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COMMONLY USED TERMS

Acceleration Simulated Mode (ASM-2) Test
An emissions test using a dynamometer (a set of rollers on which a test vehicle's tires rest) which applies an increasing load or resistance to the drive-train of a vehicle, thereby simulating actual tailpipe emissions of a vehicle as it is moving and accelerating. The ASM-2 vehicle emissions test is comprised of two phases: (1) the 50/15 mode - in which the vehicle is tested on the dynamometer simulating the use of 50% of the vehicle's available horsepower to accelerate at a rate of 3.3 miles per hour (mph) at a constant speed of 15 mph, and, (2) the 25/25 mode - in which the vehicle is tested on the dynamometer simulating the use of 25% of the vehicle's available horsepower to accelerate at a rate 3.3 mph at a constant speed of 25 mph.

Dallas/Forth Worth (DFW) program area
County or counties in which the Texas DPS, in coordination with the commission, administers the vehicle emissions I/M program contained in the revised Texas I/M SIP. This program area consists of the following counties: Dallas, Denton, Collin, and Tarrant.

El Paso Program area
County or counties in which the Texas DPS, in coordination with the commission, administers the vehicle emissions inspection and maintenance program contained in the revised Texas I/M SIP. This program area consists of the following county: El Paso.

Emissions tune-up
A basic tune-up along with functional checks and any necessary replacement or repair of emissions control components.

Exhaust Gas Analyzer
A device used to measure the amount of emission gases in an exhaust sample.

Extended Dallas/Fort Worth (EDFW) program area
An area which consists of Ellis, Johnson, Kaufman, Parker, and Rockwall Counties. These counties will become part of the program area as of May 1, 2003, or 12 months after designation, whichever is earlier.

Fleet Vehicle
Any motor vehicle operated as a member of a group of motor vehicles belonging to a single non-household entity; any state or local government motor vehicle, including a motor vehicle exempted from payment of a registration fee and issued a specially designated license plate; or any federal government motor vehicle, except for a tactical military vehicle.

FTE
Full Time Equivalent Employee. When used within this SIP, an FTE is calculated by adding the time each inspector spends on vehicle inspections, and dividing by 50 weeks per year. For example, if a station employed 25 individuals, but each employee only worked on vehicle inspections two weeks worth of time per year, this station employed 1 FTE.

Gas Cap Integrity Test
A fuel cap test that determines whether or not the vehicle's gas cap or caps are functioning as designed.

High Emitter
A vehicle whose measured tailpipe emissions levels exceed recommended testing standards.

Houston/Galveston (HGA) Program area
County or counties in which the Texas DPS, in coordination with the commission, administers the vehicle emissions inspection and maintenance program contained in the revised Texas Vehicle Inspection Maintenance Rules. This program area consists of the following counties: Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller.

I/M Program
A vehicle emissions inspection program as defined by EPA that includes, but is not limited to, the use of computerized emission analyzers, on-road testing, on-board diagnostic testing, and/or inspection of vehicle emission devices.

I/M Program Areas
County or counties in which the Texas DPS, in coordination with the commission, administers the vehicle emissions inspection and maintenance program contained in the revised Texas I/M SIP.

On-Board Diagnostics (OBD)
The computer system installed in a vehicle by the manufacturer which monitors the performance of the vehicle's emission control equipment, fuel metering system for the purpose of detecting malfunction or deterioration in performance that would be expected to cause the vehicle not to meet emissions standards.

TX96
Testing equipment meeting specifications for "Preconditioned Two-Speed Idle Vehicle Exhaust Gas Analyzer System" for use in the Texas Vehicle Emissions Testing Program.

Two-Speed Idle Test
A measurement of the tailpipe exhaust emissions of a vehicle while the vehicle idles, first at a lower speed and then again at a higher speed.

TxDOT
Texas Department of Transportation

Vehicle Emissions Inspection Station
A facility certified to conduct an emissions inspection for a vehicle and issue a certificate of emissions inspection.

Vehicle Identification Database (VID)
A database management system which maintains specified vehicle data and emissions testing information.

Vehicle Inspection Report (VIR)
The printout created after an emissions test which displays tests results, vehicle information, and pass/fail status.

Vehicle Repair Form (VRF)
A printout that will include a description of those emissions repairs which were recommended and those which were actually performed. The VRF will be the primary document used by any motorist seeking a waiver.

CHAPTER 1: GENERAL

1.1 BACKGROUND

The I/M program will reduce hydrocarbon emissions, which include VOCs, that react with NO_x to form ground level ozone. Ground level ozone is an irritant to the lungs and especially impacts children, older citizens, and others that may have decreased lung capacity. Some HC emissions include VOCs such as benzene, formaldehyde, and 1,3-butadiene, which are air toxins. They may cause cancer and have other adverse health effects.

The I/M program will reduce CO emissions, which interfere with the oxygen-carrying capacity of the blood. Exposure aggravates angina and other aspects of coronary heart disease and decreases exercise tolerance in persons with cardiovascular problems. Infants, fetuses, elderly persons, and individuals with respiratory diseases are also particularly susceptible to CO poisoning.

The I/M program will reduce emissions of NO_x, including nitrogen dioxide and nitrous oxide, which irritates the lungs, lowers resistance to respiratory infections, and contributes to the development of emphysema, bronchitis, and pneumonia. NO_x contributes to ozone formation (ground level) and visibility degradation and can also react chemically in the air to form nitric acid. NO_x reductions may be achieved through OBD, and ASM-2 or a vehicle emissions testing program that meets SIP emissions reduction requirements and is approved by EPA in affected areas of the state.

Texas implemented a vehicle emissions testing program on January 1, 1995, which met requirements contained in the EPA's final rule for I/M programs. Senate Bill 178, passed by the 74th Texas Legislature, canceled the testing program, reinstated the previous testing program, and authorized the renegotiation of a new vehicle emissions testing program that would be more convenient and less costly. During this time, EPA finalized the I/M Flexibility Amendments on November 28, 1995, providing for an additional third standard, the low-enhanced standard. States were allowed flexibility in designing a program that would meet one of the three program standards: a basic, low-enhanced, or high-enhanced performance standard. The rule also allowed areas with an urbanized area of less than 200,000 people to opt out of the vehicle emissions testing program if the area could meet other FCAA requirements. The rule also allowed states to authorize low-income time extensions more than once in the life of a vehicle. Some emissions-related repairs, performed 60 days or less, prior to an initial emissions test failure, could be allowed in calculating costs for minimum expenditure waivers.

1.2 PUBLIC HEARINGS INFORMATION

The commission held public hearings at the following times and locations:

CITY	DATE	TIME	LOCATION
Conroe	September 18, 2000	10:00 a.m.	Lone Star Convention Center 9055 Airport Road (FM 1484)
Lake Jackson	September 18, 2000	7:00 p.m.	Lake Jackson Civic Center 333 Highway 332 East
Houston	September 19, 2000	10:00 a.m.	George Brown Convention Center 1001 Avenida De Las Americas
Houston	September 19, 2000	7:00 p.m.	George Brown Convention Center 1001 Avenida De Las Americas
Katy	September 20, 2000	9:00 a.m.	VFW Hall 6202 George Bush Drive
Pasadena	September 20, 2000	6:00 p.m.	East Harris County Community Center 7340 Spencer
Beaumont	September 21, 2000	10:00 a.m.	Southeast Texas Regional Airport Media Room 6000 Airline Drive
Amarillo	September 21, 2000	2:00 p.m.	City Commission Chambers City Hall 509 E. 7th Street
Texas City	September 21, 2000	6:00 p.m.	Charles T. Doyle Convention Center 21st Street @ Phoenix Lane
Dayton	September 22, 2000	10:00 a.m.	Dayton High School 2nd Floor Lecture Room 3200 N. Cleveland
El Paso	September 22, 2000	11:00 a.m.	El Paso City Council Chambers 2 Civic Center Plaza, 2nd Floor
Arlington	September 22, 2000	2:00 p.m.	North Central Texas Council of Governments 2nd Floor Board Room 616 Six Flags Drive, Suite 200
Austin	September 25, 2000	10:00 a.m.	TNRCC 12100 N. I-35, Building E, Room 201S

Corpus Christi	September 25, 2000	2:00 p.m.	Natural Resources Center 6300 Ocean Drive Suite 1003

Written comments were also accepted via mail, fax, or e-mail. The public comment period closed on September 25, 2000.

1.3 SOCIAL AND ECONOMIC CONSIDERATIONS

For a detailed explanation of the social and economic issues involved please refer to the preamble that precedes the rule package accompanying this SIP.

1.4 FISCAL AND MANPOWER RESOURCES

The state has determined that its fiscal and manpower resources are adequate and will not be adversely affected through implementation of this plan.

CHAPTER 2: APPLICABILITY

The legal authority for the commission and the DPS to implement the I/M program is granted by the Texas Health and Safety Code, §§382.037-038, and Transportation Codes, §§502 and 548. This authority is not limited by Sunset provisions.

The FCAA and 40 CFR Part 51, as amended, require an "enhanced" vehicle emissions testing program in ozone nonattainment areas designated as serious or above, or in CO nonattainment areas designated moderate or serious. The HGA area is designated severe for ozone, the DFW area is designated serious for ozone, and the El Paso area is designated serious for ozone and moderate for CO. EPA's revised rule allows areas that can meet the reasonable further progress requirements with a less stringent I/M program to develop a program that is more responsive to motorists' concerns. The state has elected to implement a low enhanced I/M program in each area that will meet or exceed EPA's low enhanced performance standard. EPA's low enhanced performance standard consists of an annual centralized or decentralized two-speed idle test, and visual inspection of emission control devices for all subject light duty vehicles and trucks up to 8500 GVWR. Additional credit may be given for ASM-2 testing, OBD testing, remote sensing, and technician training and certification program. OBD testing, which is required by FCAA §§182(c)(3)(vii) and 202(m)(3), in addition to 40 CFR Parts 51 and 85, will begin May 1, 2002 in all affected areas.

Dallas, Tarrant, Harris, and El Paso Counties will continue to utilize the current two-speed idle test until April 30, 2002. Beginning May 1, 2002, in El Paso, model year vehicles 1995 and older will continue emissions testing using TSI and model year vehicles 1996 and newer will be tested using OBD. Beginning May 1, 2002, Dallas, Denton, Collin, Harris, and Tarrant counties will transition to an emissions test utilizing OBD for model year vehicles 1996 and newer, and ASM-2 or a vehicle emissions testing program that meets SIP emissions reduction requirements and is approved by EPA for model year vehicles 1995 and older. Beginning May 1, 2003, Brazoria, Ellis, Fort Bend, Galveston, Johnson, Kaufman, Montgomery, Parker, and Rockwall counties will implement OBD testing for model year vehicles 1996 and newer, and ASM-2 or a vehicle emissions testing program that meets SIP emissions reduction requirements and is approved by EPA for model year vehicles 1995 and older. Beginning May 1, 2004, Chambers, Liberty, and Waller counties will implement OBD testing for model year vehicles 1996 and newer , and ASM-2 or a vehicle emissions testing program that meets SIP emissions reduction requirements and is approved by EPA for model year vehicles 1995 and older. Program expansion is essential for reduction of NOx emissions to be able to demonstrate attainment with the NAAQS for ozone. To ensure that the SIP strategies impose no more burden than necessary to protect health and welfare, the commission decided to provide Chambers, Liberty, and Waller Counties and their respective largest municipality the flexibility to submit by May 1, 2002, individually or collectively, a resolution that is approved by the commission and EPA as an alternative air control strategy. The resolution should provide a control strategy that will provide modeled reductions of VOC and NOx equivalent to the reductions that have been modeled for these counties through the implementation of the I/M program. The estimated "COAST Update October 2000" NOx emission reductions modeled for Chambers County are 1.25 tpd, Liberty County are 1.06 tpd, and Waller County are 0 .75 tpd , for a combined estimated NOx emissions reduction of 3.06 tpd.

BPA is a moderate ozone nonattainment area with an urbanized population of less than 200,000. EPA's I/M flexibility amendments dated September 16, 1995 allow areas with an urbanized population of less

than 200,000 to demonstrate a plan to reduce air pollution without utilizing a vehicle emissions testing program. The BPA area meets this criterion, so no vehicle emissions testing program is required.

CHAPTER 3: I/M PERFORMANCE STANDARDS

The current two-speed idle testing program that the commission and DPS have implemented in Harris, Dallas, Tarrant, and El Paso counties and the proposed ASM-2 testing program for the DFW, EDFW, and HGA program areas meet or exceed the minimum performance standard required by 40 CFR Part 51. EPA's MOBILE5a_H model has been used to produce the emissions factors for the EPA low enhanced performance standards and the emissions factors for the area's I/M program commitment for each pollutant and applicable evaluation year.

Outputs are described in g/mi reductions, and are tabulated by program areas at the end of this document in the Technical Supplement. Modeling runs are contained in Attachment A.

As required by 40 CFR 51.351(d), the vehicle emissions inspection program has been designed to offset NO_x increases resulting from the repair of HC or CO failures in counties implementing a two-speed idle test. The commission will audit repair data to determine any potential increases in NO_x emissions as a result of repairing failed vehicles.

CHAPTER 4: NETWORK TYPE AND PROGRAM EVALUATION

4.1 NETWORK TYPE

The State of Texas has implemented a decentralized I/M network in Dallas, Tarrant, Harris and El Paso counties. Beginning May 1, 2002 the DFW I/M testing areas will be expanded to include Collin and Denton counties, and beginning May 1, 2003, to include the EDFW program area. Beginning May 1, 2003 the HGA I/M testing areas will be expanded to include Brazoria, Fort Bend, Galveston, and Montgomery counties, and beginning May 1, 2004, to include Chambers, Liberty and Waller counties. The decentralized network allows motorists a choice of test-and-repair or test-only facilities that offer the required emissions and gas cap integrity test. Test-only facilities may offer other services for the convenience of their customers, such as, but not limited to, oil changes, self-serve gasoline, and any other items that are not related to automotive parts, sales, and/or service. Test and repair facilities may offer a wide range of repairs and services for the convenience of their customers. This allows motorists a choice of testing facilities offering a variety of services with no difference in test fees based on facility type. In addition, the commission has implemented a centralized on-line data communications system that assists in monitoring test results by facility type and allows the ability for extensive data analysis.

On February 8, 1999, the commission submitted the Short Term Program Effectiveness - 18-Month Evaluation of The Texas Vehicle Emissions Testing Program that demonstrated the state's decentralized test only/test-and-repair network is comparable to a centralized test-only network. On August 20, 1999, EPA published Additional Flexibility Amendments to Vehicle Inspection Maintenance Program Requirements; Proposed Amendment to the Final Rule. In this proposed rule, §51.353(b), the automatic effectiveness credit discount for decentralized test-and-repair networks was deleted. For these reasons, the state has modeled the I/M program with the assumption of a "centralized network" so that the automatic discount would not be applied by the model and 100% effectiveness credit would be given.

4.2 PROGRAM EVALUATION

On October 12, 2000, the commission submitted the first Mass Emissions Transient Testing (METT) report to EPA. The METT is an ongoing evaluation of the I/M program consistent with EPA requirements to quantify the emissions reduction benefits for the Texas I/M Program. The commission commits to reporting the results of the evaluation to EPA on a biennial basis. The evaluation consists of:

(1) Surveys that assess the effectiveness of repairs performed on vehicles that failed the emissions and the gas cap integrity test;

(2) Measurement of tampering rates, their change over time, and the change attributable to finding and fixing such tampering as opposed to deterrence effects; and

(3) Results of covert surveys of inspector effectiveness as it relates to identifying vehicles that need repair.

METT is the method for evaluating enhanced I/M programs prescribed by EPA. The method uses transient testing, or loaded-mode testing on a dynamometer, to simulate actual driving conditions, and expresses emissions using a mass-based measurement in grams. To meet METT requirements, the state will test and evaluate a random sample of in-fleet vehicles following FCAA requirements for I/M program evaluations as amended by EPA on January 8, 1998 (40 CFR parts 51 and 52, Minor Amendments to Inspection Maintenance Program Evaluation Requirements; Amendment to the Final Rule) and EPA guidance issued October 30, 1998 (Guidance on Alternative I/M Program Evaluation Methods). That sample will be required to receive a DPS administered or monitored emissions and gas cap integrity test. Such vehicles

will receive a state administered or monitored IM240 mass emissions test or comparable test at the time the initial test is due as required in 40 CFR 51.353(c)(3).

The special testing will take place at the time the vehicle is scheduled to have an initial inspection, prior to any repair. The commission will then evaluate the data by model year and vehicle type to determine program effectiveness. A contractor(s) may be utilized to assist in collecting, reviewing, or evaluating program data.

The inspection data that is collected will be submitted to EPA and used by the commission to calculate local fleet emissions factors, to assess the effectiveness of the I/M program, and to determine if the performance standard is being met.

CHAPTER 5: ADEQUATE TOOLS AND RESOURCES

The I/M program will maintain adequate funding. The commission chapter of House Bill No. 1 (General Appropriations Act, Article VI), passed by the 76th Texas Legislature, appropriated the commission and the DPS a portion of all fees collected from vehicle inspection facilities performing automobile emission inspections. Vehicle emissions inspection fees, which are set by the commission and deposited to the credit of the Clean Air Account and the DPS General Revenue Fund in the Texas Treasury pursuant to Section 382.037(e, k), Health and Safety Code, are used for the purpose of supporting the vehicle emissions I/M program. In addition, the Clean Air Account receives other fees, including $2.00 per vehicle from an automobile safety inspection, dedicated for use of the state air quality program.

Rider 6 in the current General Appropriations Act specifically earmarked funds available to develop, administer, evaluate, and maintain the vehicle emissions I/M program, including federally required reporting measures to demonstrate compliance with applicable federal and state laws.

Until April 30, 2002, $1.75 of the fee collected for each safety and emission certificate issued by vehicle inspection facilities is available to the commission and DPS. Anticipated revenue and budgets for Fiscal Year 2000-2001 for the commission and DPS involvement in the I/M program have been proposed, and are attached as Appendix E. It is anticipated that the budget for future years will be at similar levels. The commission commits to a dedicated staffing level of no less than 11 FTE employees to I/M program design, oversight, and evaluation. The DPS commits to a dedicated staffing level of no less than 52 FTE employees to I/M program implementation, administration, enforcement, and support. The breakdown by agency is as follows:

Commission

Data collection and analysis	3 FTE employees
Performance monitoring/evaluation	1 FTE employees
SIP Amendments, Rulemaking, Program Development	2 FTE employees
Registration Denial and Consumer Assistance	2 FTE employees
Technical Assistance	2 FTE employee
Other administrative and management functions (excluding clerical support)	1.5 FTE employee

DPS

Technician Assistance	4 FTE employees
Overt and covert auditing	31 FTE employees
Consumer assistance	2 FTE employees
Waiver oversight	2 FTE employees
Enforcement	6 FTE employees
Other administrative and management functions (excluding clerical support)	4 FTE employees
Remote Sensing	3 FTE employees

The DPS has access to a wide variety of vehicles for use in covert audits of the vehicle emissions inspection program.

The commission provides oversight of the data collection and analyzes the results to improve program requirements. DPS implemented the remote sensing program October 1998. The commission, DPS and TxDOT will continue to coordinate efforts in support of the re-registration denial enforcement element of the Texas I/M program. TxDOT will continue to provide access to registration data and ensure that required staffing is available to perform tasks associated with re-registration denial.

CHAPTER 7: VEHICLE COVERAGE

7.1 REGISTERED VEHICLES

Currently in Dallas, Tarrant, Harris, and El Paso counties, the I/M program requires annual testing of all gasoline-powered motor vehicles that are two through 24 years old, primarily operated and registered, or required to be registered, in the affected counties, and required by the DPS to comply with vehicle safety inspection requirements. Leased vehicles primarily operated in and registered, or required to be registered, in the affected counties are included in the program and must be scheduled for vehicle testing as a part of the annual safety inspection. Dual-fueled vehicles capable of operating on gasoline, are also required to be tested as part of the annual safety and emission program. Beginning May 1, 2002, these requirements will extend to include Collin and Denton counties, and beginning May 1, 2003, in Brazoria, Ellis, Fort Bend, Galveston, Johnson, Kaufman, Montgomery, Parker, and Rockwall counties. Chambers, Liberty and Waller counties will implement the vehicle emissions testing program beginning May 1, 2004. Military tactical vehicles, motorcycles, diesel-powered vehicles, vehicles less than two years old, or vehicles 25 years old or older, and vehicles registered with TxDOT as antique or classic, are excluded from the program.

Vehicles subject to I/M testing are identified through the registration database provided to the commission by TxDOT. This database is updated through weekly tapes issued by TxDOT. The following chart represents an estimate of subject vehicles (by county), and is extracted from 2000 registration numbers.

2000 SUBJECT VEHICLE REGISTRATION BY COUNTIES	
Brazoria	156,139
Chambers	18,678
Collin	309,646
Dallas	1,398,607
Denton	269,863
Ellis	86,684
El Paso	373,789
Fort Bend	206,328
Galveston	163,270
Harris	2,040,696
Johnson	88,943
Kaufman	48,740
Liberty	42,116
Montgomery	187,222
Parker	65,042
Rockwall	31,843
Tarrant	938,715
Waller	19,998

The commission compares registration data with vehicle inspection results data to identify noncompliant vehicles. Registered owners of vehicles in the affected counties are notified if they have not complied with I/M program requirements. Specific re-registration denial procedures are specified in Chapter 11. In addition, remote sensing identifies gross polluting vehicles that are operating and registered in any of the I/M program areas.

Businesses and public agencies (operating any number of vehicles) may inspect and repair their own vehicles. However, businesses or agencies are required to obtain an emissions station testing license (which includes licensing of inspection technicians) from the DPS in order to participate. Once a business or public agency is licensed, all other program controls, monitoring, and enforcement apply.

Compliance

Subject vehicles must pass an emissions and gas cap integrity test in an inspection facility that has been certified for safety and emissions inspection by DPS and receive a valid vehicle inspection certificate. Failure to pass program elements results in noncompliance of a vehicle. The enforcement for noncompliance ranges from issuance of a citation to denial of re-registration. Enforcement of the I/M program is discussed further in Chapters 11 and 12.

Remote Compliance

DPS honors reciprocal agreements with other I/M programs. Exceptions may be allowed for vehicles operating in the area with proof that adequate emissions testing in another nonattainment area has been passed. Subject vehicles registered in the program area, but primarily operated in another I/M area, may be allowed to be tested in the program area or furnish proof of passing a test of adequate performance standards by the program area in which the subject vehicle is primarily operated in order to show compliance with I/M program requirements.

Vehicles that are registered in DFW, EDFW, HGA or El Paso program areas, but are operated in attainment areas of Texas or in another state, are not required to undergo emissions testing. However, the motorists must complete a DPS affidavit, and upon returning to the above mentioned areas the vehicle must meet program requirements. A vehicle is considered primarily operated in a county if it is used in that county for a least 60 calendar days per testing cycle.

7.2 EXEMPT VEHICLES

The Texas Health and Safety Code exempts motorcycles, slow moving, circus, military tactical, and diesel-powered vehicles, vehicles less than two years old, and vehicles 25 years old or older from emissions testing. Antique vehicles are also excluded from the I/M program, since they are 25 years old or older.

The commission anticipates no further exemptions from the fleet subject to the I/M program; therefore, modeling results are not affected. However, if the number of exempt on-road vehicles exceeds 0.5% of the vehicle fleet, the commission will account for that factor in modeling credit estimates.

Texas does have specially designated license plates for vehicles that are exempt from registration fees and have been referred to as "exempt." These vehicles are included in the I/M program requirements. TxDOT will provide “exempt” motor vehicle registration data via electronic medium to the commission.

The commission has the authority to establish classes of vehicles that are exempt from the I/M program and may establish procedures to allow and review petitions for exemption of individual vehicles, as provided in §382.037(k) of the Texas Health and Safety Code.

7.3 FEDERAL VEHICLES

Pursuant to FCAA, §118(c), federal vehicles, except those identified as military tactical vehicles, operated in DFW, EDFW, HGA, or El Paso program areas are required to comply with all provisions of the I/M program. Therefore, emissions testing is required to ensure that the vehicles meet specified emissions requirements. EPA has provided the definition of a military tactical vehicle as defined in a memorandum dated March 2, 1993 from the Department of the Navy as follows:

> “A motor vehicle designed to military specifications or a commercially designed motor vehicle which is needed to meet direct transportation support of combat, combat support, combat service support, tactical, or

relief operations, or training of personnel for such operations.
Commercial designed motor vehicles described above will be subjected to state inspection and maintenance programs regardless of tactical status."

Federal Government fleets are permitted to self test within their own maintenance facilities, provided that they meet the required equipment standards and are licensed by DPS, and the tests are performed in accordance with established inspection procedures.

7.4 UNITED STATES ARMED FORCES PRIVATELY OWNED VEHICLES

The Soldiers and Sailors Relief Act of 1940, Amended in 1974, allows a nonresident owner of a vehicle registered in another state, who is an active member of the United States armed forces, to operate the vehicle in Texas without being registered in Texas. The vehicle is subject to the following requirements.

(1) The vehicle must display valid license plates issued by another state;
(2) The vehicle license plates and registration must be issued to the military person;
(3) The vehicle license plates and registration must be issued by the state where the military person was last stationed or by the state the military person claims as a permanent state of residence; and
(4) The owner must have in force a specified form of financial responsibility (insurance).

Vehicles meeting these criteria are exempt from Texas registration, and therefore would not be captured in a database comparison. However, pursuant to FCAA §118, federal employees who operate private vehicles on federal property must furnish proof of compliance with the applicable requirements of any vehicle emissions inspection program established in the state in which the federal property is located. FCAA requires proof of compliance to be presented to the base authority in one of the following ways:

(1) presentation by the vehicle owner of a valid vehicle inspection report from the local I/M program or from any other I/M program;
(2) proof of registration within the geographic area covered by the I/M program except for any program whose enforcement is not through registration denial; or
(3) another method approved by the executive director.

Visiting agency, employee, and military vehicles are exempt from the program as long as such visits do not exceed 60 calendar days per year. Other alternative mechanisms may be approved by the executive director.

The commission requires commanding officers or directors of federal facilities to certify annually to the commission that all subject vehicles have been tested and are in compliance with the FCAA. Current estimates of the federal vehicle population in the DFW, EDFW, HGA, and El Paso program areas are as follows:

Federal Vehicle Count	
DFW/EDFW Program Areas	3,636
HGA	3,352
El Paso Program Area	940

CHAPTER 8: TEST PROCEDURES, STANDARDS, AND TEST EQUIPMENT

8.1 TEST PROCEDURES AND STANDARDS

Owners of all subject gasoline-powered vehicles that are two through 24 years old that are annually inspected through DPS-certified safety inspection stations are required to have an applicable emissions test performed. Vehicles less than two years or greater than 24 years old are not required to provide proof of compliance with the I/M program requirements in conjunction with a safety inspection. Texas has implemented annual vehicle emissions testing in Dallas, Tarrant, Harris and El Paso counties. Currently, two-speed idle and gas cap integrity tests are performed on all subject vehicles in Dallas, Tarrant, Harris, and El Paso counties during the annual safety and emissions inspection. Gas cap integrity testing is performed on all vehicles statewide during annual safety inspections starting January 1, 2000. Beginning May 1, 2002, in El Paso, model year vehicles 1995 and older will continue emissions testing using two-speed idle and model year vehicles 1996 and newer will be tested using OBD. Beginning May 1, 2002, the DFW program area and Harris County will utilize OBD testing for model year vehicles 1996 and newer, and ASM-2 or a vehicle emissions testing program that meets SIP emissions reduction requirements and is approved by EPA for model year vehicles 1995 and older.

Beginning May 1, 2003, the EDFW program area and Brazoria, Fort Bend, Galveston and Montgomery counties will begin emissions testing utilizing OBD testing for model year vehicles 1996 and newer, and ASM-2 or a vehicle emissions testing program that meets SIP emissions reduction requirements and is approved by EPA for model year vehicles 1995 and older. Beginning May 1, 2004, Chambers, Liberty and Waller counties will implement vehicle emissions testing utilizing OBD testing for model year vehicles 1996 and newer , and ASM-2 or a vehicle emissions testing program that meets SIP emissions reduction requirements and is approved by EPA for model year vehicles 1995 and older. In addition, as part of the safety and emissions test, vehicles are subject to anti-tampering checks including: the EGR system, evaporative emissions control system, PCV system, thermostatic air cleaner, the air injection system (smog pump), and for selected model years, the catalytic converter. No purge testing is performed in this program. Unsafe vehicles or vehicles with missing or leaky exhausts that are presented for emissions testing will be rejected.

The vehicle emissions inspection commences when the VIN, license plate number, make, model, year, and other relevant information has been entered into the system. Pre-existing data, based on the registration data base, and the prior vehicle emissions inspection history of the subject vehicle are retrieved. The inspector confirms the information from the VID with the subject vehicle presented for emissions inspection. If no match or contact occurs with the VID, the inspector must manually enter the vehicle information into the analyzer. All emissions inspection test results are electronically stored on the analyzer for 180 days, and sent via modem to the Texas Data Link System host computer immediately following the completion of each test. All emissions inspection test results are accessible to the commission and DPS.

An official test, once initiated, is performed in its entirety regardless of the intermediate outcomes, except in cases of invalid test condition, unsafe conditions, or fast pass/fail algorithms. Tests involving measurements are performed with program-approved equipment that has been calibrated. Emissions standards are applicable to all vehicles subject to the program, and repairs are required for failure of any standard. The commission may adjust standards as necessary to maintain a passing rate of at least 80%. Upon retest, these vehicles are retested for all pollutants. A second failure of any pollutant level results in a second failure of the vehicle. Vehicles will fail visual inspections of subject emissions control devices if

such devices are part of the original certified configuration and are found to be missing, modified, disconnected, improperly connected, or found to be incorrect for the certified vehicle configuration under inspection.

As required by EPA guidance, 30 TAC §114.1, "Control of Air Pollution From Motor Vehicles," outlines requirements for engine replacement, removal/installation of emission components, and tampering. Additionally, DPS Administrative Rule §23.93, "Vehicle Idle Emissions Inspection and Maintenance Program," gives guidance on engine switching. The DPS will be responsible for enforcement regarding engine switching and vehicle tampering.

The DPS uses remote sensing to identify high emitting vehicles operating in the DFW, EDFW, HGA, and El Paso program areas. Remote sensing may also be used as a quality assurance tool for randomly selected or suspect vehicle emissions facilities. Remote sensing screening is conducted according to reliable engineering practices to assure the accuracy of the test.

8.2 TESTING EQUIPMENT

Two-speed Idle Testing Equipment - This equipment consists of a computerized exhaust gas analyzer and a gas cap integrity tester. The two-speed idle test comprises two phases: (1) high speed test (2200 - 2800 RPMs) for the first phase of the emissions test; then, (2) tested at idle (350 - 1200 RPMs). The gas cap integrity test meets EPA-required specifications and procedures. Emissions testing equipment has the capability to simultaneously sample dual-exhaust vehicles. All equipment meets acceptance testing criteria and receives a notice of approval from the agency's executive director or his designee prior to use in the Texas I/M Program. All vehicle emissions inspection test systems are computerized and contain lock-out provisions for equipment tampering, equipment failure to conduct or pass calibration or leak checks, and prevention of unauthorized access. All equipment provides for automatic data collection that cannot be altered by the emissions testing facility. Steady-state idle test procedures are conducted according to Appendix B of the Federal I/M Rule and steady state idle test equipment specifications consistent with Appendix D of the Federal I/M Rule. Specifications are contained in Appendix G. Vehicle emissions cut points used for the two-speed idle test are located in Appendix A of the Specifications For Preconditioned Two-Speed Idle Vehicle Gas Analyzer System For Use In The Texas Vehicle Emissions Testing Program.

ASM-2 Testing Equipment - This equipment consists of a computerized exhaust gas analyzer, a dynamometer, and a gas cap integrity tester. A dynamometer is a set of rollers used to simulate acceleration by applying resistance or increasing load to the drive wheels of the vehicle. The ASM-2 vehicle emissions test comprises two phases: (1) the 50/15 mode - in which the vehicle is tested on the dynamometer simulating the use of 50% of the vehicle's available horsepower to accelerate at a rate of 3.3 mph/second at a constant speed of 15 mph, and, (2) the 25/25 mode - in which the vehicle is tested on the dynamometer simulating the use of 25% of the vehicle's available horsepower to accelerate at a rate 3.3 mph/second at a constant speed of 25 mph. Applicable vehicles that cannot undergo an ASM-2 test such as, but not limited to, vehicles that exceed 8,500 GVWR or that are all-wheel drive, will receive a two-speed idle test. Emissions testing equipment will have the capability to simultaneously sample dual-exhaust vehicles. All equipment will meet acceptance testing criteria and receive a notice of approval from the agency's executive director or his designee prior to use in the Texas I/M Program. ASM-2 inspection test systems will contain lock-out provisions for equipment tampering, equipment failure to conduct or pass calibration or leak checks, and prevention of unauthorized access. All equipment will provide for automatic data collection that cannot be altered by the emissions testing facility. ASM-2 equipment and

procedures will meet EPA requirements. Specifications for ASM-2 equipment are located in Appendix K of this document. Vehicle emissions cut points used for ASM-2 test equipment are located in Appendix K of the Specifications For Acceleration Simulation Mode (ASM-2) Test Procedures for use in the Texas Vehicle Emissions Testing Program.

OBD Testing Equipment - OBD testing equipment design and operation will meet all federal requirements contained in 40 CFR 85.2207-2231 and recommended SAE practices (J1962, J1978, and J1979). The OBD system test equipment will meet acceptance testing criteria and receive a notice of approval from the agency's executive director or his designee prior to use in the Texas I/M Program. The OBD testing equipment may be tethered to the emissions analyzer, contain lock-out provisions for equipment tampering, prevent unauthorized access to the test data, and automatically retrieve the test data from the vehicle's OBD system. The OBD system will provide for automatic data collection that cannot be altered by the emissions testing facility.

The agency may update emissions testing equipment specifications to accommodate new technology vehicles and changes to the program as necessary.

The commission will conduct a research project on vehicle emissions test methodologies to determine real-world emissions reductions when compared side by side. The test methods will include; ASM-2 and Two-Speed Idle with a functionality check of the EGR valve. Side-by-side emissions testing of in-use vehicles using the different test methodologies will enable the calculation of actual real-world emissions reductions based on comparisons of the tests under real-world conditions.

The results of this research will be used to ensure that the state is making the most cost-effective choice of vehicle emissions testing technology. Modifications to the vehicle emissions testing program as a result of the research project will be made only if the technology can meet SIP emissions reduction requirements and be approved by EPA.

The results of the research project are scheduled to be available by March 2001.

CHAPTER 9: QUALITY CONTROL

9.1 OVERVIEW

QC measures are implemented by the DPS to ensure the State of Texas meets its commitment to provide motorists with consistent and accurate test results. Vehicle inspection site personnel ensure that emissions measurement equipment is calibrated and maintained properly and that inspection records, calibration records, and control charts or graphs are accurately created, recorded, and maintained. Calibration practices and procedures for two-speed idle test equipment, are performed in accordance with requirements specified by Appendix A of Subpart S of 40 CFR Part 51 and may incorporate EPA's Policy or subsequent policies and/or procedures. Two-speed idle test equipment specifications are located in Appendix G. Calibration practices and procedures for ASM-2 test equipment will be performed in accordance with EPA's policies and requirements or subsequent policies and/or procedures. ASM-2 test equipment specifications are located in Appendix K.

Analyzer manufacturers for two-speed idle, ASM-2 test equipment, and OBD test equipment, will prepare a manual of QC procedures, periodic maintenance schedules, and calibration procedures to be followed by vehicle emissions inspection site personnel to ensure that all equipment is properly calibrated. This manual will be submitted to the commission for approval prior to the sale of any equipment for use in the Texas I/M Program. Manufacturers will ensure an extended service contract is available upon the expiration of the manufacturer's original warranty period.

The vehicle analyzer specifications include, at a minimum, durability and functional requirements to ensure accurate measurements, and processing and recording of test samples under a wide range of adverse ambient conditions. In addition, emissions test equipment will be:

(1) automated to the highest degree commercially available to minimize the potential for intentional fraud and/or human error;
(2) secure from tampering and/or abuse;
(3) based upon written specifications; and
(4) capable of simultaneously sampling dual-exhaust vehicles.

Preventative maintenance on all inspection equipment necessary to ensure accurate and repeatable operation will be performed at least quarterly. Preventative maintenance refers to any upkeep practice used to slow a component's deterioration associated with frequent use and aging.

9.2 EQUIPMENT CALIBRATION AND MAINTENANCE

Equipment will be maintained according to demonstrated good engineering practices to assure test accuracy. Inspection stations are required to use calibration gases meeting the specifications set forth in 40 CFR Part 51, Appendix A to Subpart S. Any modification of these requirements by the manufacturer will not be implemented without executive director approval. In addition, the commission will obtain EPA approval for any alternative calibrations and maintenance procedures.

Complete records on repairs, software modifications, and calibration of all testing equipment, will be kept on file by the manufacturer during the original warranty and subsequent service contract agreement period. Each analyzer will contain a historical database which automatically records quality control check information, lockouts, and attempted tampering to ensure quality control. The analyzer housing will be constructed to protect the analyzer bench and electrical components from ambient temperatures and humidity fluctuations that exceed the range of the analyzers. Maintenance procedures for gas cap integrity

check equipment will be maintained according to demonstrated good engineering practices to assure test accuracy.

9.3 DOCUMENT SECURITY

All vehicle inspection certificates will be printed with a unique serial number and an official state seal, and will be counterfeit resistant. Each vehicle inspection station will provide for the safekeeping of safety inspection certificates (under lock and key at all times), controlling their sequence of issuance, and ensuring that they are placed on, or issued to, vehicles.

An inspection certificate will not be issued until a vehicle passes all components of the inspection, including emission testing, or qualifies for a waiver or low income time extension. Inspection certificates are affixed to the inside of the lower portion of the windshield on the driver side to prevent theft/removal. Removal of an inspection certificate by breaking into a vehicle is a felony offense.

CHAPTER 11: MOTORIST COMPLIANCE ENFORCEMENT

Compliance is ensured through re-registration denial and a sticker-based enforcement system. The program is expected to achieve a compliance rate of 96%. Results from a safety inspection compliance survey in Dallas, Tarrant, Harris and El Paso counties indicates 95% compliance without the additional program enhancements. Results are located in Appendix J.

Registration certificates which are affixed on the windshield immediately above the safety inspection certificate currently have markings which indicate a vehicle is registered in an I/M program area. The safety inspection program utilizes a windshield certificate indicating the subject vehicle is in compliance with both the emissions testing and the safety inspection program. Law enforcement officials can visually compare the county of registration and the county of inspection.

Inspection certificates are rectangular in shape, have a state (DPS) seal, have a unique number, and tear when removed. Additional security features have been added, which have not been utilized by counterfeiters. The Gas Analyzer Specifications (Appendices G and K) and the VID assist DPS in tracking inspection certificate numbers. DPS may continue to change the inspection certificate to prevent counterfeiting.

To implement re-registration denial as an enforcement tool, the commission compares the registration database and the inspection database. Letters are sent to registered owners of vehicles that meet the "subject" criteria and (1) fail an initial inspection and never pass a subsequent test, receive a waiver, or otherwise comply with the I/M program requirements; or (2) obtain a safety inspection test outside of Harris County, the DFW program area (Collin and Denton counties beginning May 1, 2002), the El Paso program area, the EDFW program area, and Brazoria, Fort Bend, Galveston, and Montgomery counties beginning May 1, 2003, and Chambers, Liberty and Waller counties beginning May 1, 2004. In addition, the commission is developing mechanisms for re-registration denial of "subject" vehicles which are registered and primarily operated in Harris County, the DFW program area (Collin and Denton counties beginning May 1, 2002), the El Paso program area, the EDFW program area and Brazoria, Fort Bend, Galveston and Montgomery counties beginning May 1, 2003, and Chambers, Liberty, and Waller counties beginning May 1, 2004, that have never complied with I/M program requirements.

Motorists are issued citations by local and state law enforcement officials for driving a vehicle with an expired or invalid state inspection certificate, or for evading the emissions inspection or inspection outside of the affected area. These violations of the Texas Transportation Code, Sections 548.602 (Class C misdemeanor) and 548.603 (Class B misdemeanor) are respectively punishable by a fine starting at $200 and not exceeding $2000 for each occurrence. The owner will be subject to an additional citation every time the vehicle is driven. Violators are given notification that they must comply with the I/M program requirements. Noncompliance will result in delivery of additional citations and fines which may accumulate to more than the expense of a minimum expenditure waiver. Continual noncompliance will result in denial of re-registration.

Fines for motorists involved in bribery or fraud are substantially higher, and may also result in incarceration. A motorist suspected of obtaining an inspection certificate in a neighboring county to avoid the emissions portion of the inspection may be charged with willful purchase of a fraudulent inspection certificate. Pursuant to Texas Transportation Code Section 548.603, this is a Class B misdemeanor.

A comparison of the TxDOT registration data base and the VID is used to identify subject vehicles that are registered in the affected area but have failed to comply with the I/M program. Those vehicles will be flagged in the TxDOT registration data base, and will be denied re-registration until the vehicle has complied with I/M program requirements.

The commission may use VIN decoder software to search for vehicles that have changed their fuel type designation from "gasoline" to "diesel" on their vehicle registration record to avoid emissions testing requirements. In addition, records that have had the fuel type designation changed will be flagged in the VID. The commission will analyze this data for abuse.

Owners of subject gasoline-powered vehicles two through 24 years old, which are identified as failing the emissions standards set for remote sensing, are required to comply with the vehicle emissions testing requirements of the affected area. Registered owners are given notification that they must submit their vehicle for emissions testing within 30 days. Noncompliance will result in delivery of citations, and continual noncompliance will result in denial of re-registration.

The ultimate enforcement is denial of vehicle re-registration for those vehicles registered in the affected area that do not comply with vehicle testing requirements. DPS and other law enforcement agencies have the authority to issue misdemeanor citations to a motorist operating a vehicle in violation of certain provisions of Chapter 548, Texas Transportation Code, which includes emissions-related inspections.

CHAPTER 21: ON-ROAD TESTING

21.1 IDENTIFICATION OF PROBABLE HIGH-EMITTING VEHICLES

The DPS is utilizing remote sensing technology to identify vehicles operating within the I/M program areas that have a high probability of being high emitters. For this purpose, the DPS is focusing on probable high-emitting vehicles that are registered within the subject counties but are not complying with periodic testing requirements in the I/M program areas. Vehicles commuting into the DFW program area from Denton and Collin counties will be monitored through April 30, 2002. Vehicles commuting into the HGA program area from Brazoria, Fort Bend, Galveston, and Montgomery counties will be monitored through April 30, 2003, and through April 30, 2004, from Chambers, Liberty, and Waller Counties.

Vehicles are identified by means of a license plate recognition system which forms an integral part of the remote sensing testing process. The residence of the vehicle owner is identified by obtaining the address corresponding to the license plate in the Texas vehicle registration data base. The DPS uses one or more of the following factors to develop appropriate high-emitter screening criteria:

(1) measured tail pipe CO level;
(2) measured tail pipe HC level;
(3) measured tail pipe NO_x level;
(4) measured vehicle speed;
(5) measured vehicle acceleration;
(6) measured engine operating temperature (if available);
(7) number of times a unique vehicle is identified above specific CO, HC, or NO_x levels; and
(8) length of time between multiple high measurements taken on the same vehicle.

Appropriate combinations of one or more of these factors plus additional approved methods (e.g., profiling) will be used to ensure the highest possible confidence level that the identified vehicle is a high emitter. The DPS uses appropriate screening criteria based on the best information available at the time.

21.2 VEHICLE COVERAGE SUMMARY

The DPS plans to use remote sensing to evaluate the on-road emissions performance of at least 20,000 of the vehicles subject to emissions testing in the DFW, EDFW, HGA, and El Paso program areas.

21.3 VERIFICATION TESTING REQUIREMENTS

Each registered owner of a vehicle in the I/M program area which meets the subject high-emitter identification criteria will be mailed a notification letter informing him/her that the vehicle has a high probability of being a high emitter. The notification letter may require the owner to have the vehicle inspected and, if necessary, repaired to ensure compliance with emissions standards. As with the normal testing process, any vehicle that fails this inspection will be required to have repairs performed to bring it into compliance with applicable emissions standards; compliance will be verified by means of a required emissions retest. If necessary, waivers can be issued to vehicles that have begun the testing process as a result of high-emitter identification through remote sensing.

Failure to comply with the requirements of the notification letter may result in the issuance of a citation against the owner of the vehicle. This citation includes progressive penalties that may escalate to a maximum of $1,000.00 per offense for the continuance of non-compliance. If the vehicle fails to comply within 30 days, the vehicle will be flagged in the TxDOT registration database, and the vehicle will be denied re-registration until the vehicle is in compliance with the I/M program.

All vehicles identified as high-emitters which are registered in the I/M program area will be cross-referenced with the Texas vehicle registration and emissions testing data base. The categories of probable high-emitting vehicles that will not be mailed notification letters include, but are not limited to, the following:

(1) any subject vehicle that has received a waiver during the most current test cycle or is operated under the provision of a DPS approved time extension;
(2) any subject vehicle that is scheduled to receive its next emissions inspection within 30 days; and
(3) other appropriate categories as determined by the DPS.

21.3 PROGRAM FUNCTIONS AND RESPONSIBILITIES

Through means of a competitive bid process, remote sensing contractor(s) will be selected to collect, analyze, and report on-road emissions testing data to the DPS. The remote sensing contractor(s) will be required to employ sufficient staff to satisfactorily perform these functions in meeting the vehicle coverage requirements of the oversight agency. The DPS employs sufficient staff both to oversee contractor functions and to coordinate with various state agencies and local government entities. Through cooperation with local transportation and law enforcement officials, applicable sites will be selected in the core I/M program area for collection of remote sensing data.

CHAPTER 22: STATE IMPLEMENTATION PLAN SUBMISSION

The State will meet the following schedule:

Activity	Date
Passage of enabling statutory authority for emissions program (Senate Bill 1856)	6/19/97
Issuance of final requests for offers on the Texas Data Link Project	Completed
Proposal of draft commission regulations	02/28/96
Issuance of final specifications of the Two Speed Idle Test	11/01/99
Adoption of final commission regulations	05/29/96
Final DPS Rules	04/24/98
Issuance of EPA's final specifications on the ASM Loaded Test	06/26/96
Issuance of Texas ASM Specifications	11/01/99
Passage of enabling statutory authority making non-compliance with the I/M program Class B and C Misdemeanors	06/19/97
Passage of enabling statutory authority to implement additional enforcement authority to DPS	06/19/97
Analysis of data for program evaluation to meet the 1995 NHSDA requirements	02/08/99
OBD II testing	05/01/02
Dallas and Tarrant Counties	
Certified Stations on line, phase I	07/31/96
Texas Data Link System project completed	09/01/96
Certified stations on line, phase II	10/31/96
Full-stringency cut points for two-speed idle test	01/01/97
Certify 4 counties in the DFW program area (Dallas, Tarrant, Collin, and Denton counties) online with ASM (start-up cut points for ASM-2) and incorporate OBD testing	05/01/02

Houston/Galveston Area (HGA)

Texas Data Link System project completed	09/01/96
Certified stations on line	12/31/96
Emissions testing start date	01/01/97
Full-stringency cut points for two-speed idle test	01/01/97
Certify Harris County online with ASM (start-up cut points for ASM-2) and incorporate OBD testing	05/01/02
Certify 4 counties in the HGA program area (Brazoria, Fort Bend, Galveston, and Montgomery counties) online with ASM (start-up cut points for ASM-2) and incorporate OBD testing	05/01/03
Certify 3 counties in the HGA program area (Chambers, Liberty, and Waller counties) online with ASM (start-up cut points for ASM-2) and incorporate OBD testing	05/01/04

El Paso County

Texas Data Link System project completed	09/01/96
Certified stations on line	12/31/96
Emissions testing start date	01/01/97
Full-stringency cut points for two-speed idle test	01/01/97
Incorporate OBD Testing	05/01/02

Extended Dallas Fort Worth Program Area (EDFW)

Certify EDFW program area (Ellis, Kaufman, Parker, Johnson, and Rockwall counties) online with ASM-2 (start-up cut points for ASM-2) and incorporate OBD testing	05/01/03

TECHNICAL SUPPLEMENT

THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION (TNRCC) MODELING ANALYSIS OF THE TEXAS INSPECTION/MAINTENANCE PROGRAM

TECHNICAL SUPPLEMENT

INSPECTION/MAINTENANCE (I/M) PERFORMANCE STANDARDS
FOR LOW ENHANCED PROGRAM AREAS
(EPA Flexibility Amendments)

(A) Overview

The TNRCC commits to implementing an I/M program which meets or exceeds the minimum emission reductions required in the low enhanced performance standard (EPA Flexibility Amendments) promulgated on September 18, 1995. A performance standard is expressed as emission levels in area-wide average grams per mile (gpm) achieved from highway mobile sources as a result of a model program comprised of EPA-specified elements. The most recent computer modeling performed for the TNRCC indicates that the proposed I/M program meets or exceeds the required I/M performance standard for the applicable air pollutants. This version of the Technical Supplement includes modeling inputs, procedures and results based on updated information regarding the I/M programs in the three nonattainment areas. This Technical Supplement revises the information provided in an earlier document dated April 19, 2000.

The emission levels achieved by a state's program design must meet or exceed the applicable performance standard for any I/M non-attainment area. The DFW, HGA, and El Paso non-attainment areas are required to implement low enhanced I/M programs. The low enhanced performance standards are less stringent than the enhanced performance standard and, thus, provide greater I/M program parameter flexibility. However, if one input parameter for a proposed I/M program design is more lax than the applicable performance standard parameter, the proposed I/M program design must compensate by being more restrictive in another input parameter in order to meet the performance standard. The Texas I/M Program design is an equilibrium of the applicable performance standard parameters and compensations.

The I/M program areas have been modeled using EPA's MOBILE5a_H emissions factor model. For each program area, we have provided the emissions factor for the EPA low enhanced performance standard and the emissions factor for the area's I/M program commitment for each pollutant and applicable evaluation year.

Local parameters used in the MOBILE5a_H input include data collected on a county-wide basis. Modeling for all program areas included use of class B volatility gasoline. No refueling emissions were modeled for I/M program purposes since they are considered to be area (stationary source, not mobile source) emissions in the TNRCC inventory. Modeling for the program areas also included a technician training component. Waiver-qualified repairs must be performed by Recognized Emission Repair Technicians whose qualifications are provided in the I/M program description preceding this section. January evaluation dates have been used to approximate milestones or deadlines occurring the previous November.

I/M programs subject to the low enhanced I/M performance standard will be shown to obtain the same or lower emission levels as the model program described in the low enhanced I/M performance standard by 2000 for ozone nonattainment areas and 2001 for CO nonattainment areas, and for severe and extreme nonattainment areas, on each applicable milestone and attainment deadline, thereafter. Since El Paso is serious nonattainment for ozone and moderate nonattainment for CO, the earlier evaluation date requirement of 2000 has been used. Evaluation dates of 2000, 2003, 2006, and 2008 have been used for Harris County in the Houston/Galveston area since it is a severe ozone nonattainment area. Evaluation dates of 2006, and 2008 have been modeled to further demonstrate that the HGA urban area (Galveston, Brazoria,

Montgomery, and Fort Bend Counties) continues to meet the performance standard after the I/M program implements ASM-2 test on May 1, 2003. In addition, evaluation dates of 2006, and 2008 have been modeled to further demonstrate that the HGA rural area (Chambers, Liberty, and Waller, Counties) continues to meet the performance standard after the I/M program implements ASM-2 test on May 1, 2004. DFW is a serious ozone nonattainment area; therefore, the required evaluation date of 2000 has been modeled. In addition, evaluation dates of 2003, 2006, and 2008 have been modeled to further demonstrate that the DFW area continues to meet the performance standard after the I/M program switches to an ASM-2 test in the DFW program area on May 1, 2002. The modeling analysis explanations below will have three sets of I/M program parameters: HGA Program Area, DFW Program Area, and El Paso Program area (one specific to each nonattainment area).

(B) Modeling Analysis for Low Enhanced I/M Programs for Nonattainment Areas

(1) Network Type

(a) Performance Standard

A state must model the performance standard for each low enhanced I/M program area using a test-only (centralized) I/M network design.

(b) Houston/Galveston Program Area

The I/M program is a decentralized program composed of test-only and test-and-repair facilities. On August 20, 1999, EPA published Additional Flexibility Amendments to Vehicle Inspection Maintenance Program Requirements; Proposed Amendment to the Final Rule. In this proposed rule, Section 51.353(b) pertaining to an automatic effectiveness credit discount for decentralized test-and-repair networks was deleted. For this reason, we have modeled the I/M program with the assumption of a "centralized network" so that the automatic discount would not be applied by the model and 100% effectiveness credit would be given.

(c) DFW Program Area

The I/M program is a decentralized program composed of test-only and test-and-repair facilities. On August 20, 1999, EPA published Additional Flexibility Amendments to Vehicle Inspection Maintenance Program Requirements; Proposed Amendment to the Final Rule. In this proposed rule, Section 51.353(b) pertaining to an automatic effectiveness credit discount for decentralized test-and-repair networks was deleted. For this reason, we have modeled the I/M program with the assumption of a "centralized network" so that the automatic discount would not be applied by the model and 100% effectiveness credit would be given.

(d) El Paso Program Area

The I/M program is a decentralized program composed of test-only and test-and-repair facilities. On August 20, 1999, EPA published Additional Flexibility Amendments to Vehicle Inspection Maintenance Program Requirements; Proposed Amendment to the Final Rule. In this proposed rule, Section 51.353(b) pertaining to an automatic effectiveness credit discount for decentralized test-and-repair networks was deleted. For this reason, we have modeled the I/M program with the assumption of a "centralized network" so that the automatic discount would not be applied by the model and 100% effectiveness credit would be given.

(2) Start Date

(a) Performance Standard

A state must model the performance standard for each low enhanced I/M program area with a start date of 1983 for any non-attainment area having an existing I/M program; otherwise, a start date of 1995 applies toward any non-attainment area with a newly subject I/M program. The performance standard for the Houston/Galveston Area was modeled with an I/M program start date of 1995 and an ATP start date of 1983. For the performance standard in the DFW Area, Dallas and Tarrant counties were modeled with an I/M program and ATP start date of 1983, and Denton and Collin were modeled with an I/M program start date of 1995 and an ATP start date of 1983. The performance standard for the El Paso Area was modeled with an I/M program start date ATP start date of 1983.

(b) Houston/Galveston Program Area

The I/M program in Harris County was modeled with a start date of January 1, 1997 and the ATP with a start date of January 1, 1984. Galveston, Brazoria, Montgomery, and Fort Bend Counties were modeled with a start date of May 1, 2003 and the ATP with a start date of May 1, 2003. Chambers, Liberty and Waller Counties were modeled with a start date of May 1, 2004 and the ATP with a start date of May 1, 2004. To best approximate a May 1, 2003, I/M program start date for Galveston, Brazoria, Montgomery and Fort Bend Counties since MOBILE5 will only model January start dates, modeling runs were performed with both a January 1, 2003, start date and a January 1, 2004 start date. Since the first 4 months of the year 2003 will not have an I/M program in place while the last 8 months of the year 2003 will have the ASM-2 program in place, a ratio calculation of the rural emission factors was performed as shown in equation below.

$$[((N-1)\ 12) + 8]\ [EF_{I/M\ start\ date\ 2003}] + (4 \times EF_{I/M\ start\ date\ 2004}) / (12 \times N) = EF_{final}$$

where,

N= Evaluation Year-I/M Start Year

$EF_{I/M\ start\ date\ 2003}$ = the Jan. 1, 2003, I/M start date emission factor after post processing

$EF_{I/M\ start\ date\ 2004}$ = the Jan. 1, 2004, I/M start date emission factor after post processing

EF_{final} = the final emission factor that approximates a May 1, 2003 I/M start date

The same formula was used for Chambers, Liberty and Waller Counties except with a May 1, 2004 I/M start date.

(c) DFW Program Area

For Dallas and Tarrant counties, the I/M program was modeled with a start date of 1990 and the ATP with a start date of 1986. For Denton and Collin counties, the ATP program was modeled with a start date of 1990. To best approximate a May 1, 2002, I/M program start date for Denton and Collin counties since MOBILE5 will only model January start dates, modeling runs were performed with both a January 1, 2002, start date and a January 1, 2003 start date. Since the first 4 months of the year 2002 will not have an I/M program in place while the last 8 months of the year 2002 will have the ASM program in place, a ratio calculation of the rural emission factors was performed as shown in equation below.

$$[(8 \times EF_{I/M\ start\ date\ 2002}) + (4 \times EF_{I/M\ start\ date\ 2003})] / 12 = EF_{final}$$

where,

$EF_{I/M\ start\ date\ 2002}$ = the Jan. 1, 2002, I/M start date emission factor after post processing

$EF_{I/M\ start\ date\ 2003}$ = the Jan. 1, 2003, I/M start date emission factor after post processing

EF_{final} = the final emission factor that approximates a May 1, 2002 I/M start date

(d) El Paso Program Area

The I/M program for El Paso county was modeled with a start date of 1987 and the ATP with a start date of 1986.

(3) Test Frequency

(a) Performance Standard

A state must model the performance standard for each low enhanced I/M program area with an annual emission inspection frequency.

(b) Houston/Galveston Program Area

The I/M program will be an annual emissions inspection.

(c) DFW Program Area

The I/M program will be an annual emissions inspection.

(d) El Paso Program Area

The I/M program will be an annual emissions inspection.

(4) Model Year Coverage

(a) Performance Standard

A state must model the performance standard for each low enhanced I/M program area with an emissions inspection of 1968 and newer model year vehicles.

(b) Houston/Galveston Program Area

Vehicle coverage for the I/M program is based upon a 24-year rolling window from the year in which the test is being performed with an exemption from testing for the 2 newest model years.

(c) DFW Program Area

Vehicle coverage for the I/M program is based upon a 24-year rolling window from the year in which the test is being performed with an exemption from testing for the 2 newest model years.

(d) El Paso Program Area

Vehicle coverage for the I/M program is based upon a 24-year rolling window from the year in which the test is being performed with an exemption from testing for the 2 newest model years.

(5) Vehicle Type Coverage

(a) Performance Standard

A state must model the performance standard for each low enhanced I/M program area for light-duty vehicles and light-duty trucks (types 1 and 2).

(b) Houston/Galveston Program Area

The I/M program includes gasoline powered light-duty vehicles, light-duty trucks (types 1 and 2), and heavy-duty gasoline vehicles. Motorcycles are excluded from emissions inspection requirements.

(c) DFW Program Area

The I/M program includes gasoline powered light-duty vehicles, light-duty trucks (types 1 and 2), and heavy-duty gasoline vehicles. Motorcycles are excluded from emissions inspection requirements.

(d) El Paso Program Area

The I/M program includes gasoline powered light-duty vehicles, light-duty trucks (types 1 and 2), and heavy-duty gasoline vehicles. Motorcycles are excluded from emissions inspection requirements.

(6) Exhaust Emissions Test Type

(a) Performance Standard

A state must model the exhaust emissions test type in the performance standard for each low enhanced I/M program as an idle exhaust emissions test (as described in Appendix B of Subpart S of EPA's final I/M rule.)

(b) Houston/Galveston Program Area

The exhaust emissions test type for the HGA Area I/M program consists of a steady-state preconditioned two-speed idle exhaust emissions test in Harris county until January 2001. Beginning in January 2001, the HGA area I/M program will consist of a steady-state preconditioned two-speed idle exhaust emissions test in conjunction with an OBD test on 1996 and newer model year vehicles in Harris county. Beginning on May 1, 2002, the I/M program in Harris county will consist of an ASM-2 test in conjunction with an OBD test on 1996 and newer model year vehicles in Harris county. ASM-2 test in conjunction with an OBD test on 1996 and newer model year vehicles will be expanded beginning May 1, 2003 to include Galveston, Montgomery, Brazoria, and Fort Bend Counties and beginning May 1, 2004 in Chambers, Liberty, and Waller Counties.

(c) DFW Program Area

The exhaust emissions test type for the DFW Area I/M program consists of a steady-state preconditioned two-speed idle exhaust emissions test in Dallas and Tarrant counties until January 2001. Beginning in January 2001, the DFW Area I/M program will consist of a steady-state preconditioned two-speed idle exhaust emissions test in conjunction with an OBD test on 1996 and newer model year vehicles in Dallas and Tarrant counties. Beginning on May 1, 2002, the I/M program will consist of an ASM-2 test in conjunction with an OBD test on 1996 and newer model year vehicles in Dallas, Tarrant, Denton, and Collin Counties.

(d) El Paso Program Area

The exhaust emissions test type for the I/M program in El Paso county is a steady-state preconditioned two-speed idle exhaust emissions test. Beginning in January 2001, an OBD test will be conducted on 1996 and newer model year vehicles in conjunction with the two-speed idle test.

(7) Emission Standards

(a) Performance Standard

Modeling the performance standard for emission standards requires cutpoints no weaker than specified in 40 CFR Part 85, Subpart W (steady-state exhaust emission testing) for 1981 and newer model year light-duty vehicles and light-duty trucks.

(b) Houston/Galveston Program Area

The emission standards in the I/M Program for steady-state exhaust emission testing are 220 parts per million (ppm) of hydrocarbon (HC) and 1.2 percent CO in accordance with 40 CFR Part 85, Subpart W. The emission standards in the I/M program for the ASM-2 test are EPA's start-up cutpoints for the two mode 25/25-50/15 ASM test.

(c) DFW Program Area

The emission standards in the I/M Program for steady-state exhaust emission testing are 220 parts per million (ppm) of hydrocarbon (HC) and 1.2 percent CO in accordance with 40 CFR Part 85, Subpart W. The emission standards in the I/M program for the ASM-2 test are EPA's start-up cutpoints for the two mode 25/25-50/15 ASM test.

(d) El Paso Program Area

The emission standards in the I/M Program for steady-state exhaust emission testing are 220 parts per million (ppm) of hydrocarbon (HC) and 1.2 percent CO in accordance with 40 CFR Part 85, Subpart W.

(8) Emissions Control Device Inspections

(a) Performance Standard

Modeling of the low enhanced performance standard requires a visual inspection of the PCV on all 1968 through 1971 model year vehicles, inclusive, and of the EGR valve on all 1972 and newer model year vehicles.

(b) Houston/Galveston Program Area

The emissions control device inspection for the Houston/Galveston program area includes a visual inspection of the EGR system, evaporative emission control system, gas cap, PCV system, thermostatic air cleaner, and the air injection system (smog pump) for all model year vehicles. A visual inspection of the catalyst will be performed for model year vehicles 1984 and newer.

(c) DFW Program Area

The emissions control device inspection for the I/M program includes a visual inspection of the EGR system, evaporative emission control system, gas cap, PCV system, thermostatic air cleaner, and the air injection system (smog pump) for all model year vehicles. A visual inspection of the catalyst will be performed for model year vehicles 1984 and newer.

(d) El Paso Program Area

The emissions control device inspection for the I/M program includes a visual inspection of the EGR system, evaporative emission control system, gas cap, PCV system, thermostatic air cleaner, and the air injection system (smog pump) for all model year vehicles. A visual inspection of the catalyst will be performed for model year vehicles 1984 and newer.

(9) Evaporative System Function Checks

(a) Performance Standard

No evaporative system function checks are required when modeling the performance standard for low enhanced I/M programs.

(b) Houston/Galveston Program Area

The evaporative system function check performed in the Houston/Galveston program area is a gas cap system integrity test for all model year vehicles two years old and older. 40% of the pressure test credit is taken for this check per EPA guidance.

(c) DFW Program Area

The evaporative system function check included in the I/M program is a gas cap system integrity test for all model year vehicles two years old and older. 40% of the pressure test credit is taken for this check per EPA guidance.

(d) El Paso Program Area

The evaporative system function check included in the I/M program is a gas cap system integrity test for all model year vehicles two years old and older. 40% of the pressure test credit is taken for this check per EPA guidance.

(10) Stringency

(a) Performance Standard

Modeling of the low enhanced I/M performance standard requires a 20% emissions test failure rate among pre-1981 model year vehicles.

(b) Houston/Galveston Program Area

Modeling of the I/M program includes a 20% emissions test failure rate among pre-1981 model year vehicles.

(c) DFW Program Area

Modeling of the I/M program includes a 20% emissions test failure rate among pre-1981 model year vehicles.

(d) El Paso Program Area

Modeling of the I/M program includes a 20% emissions test failure rate among pre-1981 model year vehicles.

(11) Waiver Rate

(a) Performance Standard

The low enhanced performance standard includes a 3% waiver rate provision for modeling purposes.

(b) Houston/Galveston Program Area

The waiver rate for the I/M program provides a 3% waiver rate.

(c) DFW Program Area

The waiver rate for the I/M program provides a 3% waiver rate.

(d) El Paso Program Area

The waiver rate for the I/M program provides a 3% waiver rate.

(12) Compliance Rate

(a) Performance Standard

Modeling the performance standard requires a 96% compliance rate of the covered vehicles in an I/M program.

(b) Houston/Galveston Program Area

The I/M program is modeled with a compliance rate of 96%.

(c) DFW Program Area

The I/M program is modeled with a compliance rate of 96%.

(d) El Paso Program Area

The I/M program area is modeled with a compliance rate of 96%.

(13) Evaluation Date

(a) Performance Standard

Modeling the performance standard for a low enhanced I/M program requires an evaluation date of 2000 for ozone non-attainment areas and 2001 for CO non-attainment areas. For severe ozone non-attainment areas, an evaluation date of 2000 and each applicable milestone and attainment deadline thereafter is required.

(b) Houston/Galveston Program Area

The I/M program in Harris county is modeled with evaluation dates of 2000, 2003, 2006, and 2008 since the Houston/Galveston area is severe nonattainment for ozone. The test type will be switched from a two-speed idle to an ASM-2 test for Harris County on May 1, 2002. An I/M program will begin on May 1, 2003 for Galveston, Brazoria, Montgomery, and Fort Bend Counties using ASM-2 test and these counties were modeled with evaluation dates of 2003, 2006, and 2008 to demonstrate that the area continues to meet the performance standard after the program change. In addition, ASM-2 testing will begin for Chamber, Liberty, and Waller Counties on May 1, 2004, and evaluation dates of 2006, and 2008 were used to demonstrate that the area continues to meet the performance standard.

(c) DFW Program Area

The I/M program for Dallas and Tarrant counties is modeled with the required evaluation date of 2000 since the DFW area is serious nonattainment for ozone. However, since the test type will be switched from a two-speed idle to an ASM-2 test on May 1, 2002, we also modeled evaluation dates 2003, 2006, and 2008 for Dallas, Tarrant, Denton, and Collin counties to demonstrate that the area continues to meet the performance standard after the program change in 2002.

(d) El Paso Program Area

Since El Paso is serious nonattainment for ozone and moderate nonattainment for CO, the I/M program is modeled with the earlier required evaluation date of 2000.

(C) MOBILE5a Summary Output Tables

TABLES 1-6 reflect vehicle emissions reductions (in grams per mile) calculated by EPA's MOBILE5a-H computer model for the I/M program in each of the program areas.

TABLE 1. Aggregated Dallas/Tarrant County MOBILE5a_H Output (g/mi)

January 2000	VOC	NO_x	CO
Performance Std.	1.569	1.791	10.151
DFW Program	1.372	1.688	8.283

January 2003	VOC	NO_x	CO
Performance Std.	1.419	1.671	9.399
DFW Program	1.156	1.334	6.648

January 2006	VOC	NO_x	CO
Performance Std.	1.329	1.615	9.119
DFW Program	1.065	1.275	6.276

January 2008	VOC	NO_x	CO
Performance Std.	1.286	1.588	9.022
DFW Program	1.020	1.250	6.140

TABLE 2. Aggregated Denton/Collin County MOBILE5a_H Output (g/mi)

January 2003	VOC	NO_x	CO
Performance Std.	1.329	1.601	8.980
DFW Program	1.183	1.412	7.769

January 2006	VOC	NO_x	CO
Performance Std.	1.237	1.534	8.598
DFW Program	1.003	1.248	6.069

January 2008	VOC	NO_x	CO
Performance Std.	1.196	1.504	8.457
DFW Program	0.961	1.217	5.889

TABLE 3. Aggregated El Paso MOBILE5a_H Output (g/mi)

January 2000	VOC	NO_x	CO
Performance Std.	2.91	2.22	23.28
El Paso Program	2.50	2.06	18.61

TABLE 4. Aggregated Harris County MOBILE5a_H Output (g/mi)

January 2000	VOC	NO_x	CO
Performance Std.	1.393	1.736	10.992
HGA Program	1.259	1.734	9.202

January 2003	VOC	NO_x	CO
Performance Std.	1.272	1.604	10.242
HGA Program	1.070	1.341	7.539

January 2006	VOC	NO_x	CO
Performance Std.	1.194	1.531	9.981
HGA Program	0.981	1.272	7.036

January 2008	VOC	NO_x	CO
Performance Std.	1.162	1.505	9.921
HGA Program	0.949	1.245	6.939

TABLE 5. Aggregated urban area (Galveston, Brazoria, Fort Bend, and Montgomery Counties) MOBILE5a_H Output (g/mi)

January 2003	VOC	NOx	CO
Performance Std.	1.342	1.678	10.670
HGA Program	1.215	1.460	9.234

January 2006	VOC	NOx	CO
Performance Std.	1.254	1.595	10.351
HGA Program	0.994	1.257	7.049

January 2008	VOC	NOx	CO
Performance Std.	1.219	1.563	10.271
HGA Program	0.961	1.224	6.938

TABLE 6. Aggregated rural area (Chambers, Liberty, and Waller Counties) MOBILE5a_H Output (g/mi)

January 2006	VOC	NOx	CO
Performance Std.	1.205	1.937	9.631
HGA Program	0.982	1.653	6.790

January 2008	VOC	NOx	CO
Performance Std.	1.175	1.884	9.575
HGA Program	0.954	1.598	6.705