

## **APPENDIX D**

### Sample MOBILE6 Input Parameters

## Sample MOBILE6 Input File – PM2.5 Runs

MOBILE6 INPUT FILE  
REPORT FILE : **(output report filename)** REPLACE  
DATABASE OUTPUT :  
WITH FIELDNAMES :  
EMISSIONS TABLE : **(output table filename)** REPLACE  
POLLUTANTS : NOX  
PARTICULATES : SO4 SO2 NH3 OCARBON ECARBON GASPM LEAD BRAKE TIRE  
AGGREGATED OUTPUT :

### **(Runs are repeated for each County)**

RUN DATA  
MIN/MAX TEMPERATURE: 65.2 86.8 **(Temp varies by month being run)**  
FUEL RVP : 7.8 **(RVP varies by month and geographic area)**  
EXPRESS HC AS VOC :  
EXPAND EXHAUST :  
EXPAND EVAPORATIVE :  
NO REFUELING :  
94+ LDG IMP : NLEVNE.D  
T2 EXH PHASE-IN : pal2exh.08  
T2 EVAP PHASE-IN : pal2evp.08 } **(CAL LEVII Phase-In Files)**  
T2 CERT : leviistd.d  
REG DISTRIBUTION : ALLE05AG.DAT  
**(Vehicle ages vary by county - 2005 ages by county used for all analysis years)**

\*  
\* Percent VMT by 16 Vehicle Types  
\*

### **(I/M Programs apply in Allegheny, Beaver, Washington, Westmoreland counties)**

\* NoIM 2002  
ANTI-TAMP PROGRAM : 04 75 50 22222 11111111 1 11 096. 22212222

### **(Anti-Tampering Program in Non-I/M Areas started in 2004. Not used in 2002 scenario) (Anti-Tampering Program used In I/M Areas for all scenarios)**

SCENARIO RECORD :  
CALENDAR YEAR : 2002 **(Year being run – varies by analysis month/year)**  
EVALUATION MONTH : 7 **(Varies by month)**  
ABSOLUTE HUMIDITY : 78.0 **(Humidity varies by month)**  
SEASON : 1 **(Varies by month)**  
VMT FRACTIONS : **(VMT mix varies for each year, run/scenario combination)**  
0.4475 0.0772 0.2565 0.0796 0.0358 0.0315 0.0031 0.0024  
0.0019 0.0069 0.0082 0.0091 0.0321 0.0015 0.0007 0.0060  
  
PARTICULATE EF : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV  
PARTICLE SIZE : 2.5  
DIESEL SULFUR : 317 **(Varies by year)**

### **(Speed, hourly, and facility distributions prepared by PPSUITE for each run/scenario)**

VMT BY FACILITY : V000201F.def  
VMT BY HOUR : V000201H.def  
SPEED VMT : V000201S.def

END OF RUN :

## Sample MOBILE6 Input File – Ozone Runs

MOBILE6 INPUT FILE  
REPORT FILE : **(output report filename)** REPLACE  
DATABASE OUTPUT :  
WITH FIELDNAMES :  
EMISSIONS TABLE : **(output table filename)** REPLACE  
POLLUTANTS : HC CO NOX  
AGGREGATED OUTPUT :

### **(Runs are repeated for each County)**

RUN DATA  
MIN/MAX TEMPERATURE: 65.1 89.4  
FUEL RVP : 7.8 **(RVP varies by geographic area)**  
EXPRESS HC AS VOC :  
EXPAND EXHAUST :  
EXPAND EVAPORATIVE :  
NO REFUELING :  
94+ LDG IMP : NLEVNE.D  
T2 EXH PHASE-IN : pal2exh.08  
T2 EVAP PHASE-IN : pal2evp.08 } **(CAL LEVII Phase-In Files)**  
T2 CERT : leviistd.d  
REG DISTRIBUTION : ALLE05AG.DAT

**(Vehicle ages vary by county - 2005 ages by county used for all analysis years)**

\*  
\* Percent VMT by 16 Vehicle Types  
\*

**(I/M Programs apply in Allegheny, Beaver, Washington, Westmoreland counties)**

\* NoIM 2002  
ANTI-TAMP PROGRAM : 04 75 50 22222 11111111 1 11 096. 22212222

**(Anti-Tampering Program in Non-I/M Areas started in 2004. Not used in 2002 scenario)**  
**(Anti-Tampering Program used In I/M Areas for all scenarios)**

SCENARIO RECORD :  
CALENDAR YEAR : 2002 **(Year being run – varies by analysis year)**  
EVALUATION MONTH : 7  
ABSOLUTE HUMIDITY : 78.0  
SEASON : 1  
VMT FRACTIONS : **(VMT mix varies for each year, run/scenario combination)**  
0.4475 0.0772 0.2565 0.0796 0.0358 0.0315 0.0031 0.0024  
0.0019 0.0069 0.0082 0.0091 0.0321 0.0015 0.0007 0.0060

**(Speed, hourly, and facility distributions prepared by PPSUITE for each run/scenario)**

VMT BY FACILITY : V000201F.def  
VMT BY HOUR : V000201H.def  
SPEED VMT : V000201S.def  
  
END OF RUN :

## Evaluation Month and Calendar Year – PM2.5 Runs

Month	Evaluation Month	Season	Calendar Year
January	1	2	Current Year
February	1	2	Current Year
March	1	2	Current Year
April	7	1	Current Year
May	7	1	Current Year
June	7	1	Current Year
July	7	1	Current Year
August	7	1	Current Year
September	7	1	Current Year
October	1	2	Current Year + 1
November	1	2	Current Year + 1
December	1	2	Current Year + 1

## Diesel Sulfur – PM2.5 Runs

Years	Sulfur Content Parts per million (ppm)
2002-2006	317
2006-2009	43
2010-Future	11

## Temperature, RVP, Humidity – PM2.5 Runs

Month	Max Temp (month avg)	Min Temp (month avg)	Humidity	RVP Pittsburgh Clairton	RVP Johnstown
January	40.2	26.6	19.2	13.47	13.47
February	44.6	25.3	18.1	13.47	13.47
March	51.0	30.8	24.7	10.95	11.04
April	63.2	42.2	40.7	10.95	11.04
May	68.3	45.1	48.6	7.8	8.7
June	81.1	60.1	72.7	7.8	8.7
July	86.8	65.2	79.5	7.8	8.7
August	85.2	62.9	73.2	7.8	8.7
September	78.9	55.8	65.7	7.8	8.7
October	58.7	43.3	44.6	10.95	11.04
November	46.7	33.8	28.9	10.95	11.04
December	36.8	24.5	19.9	13.47	13.47

## Temperature, RVP, Humidity – Ozone Runs

Month	Max Temp (daily max)	Min Temp (daily min)	Humidity	RVP Pittsburgh	RVP Indiana Greene
July	89.4	65.1	78.0	7.8	8.7

## Vehicle Inspection and Maintenance (I/M) Programs for Southwestern Pennsylvania

### (IM Program for Allegheny, Beaver, Washington and Westmoreland counties Used for pre-2004 analysis years)

\* Annual Basic idle test starting in 1984  
\* Annual PA97 2-speed idle test and gas cap starting in 1997  
I/M PROGRAM : 1 1984 2050 1 TRC IDLE  
I/M PROGRAM : 2 1997 2050 1 TRC 2500/IDLE  
I/M PROGRAM : 3 1997 2050 1 TRC GC

\* Basic IM applies to model years up to 1980  
\* PA97 applies to model years from 1981 up  
\* Gascap covers all model years  
I/M MODEL YEARS : 1 1975 1980  
I/M MODEL YEARS : 2 1981 2050  
I/M MODEL YEARS : 3 1975 2050

\* All programs apply to light duty vehicles only  
I/M VEHICLES : 1 22222 11111111 1  
I/M VEHICLES : 2 22222 11111111 1  
I/M VEHICLES : 3 22222 11111111 1

\* Inspection failure rate for pre 81 model years is 20 percent  
I/M STRINGENCY : 1 20  
I/M STRINGENCY : 2 20

\* Percent of vehicles which complete the IM test  
I/M COMPLIANCE : 1 96.0  
I/M COMPLIANCE : 2 96.0  
I/M COMPLIANCE : 3 96.0

\* Percent of vehicles which fail initial and retests but receive compliance  
\* Waiver rates provided for Pre 81 and 81 and newer  
I/M WAIVER RATES : 1 3.0 3.0  
I/M WAIVER RATES : 2 3.0 3.0  
I/M WAIVER RATES : 3 3.0 3.0

\* Assume IM program receives 100 percent credit for each pollutant  
I/M EFFECTIVENESS : 1.00 1.00 1.00

## Vehicle Inspection and Maintenance (I/M) Programs for Southwestern Pennsylvania

### (IM Program for Allegheny, Beaver, Washington and Westmoreland counties Used for analysis years starting in 2004)

- \* Annual Basic idle test starting in 1984
- \* Annual PA97 2-speed idle test and gas cap starting in 1997
- \* Annual OBD Program starting in 2004

I/M PROGRAM : 1 2004 2050 1 TRC OBD I/M  
I/M PROGRAM : 2 1997 2050 1 TRC 2500/IDLE  
I/M PROGRAM : 3 2004 2050 1 TRC EVAP OBD & GC  
I/M PROGRAM : 4 1997 2050 1 TRC GC  
I/M PROGRAM : 5 1984 2050 1 TRC IDLE

- \* Basic IM applies to model years up to 1980
- \* PA97 applies to model years from 1981 up
- \* OBD IM applies to model years from 1996
- \* Gascap covers all model years

I/M MODEL YEARS : 1 1996 2050  
I/M MODEL YEARS : 2 1981 1995  
I/M MODEL YEARS : 3 1996 2050  
I/M MODEL YEARS : 4 1975 1995  
I/M MODEL YEARS : 5 1975 1980

- \* All programs apply to light duty vehicles only

I/M VEHICLES : 1 22222 11111111 1  
I/M VEHICLES : 2 22222 11111111 1  
I/M VEHICLES : 3 22222 11111111 1  
I/M VEHICLES : 4 22222 11111111 1  
I/M VEHICLES : 5 22222 11111111 1

- \* Inspection failure rate for pre 81 model years is 20 percent

I/M STRINGENCY : 1 20  
I/M STRINGENCY : 2 20  
I/M STRINGENCY : 5 20

- \* Percent of vehicles which complete the IM test

I/M COMPLIANCE : 1 96.0  
I/M COMPLIANCE : 2 96.0  
I/M COMPLIANCE : 3 96.0  
I/M COMPLIANCE : 4 96.0  
I/M COMPLIANCE : 5 96.0

- \* Percent of vehicles which fail initial and retests but receive compliance

- \* Waiver rates provided for Pre 81 and 81 and newer

I/M WAIVER RATES : 1 3.0 3.0  
I/M WAIVER RATES : 2 3.0 3.0  
I/M WAIVER RATES : 3 3.0 3.0  
I/M WAIVER RATES : 4 3.0 3.0  
I/M WAIVER RATES : 5 3.0 3.0

- \* Assume IM program receives 100 percent credit for each pollutant

I/M EFFECTIVENES : 1.00 1.00 1.00

## Vehicle Registration Input to MOBILE6 Fraction of Vehicles by Vehicle Age

### Typical Values (Vary by County)

REG DIST										
1	0.0640	0.1058	0.1170	0.0784	0.0686	0.0679	0.0615	0.0641	0.0544	0.0496
	0.0436	0.0409	0.0358	0.0350	0.0278	0.0205	0.0155	0.0116	0.0091	0.0047
	0.0028	0.0022	0.0020	0.0031	0.0140					
2	0.0291	0.0580	0.0770	0.0568	0.0579	0.0539	0.0456	0.0549	0.0662	0.0511
	0.0481	0.0577	0.0464	0.0549	0.0550	0.0390	0.0320	0.0244	0.0198	0.0131
	0.0094	0.0068	0.0042	0.0093	0.0294					
3	0.0291	0.0580	0.0770	0.0568	0.0579	0.0539	0.0456	0.0549	0.0662	0.0511
	0.0481	0.0577	0.0464	0.0549	0.0550	0.0390	0.0320	0.0244	0.0198	0.0131
	0.0094	0.0068	0.0042	0.0093	0.0294					
4	0.0535	0.0863	0.0881	0.0715	0.0569	0.0792	0.0501	0.0688	0.0537	0.0381
	0.0350	0.0252	0.0334	0.0369	0.0276	0.0220	0.0283	0.0247	0.0195	0.0115
	0.0087	0.0053	0.0057	0.0198	0.0500					
5	0.0535	0.0863	0.0881	0.0715	0.0569	0.0792	0.0501	0.0688	0.0537	0.0381
	0.0350	0.0252	0.0334	0.0369	0.0276	0.0220	0.0283	0.0247	0.0195	0.0115
	0.0087	0.0053	0.0057	0.0198	0.0500					
16	0.0565	0.0970	0.0844	0.0648	0.0543	0.0494	0.0423	0.0343	0.0289	0.0278
	0.0190	0.0188	0.0169	0.0194	0.0195	0.0210	0.0363	0.0379	0.0233	0.0324
	0.0418	0.0365	0.0288	0.0195	0.0892					

(Based on 2005 PENNDOT Motor Vehicle Registration Data)  
(Trucks use MOBILE6 National Defaults)

## Vehicle Miles Traveled Input to MOBILE6 Fraction of Vehicle Miles by Vehicle Type

### Typical Values (vary by Year/County)

VMT FRACTIONS							
0.4756	0.0725	0.2403	0.0746	0.0336	0.0314	0.0032	0.0024
0.0018	0.0070	0.0082	0.0089	0.0321	0.0016	0.0008	0.0060

(Based on 2005 PENNDOT Data)

**Composite Vehicle Classes  
for  
Vehicle Registration Data and Vehicle Miles Traveled Fractions**

<b>Veh. Type</b>	<b>Name</b>	<b>Description</b>
1	LDV	Light-Duty Vehicles (Passenger Cars)
2	LDT1	Light-Duty Trucks 1 ((0-6,000 lbs. GVWR, 0-3,750 lbs. LVW)
3	LDT2	Light-Duty Trucks 2 ((0-6,000 lbs. GVWR, 3,751-5,750 lbs. LVW)
4	LDT3	Light-Duty Trucks 3 ((6,001-8,500 lbs. GVWR, 0-5,750 lbs. ALVW)
5	LDT4	Light-Duty Trucks 4 ((6,001-8,500 lbs. GVWR, >5,751 lbs. ALVW)
6	HDV2B	Class 2b Heavy-Duty Vehicles (8,501-10,000 lbs. GVWR)
7	HDV3	Class 3 Heavy-Duty Vehicles (10,001-14,000 lbs. GVWR)
8	HDV4	Class 4 Heavy-Duty Vehicles (14,001-16,000 lbs. GVWR)
9	HDV5	Class 5 Heavy-Duty Vehicles (16,001-19,500 lbs. GVWR)
10	HDV6	Class 6 Heavy-Duty Vehicles (19,501-26,000 lbs. GVWR)
11	HDV7	Class 7 Heavy-Duty Vehicles (26,001-33,000 lbs. GVWR)
12	HDV8A	Class 8a Heavy-Duty Vehicles (33,001-60,000 lbs. GVWR)
13	HDV8B	Class 8b Heavy-Duty Vehicles (>60,000 lbs. GVWR)
14	HDBS	School Buses
15	HDBT	Transit and Urban Buses
16	MC	Motorcycles (All)

**ALVW = Alternative Loaded Vehicle Weight: The adjusted loaded vehicle weight (ALVW) is the numeric average of the vehicle curb weight and the gross vehicle weight rating (GVWR)**