

# Memorandum

**Date:** April 3, 2003

**To:** Michael Clifford, COG/TP  
Joan Rohlf, COG/DEP

**From:** Maureen Mullen, Angelica Codd, E.H. Pechan & Associates, Inc.

**Subject:** Technical Corrections to the 1990 and 2005 MOBILE6 Input Parameters (revised)

**cc:** MOBILE6 Task Force Members

---

The purpose of this memorandum is to document technical corrections that have been made to the MOBILE6 inputs used in preparing the highway vehicle emission inventories for the Metropolitan Washington Council of Governments (MWCOC) region for calendar years 1990 and 2005. These corrected inputs are compared in this memo to those previously used in the MWCOC highway vehicle emissions modeling and documented in a memorandum entitled "1990 and 2005 MOBILE6 Input Documentation" dated January 27, 2003. These technical corrections have been provided by DC, Maryland, and Virginia air agency representatives after review of the January documentation. This memo is divided into two sections. The first section discusses the technical corrections to the 1990 input parameters. These corrections apply to 1990 diesel sales fractions, vehicle miles traveled (VMT) mix fractions, I/M, and ATP input parameters. The second section summarizes the technical corrections to the 2005 I/M and ATP input parameters.

## A. 1990 MOBILE6 Input Updates

### 1. Diesel Sales Fractions

Previously, the LDV and the LDT diesel fractions for the District of Columbia were the MOBILE6 default diesel sales fractions for 1990. In this update, the diesel sales fractions for these vehicle categories were derived from the 1990 MOBILE5 default diesel sales fractions. MOBILE5 LDV diesel sales fractions were applied to the MOBILE6's LDV diesel sales fractions while the MOBILE5 LDT values were applied to the MOBILE6's LDT1 and LDT2 diesel sales fractions. As with the original emissions modeling, the MOBILE6 default diesel sales fractions were used for all other vehicle categories. Appendix 1 shows the 1990 MOBILE5 default LDV and LDT values and the MOBILE6 default diesel sales fractions for LDVs and LDT1/2s. There are no changes in the diesel sales fractions values for all other jurisdictions.

### 2. Inspection and Maintenance (I/M) and Anti-Tampering Program (ATP) Parameters

The 1990 I/M and ATP input parameters apply to the following jurisdictions: DC; Montgomery County and Prince George's County, MD; and Alexandria, Arlington County, Fairfax County, and Prince William County, VA. Table 1 presents the I/M program parameters for the District of Columbia. The I/M program parameters for Maryland are shown in Table 2. Table 3 reports the I/M program parameters for Virginia. Tables 1, 2, and 3 provide a

comparison of the I/M program parameters used in the original emission factor modeling versus the most recent corrections provided by each State agency.

Tables 4, 5, and 6 compare the original 1990 ATP parameters versus the corrected ATP data for the District of Columbia, Maryland, and Virginia, respectively.

Each table consisted of three columns. The first column lists the program parameters. The second column reports the data reported in the original emissions modeling. Lastly, the column called 'Technical Correction Update' shows the most corrections provided by each State agency. The I/M and ATP input parameters that had been changed are highlighted in the last column of each table.

### 3. VMT Mix Fractions

The VMT mix fractions for DC were re-calculated due to the diesel sales fractions updates. As before, the VMT mix fractions by vehicle type for DC were based on the over-all non-bus HDV VMT fractions as output for, COG's travel demand model combined with county-specific registration distributions and diesel sales fractions and MOBILE6 default data on the VMT mix by vehicle type within the heavy and light-duty vehicle categories. For a detailed explanation of the VMT mix fractions methodology, refer to the Memo dated January 27, 2003. There is no difference in the methodology used in re-calculating the DC's VMT mix fractions. The difference is due to the diesel sales fractions applied to each analysis. The original 1990 VMT mix fractions were calculated based on the MOBILE6 default diesel sales fractions for all vehicle categories. Currently, the VMT mix fractions are calculated based on a combined MOBILE5 and MOBILE6 default diesel sales fractions. MOBILE5's default LDV diesel sales fractions were applied to the MOBILE6's LDV diesel sales fractions while the MOBILE5's default LDT values were applied to the MOBILE6's LDT1 and LDT2 diesel sales fractions. The MOBILE6 default diesel sales fractions were used for all other vehicle categories. Table 7 presents the VMT mix fractions for the District of Columbia based on the two different diesel sales fractions applied.

## **B. 2005 MOBILE6 Input Updates**

### 1. Inspection and Maintenance (I/M) and Anti-Tampering Program (ATP) Parameters

Each jurisdiction provided I/M program inputs and ATP inputs in MOBILE6 format for 2005. These inputs apply in all counties modeled by COG, except for St. Mary's County, MD and Clark County and Spotsylvania County, VA which do not participate in the I/M programs.

Tables 8, 9, and 10 provide the updated 2005 I/M input parameters for the District of Columbia, Maryland, and Virginia, respectively. All the changes in the input parameters are highlighted in yellow.

Below is a brief summary of the changes for each of the program parameters:

#### a. District of Columbia

##### 1. Program #1 – IDLE Test

- Added testing of the HDGV6 vehicle category.

2. Programs #2 and #6 – IM240
    - Changed I/M Program Start Year from 1999 to 1983.
    - Added testing of the HDGV6 vehicle category.
  3. Program #3 - OBD I/M
    - Changed I/M Program Start Year from 2002 to 1983.
  4. Programs #4 and #7 – FP and GC
    - Added testing of the HDGV6 vehicle category.
  5. Program #5 – EVAP OBD & GC
    - Changed I/M Program Start Year from 2002 to 1999.
- b. Maryland—No changes.
- c. Virginia
1. Programs #1 through #7
    - Changed Exemption Age from 24.0 to N/A.
  2. Program #2 – ASM 2525/5015 FINAL
    - Changed I/M Program Start Year from 1998 to 1983.
  3. Program #3 – OBD I/M
    - Changed I/M Program Start Year from 2002 to 1983.
  4. Program #4 – EVAP OBD & GC
    - Changed I/M Program Start Year from 2002 to 1998.
  5. Programs #1, #2, #3, #6, and #7
    - Changed I/M Program Start Year to 1998 for Loudoun and Stafford Counties.

Tables 11, 12, and 13 provide a comparison of the original 2005 ATP input parameters versus the most recent available data submitted by each State agency. Table 11 presents the ATP parameters for DC. Maryland's ATP input parameters are shown in Table 12. Virginia's ATP input parameters are provided in Table 13. In both Maryland and DC, the HDGV7, HDGV8A, HDGV8b, and GAS BUS vehicle categories were removed from the ATP testing. In DC, corrections were made to the program start year (from 1982 to 1983) and to the first model year (from 1984 to 1968). In Maryland, the compliance rate was changed from 98 percent to 96 percent. In Virginia, the program start year was changed from 1983 to 1989 and the first model year was changed from 1973 to 1968.

**Table 1  
1990 I/M Program Parameters for DC**

<b>Program Parameters</b>	<b>Original I/M Data Reported</b>	<b>Technical Correction Update</b>
Test Type	IDLE	IDLE
I/M Program Start Year	1983	1983
Test Frequency	Biennial	Biennial
Program Type	T/O	T/O
Model Years	1968- 2050	1968-2050
Stringency Rate (%)	20	20
Compliance Rate (%)	96	96
Waiver Rate (%)	3	3
Exemption Age		25
<b>Vehicles Tested</b>		
LDGV	Yes	Yes
LDGT1	Yes	Yes
LDGT2	Yes	Yes
LDGT3	Yes	Yes
LDGT4	Yes	Yes
HDGV2B	Yes	Yes
HDGV3	Yes	Yes
HDGV4	Yes	Yes
HDGV5	Yes	Yes
HDGV6	Yes	Yes
HDGV7	Yes	No
HDGV8A	Yes	No
HDGV8B	Yes	No
GAS BUS	Yes	No

**Table 2**  
**1990 I/M Program Parameters for Maryland\***

<b>Program Parameters</b>	<b>Original I/M Data Reported</b>	<b>Technical Correction Update</b>
Test Type	IDLE	IDLE
I/M Program Start Year	1984	1984
Test Frequency	Biennial	Biennial
Program Type	T/O	T/O
Model Years	1977-2050	1977-2050
Stringency Rate (%)	23	23
Compliance Rate (%)	98	96
Waiver Rate (%)	16 and 17	21 and 23
Grace Period (years)	N/A	1
<b>Vehicle Tested</b>		
LDGV	Yes	Yes
LDGT1	Yes	Yes
LDGT2	Yes	Yes
LDGT3	Yes	Yes
LDGT4	Yes	Yes
HDGV2B	Yes	Yes
HDGV3	Yes	Yes
HDGV4	Yes	Yes
HDGV5	Yes	Yes
HDGV6	Yes	Yes
HDGV7	Yes	No
HDGV8A	Yes	No
HDGV8B	Yes	No
GAS BUS	Yes	No
* Maryland's 1990 I/M program applies to Montgomery and Prince George's Counties only.		

**Table 3  
1990 I/M Program Parameters for Virginia\***

<b>Program Parameters</b>	<b>Original I/M Data Reported</b>	<b>Technical Correction Update</b>
Test Type	2500/IDLE	<b>IDLE</b>
I/M Program Start Year	1983	1983
Test Frequency	Biennial	Biennial
Program Type	TRC	TRC
Model Years	1968-2050	1968-2050
Stringency Rate (%)	35	35
Compliance Rate (%)	98	98
Waiver Rate (%)	3	3
Exemption Age	24	<b>N/A</b>
<b>Vehicle Tested</b>		
LDGV	Yes	Yes
LDGT1	Yes	Yes
LDGT2	Yes	Yes
LDGT3	Yes	Yes
LDGT4	Yes	Yes
HDGV2B	Yes	<b>No</b>
HDGV3	No	No
HDGV4	No	No
HDGV5	No	No
HDGV6	No	No
HDGV7	No	No
HDGV8A	No	No
HDGV8B	No	No
GAS BUS	No	No
<p><b>* Virginia's 1990 I/M program applies to Alexandria, Arlington County, Fairfax County, and Prince William County. From 1983-1988, these counties had an annual, idle, manual test and repair inspection. In 1989, the region switched to a biennial, 2500/idle, computerized test and repair inspection and also started an ATP. The above inputs represent the most reasonable way to model the actual VA I/M program within MOBILE6.</b></p>		

**Table 4**  
**1990 Anti-tampering Program Parameters for DC**

<b>Program Parameters</b>	<b>Original ATP Data Reported</b>	<b>Technical Correction Update</b>
Program Start Year	1982	1983
First Model Year	1984	1968
Last Model Year	2050	2050
Program Type	Test Only	Test Only
Inspection Frequency	Biennial	Biennial
Compliance Rate (%)	96	96
<b>Vehicle Types</b>		
LDGV	Yes	Yes
LDGT1	Yes	Yes
LDGT2	Yes	Yes
LDGT3	Yes	Yes
LDGT4	Yes	Yes
HDGV2B	Yes	Yes
HDGV3	Yes	Yes
HDGV4	Yes	Yes
HDGV5	Yes	Yes
HDGV6	Yes	Yes
HDGV7	Yes	No
HDGV8A	Yes	No
HDGV8B	Yes	No
GAS BUS	Yes	No
<b>Inspections Performed</b>		
Air pump system disablement	No	No
Catalyst removal	Yes	Yes
Fuel inlet restrictor disablement	Yes	Yes
Tailpipe lead deposit test	No	No
EGR disablement	No	No
Evaporative system disablement	No	No
PCV system disablement	No	No
Missing gas cap	Yes	Yes

**Table 5**  
**1990 Anti-tampering Program Parameters for Maryland\***

<b>Program Parameters</b>	<b>Original ATP Data Reported</b>	<b>Technical Correction Update</b>
Program Start Year	1989	1989
First Model Year	1977	1977
Last Model Year	2050	2050
Program Type	Test Only	Test Only
Inspection Frequency	Biennial	Biennial
Compliance Rate (%)	98	96
<b>Vehicle Types</b>		
LDGV	Yes	Yes
LDGT1	Yes	Yes
LDGT2	Yes	Yes
LDGT3	Yes	Yes
LDGT4	Yes	Yes
HDTV2B	Yes	Yes
HDTV3	Yes	Yes
HDTV4	Yes	Yes
HDTV5	Yes	Yes
HDTV6	Yes	Yes
HDTV7	Yes	No
HDTV8A	Yes	No
HDTV8B	Yes	No
GAS BUS	Yes	No
<b>Inspections Performed</b>		
Air pump system disablement	No	No
Catalyst removal	Yes	Yes
Fuel inlet restrictor disablement	Yes	Yes
Tailpipe lead deposit test	No	No
EGR disablement	No	No
Evaporative system disablement	No	No
PCV system disablement	No	No
Missing gas cap	Yes	No
* Maryland's ATP applies to Montgomery and Prince George's Counties only.		

**Table 6**  
**1990 Anti-tampering Program Parameters for Virginia\***

<b>Program Parameters</b>	<b>Original ATP Data Reported</b>	<b>Technical Correction Update</b>
Program Start Year	1989	1989
First Model Year	1979	1968
Last Model Year	2050	2050
Program Type	Test Only	Test and Repair Computerized <sup>+</sup>
Inspection Frequency	Biennial	Biennial
Compliance Rate (%)	98	98
<b>Vehicle Types</b>		
LDGV	Yes	Yes
LDGT1	Yes	Yes
LDGT2	Yes	Yes
LDGT3	Yes	Yes
LDGT4	Yes	Yes
HDGV2B	Yes	Yes
HDGV3	Yes	No
HDGV4	Yes	No
HDGV5	Yes	No
HDGV6	Yes	No
HDGV7	Yes	No
HDGV8A	Yes	No
HDGV8B	Yes	No
GAS BUS	Yes	No
<b>Inspections Performed</b>		
Air pump system disablement	Yes	Yes
Catalyst removal	Yes	Yes
Fuel inlet restrictor disablement	No	Yes
Tailpipe lead deposit test	No	No
EGR disablement	Yes	Yes
Evaporative system disablement	Yes	Yes
PCV system disablement	Yes	Yes
Missing gas cap	Yes	Yes
<p>* Virginia's ATP applies to Alexandria, Arlington County, Fairfax County, and Prince William County only. There was no ATP for Clark, Loudoun, Spotsylvania, and Stafford counties in 1990.</p> <p>+ Modeled as Test Only (T/O). Per Mobile6 User's Guide (Section 2.8.9.3), EPA no longer support test and repair benefit discount.</p>		

**Table 7  
1990 Summer VMT Mix Fractions for DC**

Vehicle Types	Network Analysis		Local Analysis		Auto Access to Transit Analysis	
	Original Data Reported*	Recent Update**	Original Data Reported*	Recent Update**	Original Data Reported*	Recent Update**
LDV	0.6483	0.6481	0.6886	0.6884	0.6998	0.6996
LDT1	0.0425	0.0426	0.0452	0.0452	0.0459	0.0460
LDT2	0.1416	0.1418	0.1504	0.1506	0.1529	0.1531
LDT3	0.0593	0.0593	0.0630	0.0630	0.0640	0.0640
LDT4	0.0273	0.0272	0.0290	0.0291	0.0294	0.0293
HDV2B	0.0244	0.0244	0.0054	0.0053	0.0000	0.0000
HDV3	0.0024	0.0024	0.0005	0.0005	0.0000	0.0000
HDV4	0.0016	0.0016	0.0003	0.0003	0.0000	0.0000
HDV5	0.0013	0.0013	0.0003	0.0003	0.0000	0.0000
HDV6	0.0050	0.0050	0.0011	0.0011	0.0000	0.0000
HDV7	0.0060	0.0060	0.0013	0.0013	0.0000	0.0000
HDV8A	0.0071	0.0071	0.0015	0.0015	0.0000	0.0000
HDV8B	0.0258	0.0258	0.0056	0.0056	0.0000	0.0000
HDBS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
HDBT***	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
MC***	0.0074	0.0074	0.0078	0.0078	0.0080	0.0080

\* Based on 1990 registration distribution and MOBILE6 default diesel sales fractions.

\*\* Based on 1990 registration distribution and combined MOBILE5 and MOBILE6 default diesel sales fractions. MOBILE5 default diesel sales fractions were applied to LDV, LDT1, and LDT2 vehicle categories. MOBILE6 default diesel sales fractions were applied to the remainder of the vehicle categories except HDBT and MC.

\*\*\* The HDBT and MC vehicle types do not require diesel sales fractions. HDBT is assumed to be a 100.0% diesel-fueled while MC is assumed to be 100.0% gasoline-fueled vehicle categories.

**Table 8  
2005 I/M Program Parameters for DC**

Program Parameters	Program Number						
	1	2	3	4	5	6	7
Test Type	IDLE	IM240	OBD I/M	FP & GC	EVAP OBD & GC	IM240	FP & GC
I/M Program Start Year	1983	1983*	1983**	1999	1999**	1983*	1999
Test Frequency	Biennial	Biennial	Biennial	Biennial	Biennial	Biennial	Biennial
Program Type	T/O	T/O	T/O	T/O	T/O	T/O	T/O
Model Years	1968-1983	1984-1995	1996-2050	1972-1995	1996-2050	1996-2050	1996-2050
Stringency Rate (%)	20	20	20	N/A	20	20	N/A
Compliance Rate (%)	96	96	96	96	96	96	96
Waiver Rate (%)	3	3	3	N/A	3	3	N/A
Exemption Age	25	25	25	25	25	25	25
Cutpoint File	N/A	DC_cpnew	N/A	N/A	N/A	DC_cpnew	N/A
<b>Vehicles Tested</b>							
LDGV	Yes	Yes	Yes	Yes	Yes	No	No
LDGT1	Yes	Yes	Yes	Yes	Yes	No	No
LDGT2	Yes	Yes	Yes	Yes	Yes	No	No
LDGT3	Yes	Yes	Yes	Yes	Yes	No	No
LDGT4	Yes	Yes	Yes	Yes	Yes	No	No
HDGV2B	Yes	Yes	No	Yes	No	Yes	Yes
HDGV3	Yes	Yes	No	Yes	No	Yes	Yes
HDGV4	Yes	Yes	No	Yes	No	Yes	Yes
HDGV5	Yes	Yes	No	Yes	No	Yes	Yes
HDGV6	Yes	Yes	No	Yes	No	Yes	Yes
HDGV7	No	No	No	No	No	No	No
HDGV8A	No	No	No	No	No	No	No
HDGV8B	No	No	No	No	No	No	No
GAS BUS	No	No	No	No	No	No	No
<p>* The actual start date of the IM240 program in DC was 1999. The start dates shown above are needed to obtain the appropriate I/M credit in MOBILE6.</p> <p>** The actual start date of OBD testing in DC was 2003. The start dates shown above are needed to obtain the appropriate I/M credit in MOBILE6.</p>							

**Table 9  
2005 I/M Program Parameters for Maryland\***

Program Parameters	Program Number						
	1	2	3	4	5	6	7
Test Type	IDLE	IM240	OBD I/M	GC	EVAP OBD & GC	IDLE	GC
I/M Program Start Year	1984**	1984**	1984**	2003	2003	1984**	2003
Test Frequency	Biennial	Biennial	Biennial	Biennial	Biennial	Biennial	Biennial
Program Type	T/O	T/O	T/O	T/O	T/O	T/O	T/O
Model Years	1977-1983	1984-1995	1996-2050	1977-1995	1996-2050	1977-2050	1977-2050
Stringency Rate (%)	20	20	20	N/A	N/A	20	N/A
Compliance Rate (%)	96	96	96	96	96	96	96
Waiver Rate (%)	3	3	3	3	3	3	3
Grace Period (years)	2	2	2	2	2	2	2
Cutpoint File	N/A	Final.C05	N/A	N/A	N/A	N/A	N/A
<b>Vehicle Tested</b>							
LDGV	Yes	Yes	Yes	Yes	Yes	No	No
LDGT1	Yes	Yes	Yes	Yes	Yes	No	No
LDGT2	Yes	Yes	Yes	Yes	Yes	No	No
LDGT3	Yes	Yes	Yes	Yes	Yes	No	No
LDGT4	Yes	Yes	Yes	Yes	Yes	No	No
HDGV2B	No	No	No	No	No	Yes	Yes
HDGV3	No	No	No	No	No	Yes	Yes
HDGV4	No	No	No	No	No	Yes	Yes
HDGV5	No	No	No	No	No	Yes	Yes
HDGV6	No	No	No	No	No	Yes	Yes
HDGV7	No	No	No	No	No	No	No
HDGV8A	No	No	No	No	No	No	No
HDGV8B	No	No	No	No	No	No	No
GAS BUS	No	No	No	No	No	No	No
* I/M programs apply to all counties except St. Mary's County.							
** The exhaust I/M program start date is 1995 for Calvert, Charles, Frederick, and Washington Counties.							

**Table 10**  
**2005 I/M Program Parameters for Virginia\***

Program Parameters	Program Number						
	1	2	3	4	5	6	7
Test Type	2500/IDLE	ASM 2525/5015 FINAL	OBD I/M**	EVAP OBD & GC**	GC	2500/IDLE	GC
I/M Program Start Year	1983***	1983***	1983***	1998	1998	1983***	1998
Test Frequency	Biennial	Biennial	Biennial	Biennial	Biennial	Biennial	Biennial
Program Type	TRC	TRC	TRC	TRC	TRC	TRC	TRC
Model Years	1968-1980	1981-1995	1996-2050	1996-2050	1973-1995	1981-2050	1973-2050
Stringency Rate (%)	35	35	35	N/A	N/A	35	N/A
Compliance Rate (%)	98	98	98	98	98	98	98
Waiver Rate (%)	3	3	3	3	3	3	3
Exemption Age	N/A	N/A	N/A	N/A	N/A	N/A	N/A
I/M Effectiveness (%)	94%	94%	94%	N/A	N/A	94%	N/A
<b>Vehicle Tested</b>							
LDGV	Yes	Yes	Yes	Yes	Yes	No	No
LDGT1	Yes	Yes	Yes	Yes	Yes	No	No
LDGT2	Yes	Yes	Yes	Yes	Yes	No	No
LDGT3	Yes	Yes	Yes	Yes	Yes	No	No
LDGT4	Yes	Yes	Yes	Yes	Yes	No	No
HDGV2B	Yes	No	No	No	No	Yes	Yes
HDGV3	No	No	No	No	No	No	No
HDGV4	No	No	No	No	No	No	No
HDGV5	No	No	No	No	No	No	No
HDGV6	No	No	No	No	No	No	No
HDGV7	No	No	No	No	No	No	No
HDGV8A	No	No	No	No	No	No	No
HDGV8B	No	No	No	No	No	No	No
GAS BUS	No	No	No	No	No	No	No
<p>* All counties require I/M programs except for Clark and Spotsylvania Counties.</p> <p>** The actual start date of the exhaust and evaporative OBD program is 2002. The dates above are used to obtain the appropriate credits in MOBILE6.</p> <p>*** The exhaust I/M program start year is 1998 for Loudoun and Stafford Counties. The actual start date of the ASM program in the other counties was 1998. The date above is used to obtain the appropriate credits in MOBILE6.</p>							

**Table 11**  
**2005 Anti-tampering Program Parameters for DC\***

<b>Program Parameters</b>	<b>Original ATP Data Reported</b>	<b>Recent Update</b>
Program Start Year	1982	1983
First Model Year	1984	1968
Last Model Year	2050	2050
Program Type	Test Only	Test Only
Inspection Frequency	Biennial	Biennial
Compliance Rate (%)	96	96
<b>Vehicle Types</b>		
LDGV	Yes	Yes
LDGT1	Yes	Yes
LDGT2	Yes	Yes
LDGT3	Yes	Yes
LDGT4	Yes	Yes
HDTV2B	Yes	Yes
HDTV3	Yes	Yes
HDTV4	Yes	Yes
HDTV5	Yes	Yes
HDTV6	Yes	Yes
HDTV7	Yes	No
HDTV8A	Yes	No
HDTV8B	Yes	No
GAS BUS	Yes	No
<b>Inspections Performed</b>		
Air pump system disablement	No	No
Catalyst removal	Yes	Yes
Fuel inlet restrictor disablement	Yes	Yes
Tailpipe lead deposit test	No	No
EGR disablement	No	No
Evaporative system disablement	No	No
PCV system disablement	No	No
Missing gas cap	Yes	Yes
* DC's ATP parameters are based on 1990 ATP data.		

**Table 12**  
**2005 Anti-tampering Program Parameters for Maryland\***

<b>Program Parameters</b>	<b>Original ATP Data Reported</b>	<b>Recent Update**</b>
Program Start Year	1989	1989
First Model Year	1977	1977
Last Model Year	2050	2050
Program Type	Test Only	Test Only
Inspection Frequency	Biennial	Biennial
Compliance Rate (%)	98	96
<b>Vehicle Types</b>		
LDGV	Yes	Yes
LDGT1	Yes	Yes
LDGT2	Yes	Yes
LDGT3	Yes	Yes
LDGT4	Yes	Yes
HDTV2B	Yes	Yes
HDTV3	Yes	Yes
HDTV4	Yes	Yes
HDTV5	Yes	Yes
HDTV6	Yes	Yes
HDTV7	Yes	No
HDTV8A	Yes	No
HDTV8B	Yes	No
GAS BUS	Yes	No
<b>Inspections Performed</b>		
Air pump system disablement	No	No
Catalyst removal	Yes	Yes
Fuel inlet restrictor disablement	Yes	Yes
Tailpipe lead deposit test	No	No
EGR disablement	No	No
Evaporative system disablement	No	No
PCV system disablement	No	No
Missing gas cap	Yes	Yes
<p>* Maryland's ATP applies to all counties except St. Mary's County.</p> <p>** Based on 1996 ATP parameters.</p>		

**Table 13**  
**2005 Anti-tampering Program Parameters for Virginia\***

<b>Program Parameters</b>	<b>Original ATP Data Reported</b>	<b>Recent Update</b>
Program Start Year	1983	1989**
First Model Year	1973	1968
Last Model Year	2050	2050
Program Type	Test Only	Test and Repair Computerized***
Inspection Frequency	Biennial	Biennial
Compliance Rate (%)	98	98
<b>Vehicle Types</b>		
LDGV	Yes	Yes
LDGT1	Yes	Yes
LDGT2	Yes	Yes
LDGT3	Yes	Yes
LDGT4	Yes	Yes
HDGV2B	Yes	Yes
HDGV3	No	No
HDGV4	No	No
HDGV5	No	No
HDGV6	No	No
HDGV7	No	No
HDGV8A	No	No
HDGV8B	No	No
GAS BUS	No	No
<b>Inspections Performed</b>		
Air pump system disablement	Yes	Yes
Catalyst removal	Yes	Yes
Fuel inlet restrictor disablement	No	No
Tailpipe lead deposit test	No	No
EGR disablement	Yes	Yes
Evaporative system disablement	Yes	Yes
PCV system disablement	Yes	Yes
Missing gas cap	Yes	Yes
<p>* Virginia's ATP applies to all jurisdictions except Clark and Spotsylvania counties.</p> <p>** ATP start year is 1998 for Loudoun and Stafford Counties.</p> <p>*** Modeled as Test Only (T/O). Per Mobile6 User's Guide (Section 2.8.9.3), EPA no longer support test and repair benefit discount.</p>		

## Appendix 1 Diesel Sales Fractions

The diesel sales fractions are presented by vehicle, year-specific model year, and going back 25 model years. The MOBILE5 default diesel sales fractions are based on 1990 national data and the MOBILE6 default diesel sales fractions are based on 1996 national data.

### District of Columbia – 1990 MOBILE5 Default Diesel Sales Fractions

\* LDV

0.0000	0.0000	0.0000	0.0030	0.0030	0.0090	0.0170	0.0210	0.0470	0.0590
0.0440	0.0210	0.0090	0.0050	0.0030	0.0020	0.0030	0.0020	0.0020	0.0010

0.0000 0.0000 0.0000 0.0000 0.0000

\* LDT1, LDT2

0.0020	0.0020	0.0020	0.0030	0.0070	0.0110	0.0230	0.0470	0.0930	0.0560
0.0350	0.0180	0.0080	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000					

### District of Columbia – 1990 MOBILE6 Default Diesel Sales Fractions

\* LDV

0.0004	0.0004	0.0001	0.0027	0.0032	0.0097	0.0162	0.0241	0.0510	0.0706
0.0390	0.0269	0.0114	0.0093	0.0137	0.0155	0.0067	0.0067	0.0067	0.0067

0.0067 0.0067 0.0067 0.0067 0.0067

\* LDT1, LDT2

0.0000	0.0000	0.0000	0.0007	0.0033	0.0048	0.0120	0.0223	0.0656	0.0616
0.0439	0.0316	0.0259	0.0000	0.0187	0.1038	0.1170	0.1170	0.1170	0.1170
0.1170	0.1170	0.1170	0.1170	0.1170					