit. Will wait until 2009 inventory is received to finalize.
38) Fleets (Large commercial fleets) (Environmental Defense) - “These fleets, including taxis, should be required to buy hybrids or other SULEV for all sub-compact or compact vehicles.”					Will need data for amount of VMT accrued by large commercial fleets.
39) Fleets (Rental Cars) (Environmental Defense) -“All rental cars of the subcompact and compact size should be required to be hybrids of other SULEV vehicles.”					Will need data for amount of VMT accrued by rental car fleets.
40) Control of Truck Movements- Controlling or restricting trucks from certain areas, restricting loading zones, and/or scheduling deliveries. This strategy could include restricting certain areas of the central business district, certain hours of the day, and/or removal of trucks from the freeway/highway.					Controlling movements in certain areas can be very beneficial in reducing congestion and the associated pollution generated from this control. Shifting peak period truck movements could have a negative effect on air quality. <u>If the trucks are being banned from freeway use or other areas, this could shift the traffic on to other facilities</u>

Draft Deliberative Policy Process Do Not Quote or Cite

On Road Mobile Potential Control Strategies for DFW Attainment Demonstration

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					<p><u>causing those facilities to be congested.</u> This strategy could result in slightly negative air quality impacts. Also, removing trucks from the freeway facilities could increase overall speeds, which may lead to lower VOC levels but slightly higher NOx levels.</p> <p>See comments for Item #18. This is a very similar strategy.</p>
<p>41) Heavy-duty vehicle speed limit restriction and restriction to right lane (EH)-Limit speeds for heavy-duty vehicles and require them to stay in right lane unless passing.</p>					<p>This type of system is common in Europe. It improves traffic flow, safety, reduces accidents and therefore congestion. This measure would need to be implemented by TX DOT. HB1365 prohibits TCEQ from setting new environmental speed limit controls.</p> <p>Will wait until 2009 inventory is received to finalize. Will only be able to approximate benefit because NCTCOG travel demand model will be needed for more accurate approach.</p>
<p>42) CARB 2007 On-Highway Diesel Engine</p>					<p>Will wait until 2009 inventory</p>

Draft Deliberative Policy Process Do Not Quote or Cite

On Road Mobile Potential Control Strategies for DFW Attainment Demonstration

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Standards -Adopt by reference California's 2007 standards for on-highway heavy-duty diesel engines. These standards are identical to national standards of 0.2 g/bhp-hr NOx and 0.01 g/bhp-hr PM. CARB standards go beyond EPA's by including buses.					is received to finalize.
43) HDDV I/M (EH) - Establish an I/M program for vehicles over 14,000 lbs GVWR similar to light-duty I/M. This program would be most useful after 2004, since pre-2004 engines don't have NOx emissions controls systems, which could deteriorate with time. Also, the current Mobile6 modeling assumes no deterioration; therefore it is not clear that additional SIP credit could be taken for this strategy (although real air quality benefits would be derived from it).					<p>Could include testing at border crossing and weight stations (and ports and intermodal facilities). Include opacity testing and checking for tampering. (KG)</p> <p>Amend Sec. 114.50</p> <p>MOBILE6.2 does not have capability to model I/M for diesel vehicles. Major research project would need to be conducted prior to quantifying potential diesel I/M credits. Heavy-duty gasoline vehicles over 14,000 pounds GVWR already receive two-speed idle test.</p>
44) Mandatory HDDV Reflash (EH) -CARB plans to adopt a program requiring owners and operators of trucks, school buses, and motor homes with 1993-1998 model year heavy-duty diesel engines to upgrade the software in the electronic control module (ECM) of					TCEQ could consider adopting by reference, however, it is important to note that while this would generate real reductions, we already take

Draft Deliberative Policy Process Do Not Quote or Cite

On Road Mobile Potential Control Strategies for DFW Attainment Demonstration

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these engines, on Mar 25, 2004. More info: http://www.arb.ca.gov/regact/chip04/chip04.htm					credit for an assumed 90% reflash rate in 2007 (which is the default in Mobile6). Although there is evidence that currently less than 1-2% of these engines have been reflashed, we have to use M6 defaults for 2007. Adopting the CARB program would allow reality to better reflect the modeling. For future case inventories, 90% rebuild rate is already assumed and rates in excess of 90% cannot be modeled with MOBILE6.2.
45) Idling Restrictions at Ports and Intermodal Yards- If a truck idles in the queue for more than 30 minutes, then port or intermodal yard operator will be fined.					The port or intermodal yard (like the Burlington Santa Fe Rail Intermodal facility at Alliance) would need to operate in a way that will not cause trucks to idle for more than 30 minutes. See figures and comments for Item #3, which is very similar.
46) Idle-limiting Devices on New Trucks (KG)-New					In California, for new trucks,

Draft Deliberative Policy Process Do Not Quote or Cite

On Road Mobile Potential Control Strategies for DFW Attainment Demonstration

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<p>Heavy Duty Trucks will be required to have idle-limiting devices installed before being sold and/or registered in Texas.</p>					<p>ARB plans to propose a measure that would require idle-limiting devices on California-registered new heavy heavy-duty vehicles (diesel vehicles with GVWRs greater than 33,000 pounds) starting with the 2007 model year. These vehicles are typically used in line haul service and provide the greatest opportunities for reductions in idling emissions. The idle-limiting devices could range from systems that automatically shut down an engine after a specific time, to stop/start systems that automatically stop and start the engine as necessary to maintain engine and cab temperature and battery voltage within pre-set limits.</p> <p>In Jan 2004, EPA issued "Guidance for Quantifying and Using Long Duration Truck Idling Emission Reductions in State Implementation Plans and Transportation Conformity" (EPA420-B-04-001, January 2004)</p>

Draft Deliberative Policy Process Do Not Quote or Cite

On Road Mobile Potential Control Strategies for DFW Attainment Demonstration

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					http://www.epa.gov/otaq/smartway/documents/420b04001pdf See figures and comments for Item #3, which is very similar.
47) OBD for HDDV -Require first-generation diagnostic systems be equipped on all 2007 and subsequent model year on-road heavy-duty engines and vehicles produced for sale in Texas with a GVWR greater than 14,000 pounds. These proposed requirements, which are referred to as engine manufacturer diagnostic system (EMD) requirements, build on the basic diagnostic system heavy-duty engine manufacturers are currently using to provide diagnostic capability for the most important emission control systems. Sufficient lead-time exists to implement the EMD system by the 2007 model year when emission standards become more stringent and universal use of particulate filters is expected. The EMD system would help ensure that the engines are able to meet the new emission standards and maintain low emissions for the life of the engine. It would accomplish this by monitoring the durability and performance of the emission control components and systems, and by providing technicians with information that would help in diagnosing and fixing malfunctions.					CARB has initiated rulemaking to require manufacturer's of heavy-duty vehicles (14,000 lbs+) to be fitted with OBD systems beginning with model year 2007/2008. U.S. EPA currently does not have OBD requirements for vehicles and engines above 14,000 pounds (there are OBD standards for vehicles under this weight class). CARB held a public hearing to propose this regulation on March 20, 2004, and adoption is scheduled for May 20, 2004. Link to CARB rulemaking:: http://www.arb.ca.gov/regact/emd2004/emd2004.htm EPA and CARB are working on this. MOBILE6.2 does not have I/M or OBD credits built in for diesel vehicles: therefore, no benefit can be quantified.
48) Permit HOV Lane use by qualifying single				NOx - 0.1% to	Requires HOV lanes to be

Draft Deliberative Policy Process Do Not Quote or Cite

On Road Mobile Potential Control Strategies for DFW Attainment Demonstration

Control Strategy Description	Base Year 1999 Emission (TPD)	Future Year 2010 Emission Projection (TPD)	Reduction in Tons Per Day (TPD)	Estimated Percent Reduction	Comments
occupant LEV's- Permit lowest emission rate LEVs on HOV lanes as SOVs. Qualifying LEVs would be lowest emitters at manufacture (and confirmed at inspection if I/M program exists), identifiable by unique permit or vehicle sticker issued at annual vehicle registration.				1%	applicable. Coordinate with annual vehicle registration renewals as with safety inspections. Needs to be modeled by NCTCOG in coordination with travel demand model. Need data on how many "average" vehicles would be replaced by "cleaner" vehicles.
49) Free Transit- Fare free transit system wide.				1% to 3% reduction in VMT	Would require sponsorship and/or commitment of significant public funds. This policy should by itself generate long-term increases in ridership. To be effective, this would require expanded transit fleet and possibly support facilities. Funds could come from peak-hour commuter parking space tax. Needs to be modeled by NCTCOG in coordination with travel demand model. Need data on how ridership increases and VMT reduction.
49) Drive Thru's- Ban the use of drive-thru windows at banks, restaurants, utilities, etc. during ozone season.					See comments for Items #1 and #2 related to light-duty vehicle idling and drive-thru activity.

Draft Deliberative Policy Process Do Not Quote or Cite

On Road Mobile Potential Control Strategies for DFW Attainment Demonstration

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					Currently, no data exist on magnitude, hourly distribution, and spatial distribution of drive-thru activity.
50) No Drive Days- Limit driving a vehicle on days depending on the last digit/letter in the license plate during ozone season. Exemption could be allowed for hybrid vehicles.					Needs to be modeled by NCTCOG in coordination with travel demand model. This measure requires rerunning travel model with decreased number of trips, which will significantly change both path and average speed of millions of trips. Very time-consuming to quantify. Basically, redeveloping the inventory will be necessary.
51) Ban idling at airport terminals by banning access during the ozone season.					See comments related to light-duty vehicle idling in Item #1.
52) Tourist Spots- Open tourists spots such as Six flags, Water parks, Sporting events at noon or later.					Needs to be modeled by NCTCOG in coordination with travel demand model. Would need detailed information on how many trips would occur later in the day rather than earlier.
53) Required road building, maintenance, and public works projects to be performed outside of ozone season or night if during ozone season.					Needs to be modeled by NCTCOG in coordination with travel demand model. Benefits spill over into nonroad category. Only onroad benefits would be VMT associated with

Draft Deliberative Policy Process Do Not Quote or Cite

On Road Mobile Potential Control Strategies for DFW Attainment Demonstration

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					specific vehicle types.
54) Ground Freight Transportation					
54.1) Tractor Aero Profile			.36*		Standard roof deflectors have been used on tractors since the 1970's. ATA suggests that adding a roof deflector to a cab with no aerodynamic devices will improve fuel economy up to 6%. From EPA's "Industry Options for Improving Ground Freight Fuel Efficiency," Draft Report for Review Dec. 14, 2001 Many trucks currently have deflectors. Cannot quantify unless figures are provided of number of trucks with/without deflectors.
54.2) Improved Trailer Aerodynamics			1.90*		ATA suggest that reducing the gap from 45 to 25 inches will improve fuel economy 1-2%. From EPA's "Industry Options for Improving Ground Freight Fuel Efficiency," Draft Report for Review Dec. 14, 2001 Cannot quantify unless figures are provided of number of trucks with 25 versus 45 inch trailer gaps.
54.3) Wide-Base Tires			2.29*		The use of a single wide-base

Draft Deliberative Policy Process Do Not Quote or Cite

On Road Mobile Potential Control Strategies for DFW Attainment Demonstration

Control Strategy Description	Base Year 1999 Emission (TPD)	Future Year 2010 Emission Projection (TPD)	Reduction in Tons Per Day (TPD)	Estimated Percent Reduction	Comments
					<p>tire instead of dual tires on the truck's drive and trailer axles will improve fuel economy by reducing rolling resistance and truck weight. From EPA's "Industry Options for Improving Ground Freight Fuel Efficiency," Draft Report for Review Dec. 14, 2001</p> <p>Will review further when 2009 onroad inventory received from NCTCOG. Texas does not have authority to force truck manufacturers to design vehicles a certain way. May have to consider that having dual tires is a safety concern. If only one tire is available and it goes flat, truck is far less stable than if a backup tire is available.</p>
54.4) Automatic Tire Inflation Systems			.66*		<p>Underinflated tires cause higher rolling resistance and fuel consumption. Automatic tire inflation systems that sense pressure will supply pressurized air to tires on a continuous basis. Maintaining proper tire pressure will decrease tire wear, the frequency of road emergencies,</p>

Draft Deliberative Policy Process Do Not Quote or Cite

On Road Mobile Potential Control Strategies for DFW Attainment Demonstration

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					and time spent on periodic tire pressure inspection. From EPA's "Industry Options for Improving Ground Freight Fuel Efficiency," Draft Report for Review Dec. 14, 2001 Will review further when 2009 onroad inventory received from NCTCOG. Texas does not have authority to force truck manufacturers to design vehicles a certain way.
54.5) Low-Friction Engine Lubricants			1.53*		Friction losses in the engine can be reduced by using low viscosity lubricants. From EPA's "Industry Options for Improving Ground Freight Fuel Efficiency," Draft Report for Review Dec. 14, 2001 Will review further when 2009 onroad inventory received from NCTCOG. Texas does not have authority to force truck manufacturers to design vehicles a certain way.
54.6) Low-Friction Drive Train Lubricants			.51*		Friction losses in the drive train can be reduced by using low viscosity lubricants. From EPA's "Industry Options for

Draft Deliberative Policy Process Do Not Quote or Cite

On Road Mobile Potential Control Strategies for DFW Attainment Demonstration

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					<p>Improving Ground Freight Fuel Efficiency,” Draft Report for Review Dec. 14, 2001</p> <p>Will review further when 2009 onroad inventory received from NCTCOG. Texas does not have authority to force truck manufacturers to design vehicles a certain way.</p>
54.7) Speed Reduction (70 to 65 mph)			.92*		<p>Trucks can improve fuel economy by reducing highway driving speeds. Truck fuel economy drops significantly as speed rises above 55 mph. Higher speeds can also lead to higher engine maintenance costs. From EPA’s “Industry Options for Improving Ground Freight Fuel Efficiency,” Draft Report for Review Dec. 14, 2001</p> <p>Both DFW and HGB onroad inventories already assume posted speed limits of 65 mph, so no net benefit can be claimed.</p>
54.8) Speed Reduction (65 to 60 mph)			3.9*		<p>Trucks can improve fuel economy by reducing highway driving speeds. Truck fuel economy drops significantly as</p>

Draft Deliberative Policy Process Do Not Quote or Cite

On Road Mobile Potential Control Strategies for DFW Attainment Demonstration

Control Strategy Description	Base Year 1999 Emission (TPD)	Future Year 2010 Emission Projection (TPD)	Reduction in Tons Per Day (TPD)	Estimated Percent Reduction	Comments
					<p>speed rises above 55 mph. Higher speeds can also lead to higher engine maintenance costs. From EPA's "Industry Options for Improving Ground Freight Fuel Efficiency," Draft Report for Review Dec. 14, 2001</p> <p>Very tedious to quantify. NCTCOG can quantify most accurately with travel demand modeling. TCEQ staff can better approximate when 2009 onroad inventories received.</p>
54.9) Driver Training and Monitoring			1.78*		<p>Drivers can improve fuel economy through their acceleration practices, shifting technique, route choice, use of accessories, and number of stops. From EPA's "Industry Options for Improving Ground Freight Fuel Efficiency," Draft Report for Review Dec. 14, 2001</p>
54.10) Tare weight Reduction			.84*		<p>Empty truck weight (tare weight) can be reduced by purchasing tractor or trailer components made of lightweight materials. Tare weight reduction reduces gross-vehicle weight and fuel</p>

Draft Deliberative Policy Process Do Not Quote or Cite

On Road Mobile Potential Control Strategies for DFW Attainment Demonstration

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					consumption. From EPA's m "Industry Options for Improving Ground Freight Fuel Efficiency," Draft Report for Review Dec. 14, 2001 Will need more data from EPA and/or other sources about how emission rates are reduced from heavy-duty diesel vehicles as a result of switching to lighter trailers.
55) Replace conventional petroleum diesel with biodiesel *(tax breaks for people who use biodiesel in place of petroleum diesel, tax diesel to off-set tax breaks, call it an impact fee)					Could increase oxides of nitrogen
56) Mitigation Fee program for Federal sources – Charge an air quality impact fee to source pre-empted from State and local air district under the federal Clean air Act. Use the impact fees to fund and/or implement cost-effective emission reduction projects.					
57) Indirect source mitigation program - development projects - Give tax breaks, use mitigation Fee program to fund projects that reduce vehicle use– bike pathways, better mass transit, etc.					
58) Spare the air days – Free or reduced transit fares					

Draft Deliberative Policy Process Do Not Quote or Cite

On Road Mobile Potential Control Strategies for DFW Attainment Demonstration

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days					
59) Reduce speed limits on ozone action days					
60) Limit use of pre-1981 vehicles on ozone action days/offer owners cash to trade them in for newer models					
<p>61) Incorporate an EPP program – Environmental Preferable Purchasing - Give preference to contractors, companies that purchase, use, offer services that a lesser or reduced impact on the environment and human health.</p> <p>Examples of programs/services – cafeteria ware, new construction, parking lots, paints, glues/adhesives, printing/fleet vehicles that use alt. fuels.</p>					
62) Surcharge for fuels sold on Ozone Action Days.					
63) Switch to Reformulated Gasoline in non-attainment areas during Ozone Action Days					
64) Coordinate Traffic Signal Systems – Require cities and towns in non-attainment areas to synchronize traffic control signals on all roadways, within and across jurisdictional boundaries, which have excess of 15,000 motor vehicles per day					

*All values shown as 2010 emission reduction (MMTCE) at a participation rate of 100%, from EPA's "Industry Options for Improving Ground Freight Fuel Efficiency," Draft Report for Review Dec. 14, 2001

Draft Deliberative Policy Process Do Not Quote or Cite
