

MOVES Input Development

Indiana MPO Conference

September 15, 2010

MOBILE6 vs. MOVES

Features and inputs

MOBILE6
(mobile62.exe: 16-bit , programmed
in FORTRAN)

Text-based
structured
input



MOVES
Graphic User interface (GUI)
Java-based
Excel inputs
MySQL post-processing
MSAccess ODBC
Flexible/expandable input system
Green-house gases
New fuels and technologies

Excel spreadsheets
.csv text exported files
MSAccess ODBC
MySQL



PRINCIPLES TO KEEP IN MIND

(POLICY)

Conformity Analysis Input
Assumptions / Methodologies

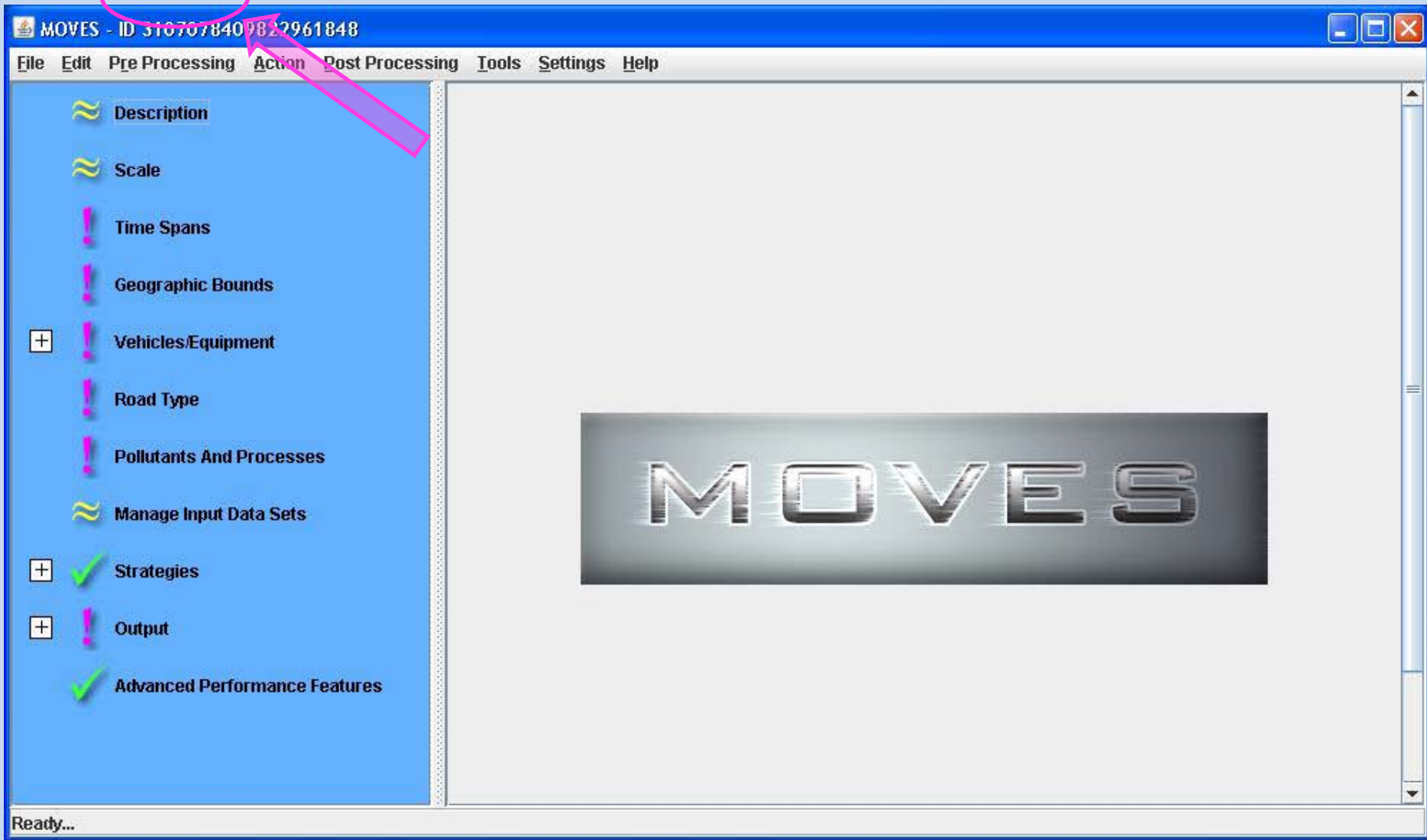


SIP Budget Development Input
Assumptions / Methodologies

Determine whether to run INVENTORY or EMISSION RATES output

- this can take some deliberation and experimentation to determine
- tradeoffs are run times and complication of method (many table fields)

<http://www.epa.gov/otag/models/moves/index.htm>



PRE-PROCESSING: COUNTY DATABASE MANAGER

MOVES County Data Manager

✓ Road Type Distribution ✓ Source Type Population ✓ Vehicle Type VMT ✓ I/M Programs Tools

✓ Fuel Supply ✓ Fuel Formulation ✓ Meteorology Data ✓ Ramp Fraction

RunSpec Summary **Database** ✓ Age Distribution ✓ Average Speed Distribution

Select or create a database to hold the imported data.

Server: localhost

Database: rana09jeg5a_input Create Database Refresh

Log: Clear All Imported Data

2010-06-09 10:46:14.0 Fuel Supply Filled FuelSupply table
2010-06-09 10:46:09.0 Average Speed Distribution Filled AvgSpeedDistribution table
2010-06-09 10:46:01.0 Age Distribution Filled SourceTypeAgeDistribution table
2010-06-09 10:45:54.0 Road Type Distribution Filled RoadTypeDistribution table
2010-06-09 10:45:47.0 Ramp Fraction Filled RoadType table
2010-06-09 10:45:40.0 Meteorology Data Filled ZoneMonthHour table
2010-06-09 10:45:30.0 Fuel Formulation Filled FuelFormulation table
2010-06-09 10:45:13.0 I/M Programs Filled IMCoverage table
2010-06-09 10:45:06.0 Vehicle Type VMT Filled DayVMTFraction table
2010-06-09 10:45:06.0 Vehicle Type VMT Filled HourVMTFraction table
2010-06-09 10:45:05.0 Vehicle Type VMT Filled HPMSVTypeYear table
2010-06-09 10:45:05.0 Vehicle Type VMT Filled MonthVMTFraction table
2010-06-09 10:44:11.0 Source Type Population Filled SourceTypeYear table

Database

Done

COUNTY DB INPUT FILES

(Vehicle) Age Distribution

Source Type (Vehicle) Population

Average Speed Distribution

Vehicle Type VMT

Month VMT, Day VMT, Hour VMT

Ramp Fractions

Road Type Distribution

Fuel Formulation

Fuel Supply

Meteorology (humidity, temperature)

I/M Programs

Z:\input\converters\EPA converters

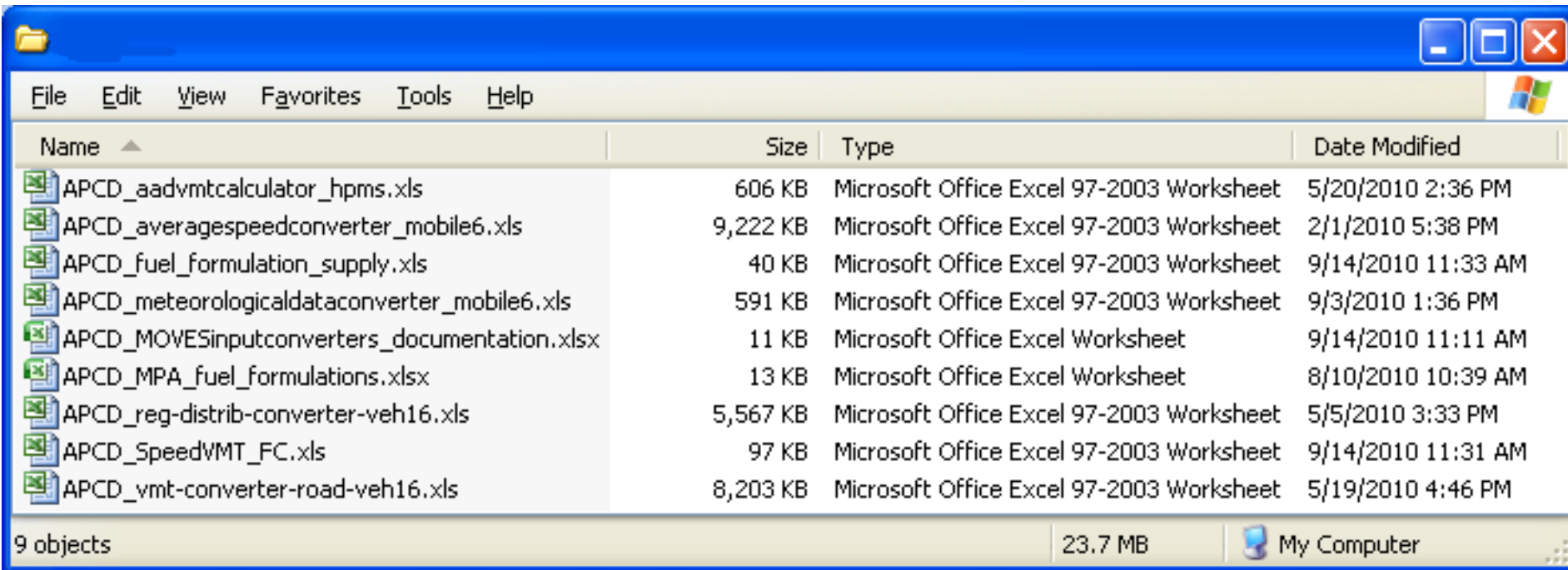
File Edit View Favorites Tools Help

Address Z:\input\converters\EPA converters Go

Name	Size	Type	Date Modified
averagespeedconverter_nmim.xls	14,270 KB	Microsoft Office Excel 97-2003 Worksheet	12/1/2009 2:48 PM
meteorologicaldataconverter_mobile6.xls	393 KB	Microsoft Office Excel 97-2003 Worksheet	1/21/2010 3:43 PM
meteorologicaldataconverter_nmim.xls	229 KB	Microsoft Office Excel 97-2003 Worksheet	12/1/2009 2:50 PM
MOVES2010DefaultAgeDistributions.xls	4,122 KB	Microsoft Office Excel 97-2003 Worksheet	2/12/2010 9:54 AM
reg-distrib-converter-veh16.xls	5,510 KB	Microsoft Office Excel 97-2003 Worksheet	2/12/2010 9:53 AM
vmtconverter_facvmt_veh8.xls	1,602 KB	Microsoft Office Excel 97-2003 Worksheet	12/9/2009 12:46 PM
vmtconverter_facvmt_veh12.xls	3,864 KB	Microsoft Office Excel 97-2003 Worksheet	12/1/2009 2:54 PM
vmtconverter_facvmt_veh16.xls	4,465 KB	Microsoft Office Excel 97-2003 Worksheet	12/23/2009 4:48 PM
vmtconverter_facvmt_veh28.xls	16,925 KB	Microsoft Office Excel 97-2003 Worksheet	12/1/2009 2:52 PM
vmtconverter_veh8.xls	3,115 KB	Microsoft Office Excel 97-2003 Worksheet	12/1/2009 3:00 PM
vmtconverter_veh12.xls	3,734 KB	Microsoft Office Excel 97-2003 Worksheet	12/23/2009 4:48 PM
vmtconverter_veh16.xls	4,308 KB	Microsoft Office Excel 97-2003 Worksheet	12/23/2009 4:49 PM
vmtconverter_veh28.xls	16,683 KB	Microsoft Office Excel 97-2003 Worksheet	12/1/2009 2:58 PM
vmt-converter-road-veh8.xls	15,546 KB	Microsoft Office Excel 97-2003 Worksheet	2/12/2010 9:51 AM
vmt-converter-road-veh12.xls	16,196 KB	Microsoft Office Excel 97-2003 Worksheet	2/12/2010 9:50 AM
vmt-converter-road-veh16.xls	16,733 KB	Microsoft Office Excel 97-2003 Worksheet	2/12/2010 9:49 AM
vmt-converter-road-veh28.xls	16,932 KB	Microsoft Office Excel 97-2003 Worksheet	2/12/2010 9:49 AM
vmt-converter-veh8.xls	15,472 KB	Microsoft Office Excel 97-2003 Worksheet	2/12/2010 9:54 AM
vmt-converter-veh12.xls	16,074 KB	Microsoft Office Excel 97-2003 Worksheet	2/12/2010 9:53 AM
vmt-converter-veh16.xls	16,601 KB	Microsoft Office Excel 97-2003 Worksheet	2/12/2010 9:53 AM
vmt-converter-veh28.xls	16,707 KB	Microsoft Office Excel 97-2003 Worksheet	2/12/2010 9:52 AM

26 objects 214 MB My Computer

LM-APCD CUSTOMIZED CONVERTERS



Name	Size	Type	Date Modified
APCD_aadvmtcalculator_hpms.xls	606 KB	Microsoft Office Excel 97-2003 Worksheet	5/20/2010 2:36 PM
APCD_averagespeedconverter_mobile6.xls	9,222 KB	Microsoft Office Excel 97-2003 Worksheet	2/1/2010 5:38 PM
APCD_fuel_formulation_supply.xls	40 KB	Microsoft Office Excel 97-2003 Worksheet	9/14/2010 11:33 AM
APCD_meteorologicaldataconverter_mobile6.xls	591 KB	Microsoft Office Excel 97-2003 Worksheet	9/3/2010 1:36 PM
APCD_MOVESinputconverters_documentation.xlsx	11 KB	Microsoft Office Excel Worksheet	9/14/2010 11:11 AM
APCD_MPA_fuel_formulations.xlsx	13 KB	Microsoft Office Excel Worksheet	8/10/2010 10:39 AM
APCD_reg-distrib-converter-veh16.xls	5,567 KB	Microsoft Office Excel 97-2003 Worksheet	5/5/2010 3:33 PM
APCD_SpeedVMT_FC.xls	97 KB	Microsoft Office Excel 97-2003 Worksheet	9/14/2010 11:31 AM
APCD_vmt-converter-road-veh16.xls	8,203 KB	Microsoft Office Excel 97-2003 Worksheet	5/19/2010 4:46 PM

9 objects 23.7 MB My Computer

MOVES DATABASE MANAGER INPUT FILES

Other Input	MOBILE6 Input	MOVES Input	COUNTY DB MGR INPUT FILE
registration data	25 yrs/16 types	30 yrs/16 types	Age Distribution
registration data	16 input VMT fractions	13 vehicle type VMT totals (per year)	Source Type Population
	fractions for facility types 1 & 2 for 14 speed bins for 24 hours each	fractions for source type (vehicles, roadtype, hour/day, speed bin)	Average Speed Distribution
VMT (KIPDA) – county total	16 MOBILE6 veh. type fractions	6 HPMS vehicle VMT input → VMT for 13 source types (veh.'s) – internal to MOVES	Vehicle Type VMT , Month VMT, Day VMT
12 HPMS facility VMT fraction for 16 MOBILE6 veh. types	16 MOBILE6 veh. type fractions (integrate for 12 HPMS facilities)		Vehicle Type VMT, Hour VMT
ramp fractions (KIPDA)			Ramp Fractions
VMT (KIPDA) by road type			Road Type Distribution
custom fuel records	fuel formulation data (for custom)	default/edit for custom	Fuel Formulation
“ “	“ “	“ “	Fuel Supply
NOAA data	min/max temp, absolute humidity	hourly temp.'s & relative humidity	Meteorological (humidity, temperature)
none: after 2002 (KY), 2006 (IN)	none: after 2002 (KY), 2006 (IN)	none: after 2002 (KY), 2006 (IN) – ‘N’	I/M Programs

MOVES COUNTY DB INPUT FILE DEVELOPMENT – CONVERSION WORKBOOKS

INPUT (workbooks)		OUTPUT (sheets / field columns)
INPUT TO APCD INPUT WORKBOOK	APCD INPUT WORKBOOK	OUTPUT SPREADSHEET / *.CSV for CountyDB
Vehicle Registration distribution	<i>APCD_registrationdistributionconverter_veh16.xls</i>	Age_Distribution Source_Type_Population
SFVMT data generated from KIPDA	<i>APCD_averagespeedconverter_mobile6.xls</i>	Average_Speed_Distribution
<i>APCD_SpeedVMT_FC.xls</i> (with inputs from KIPDA generated daily VMT data, vehicle VMT fractions)	<i>APCD_aadvmtcalc_hpms.xls</i> (6 HPMS vehicle VMT input)	Vehicle_Type_VMT (proportionately reduced by 6.31% from total input VMT by adjustment factors), Month_VMT_Fraction, Day_VMT_Fraction, Hour_VMT_Fraction (default)
APCD_SpeedVMT_FC.xls (with inputs from KIPDA generated daily VMT data, vehicle VMT fractions)	<i>APCD_vmt-converter_road_veh16.xls</i> (12 HPMS facility & 16 MOB6 matrix input)	Ramp_Fraction Road_Type_Distribution Hour_VMT_Fraction Vehicle_Type_VMT (retains original total input VMT)
NCD fuel formulation records + supply data (market share)	<i>APCD_fuel_formulation_supply.xls</i>	Fuel_Formulation Fuel_Supply
meteorology	<i>APCD_meteorologicaldataconverter.xls</i>	Meteorological_Data
IM Programs	IM_programs.xls (MOVES default)	IM_Programs (Jeff Co. KY to 2002; IN: to 2006)

MOVES DATABASE MANAGER INPUT FILES

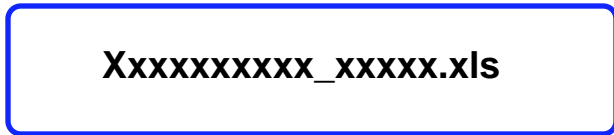
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VMT (KIPDA) by road type			Road Type Distribution
custom fuel records	fuel formulation data (for custom)	default/edit for custom	Fuel Formulation
“ “	“ “	“ “	Fuel Supply
NOAA data	min/max temp, absolute humidity	hourly temp.'s & relative humidity	Meteorological (humidity, temperature)
none: after 2002 (KY), 2006 (IN)	none: after 2002 (KY), 2006 (IN)	none: after 2002 (KY), 2006 (IN) – 'N'	I/M Programs

LM-APCD WORKBOOK LEGEND

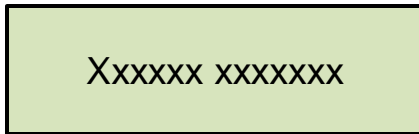


Excel worksheet/tab

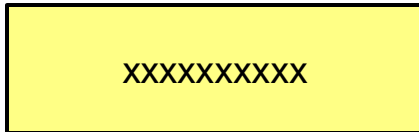
BLUE lines: LM-APCD CUSTOM COMPONENT / workbook



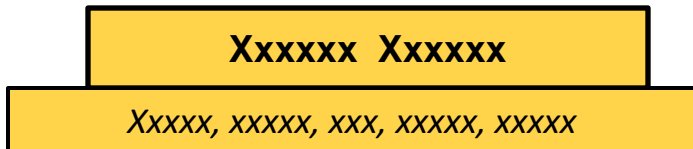
converter workbook
(original from EPA)



Green: input

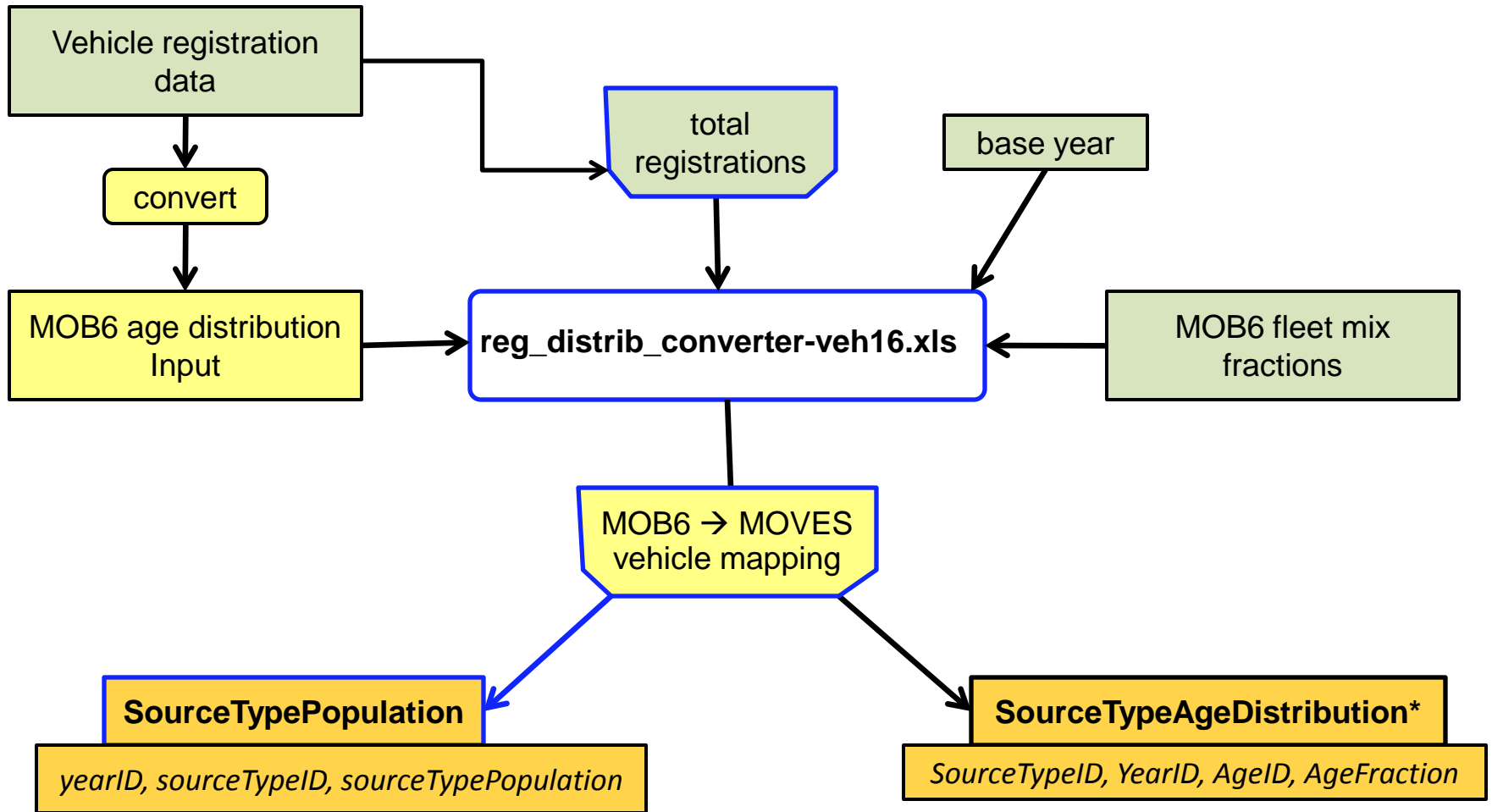


YELLOW: process (calculations, consolidation, formatting, etc.)



ORANGE: output

COUNTY DATABASE MANAGER INPUT DEVELOPMENT

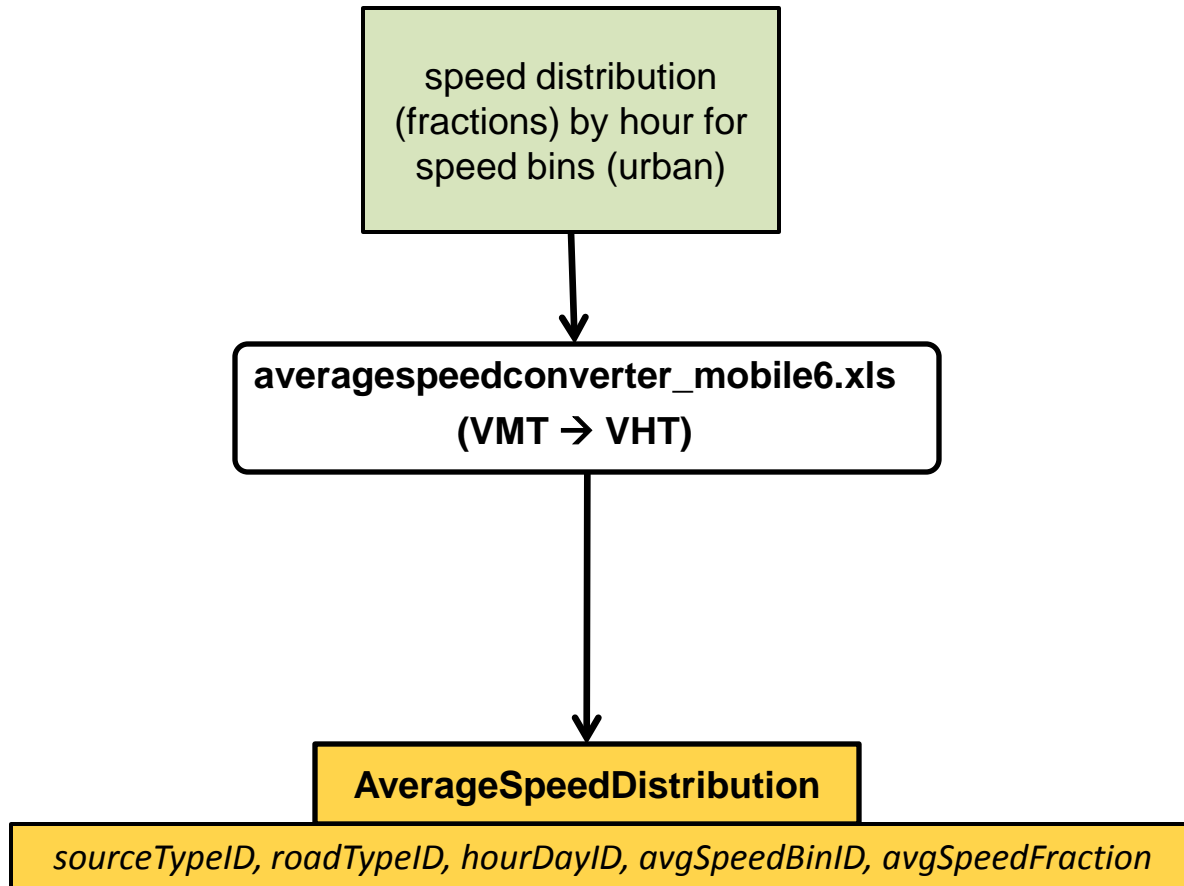


***Source Type** = Vehicle Type

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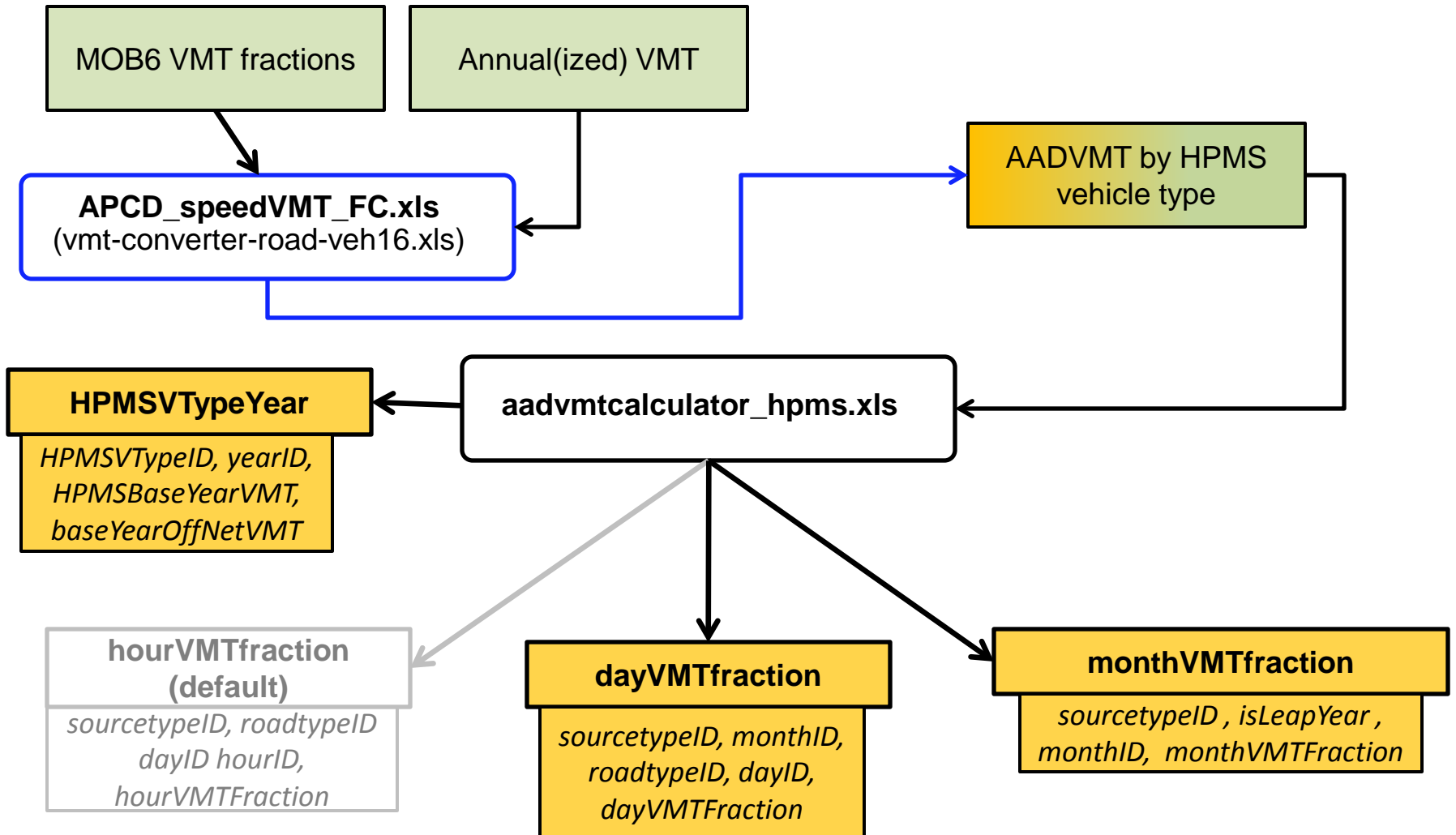
COUNTY DATABASE MANAGER INPUT DEVELOPMENT



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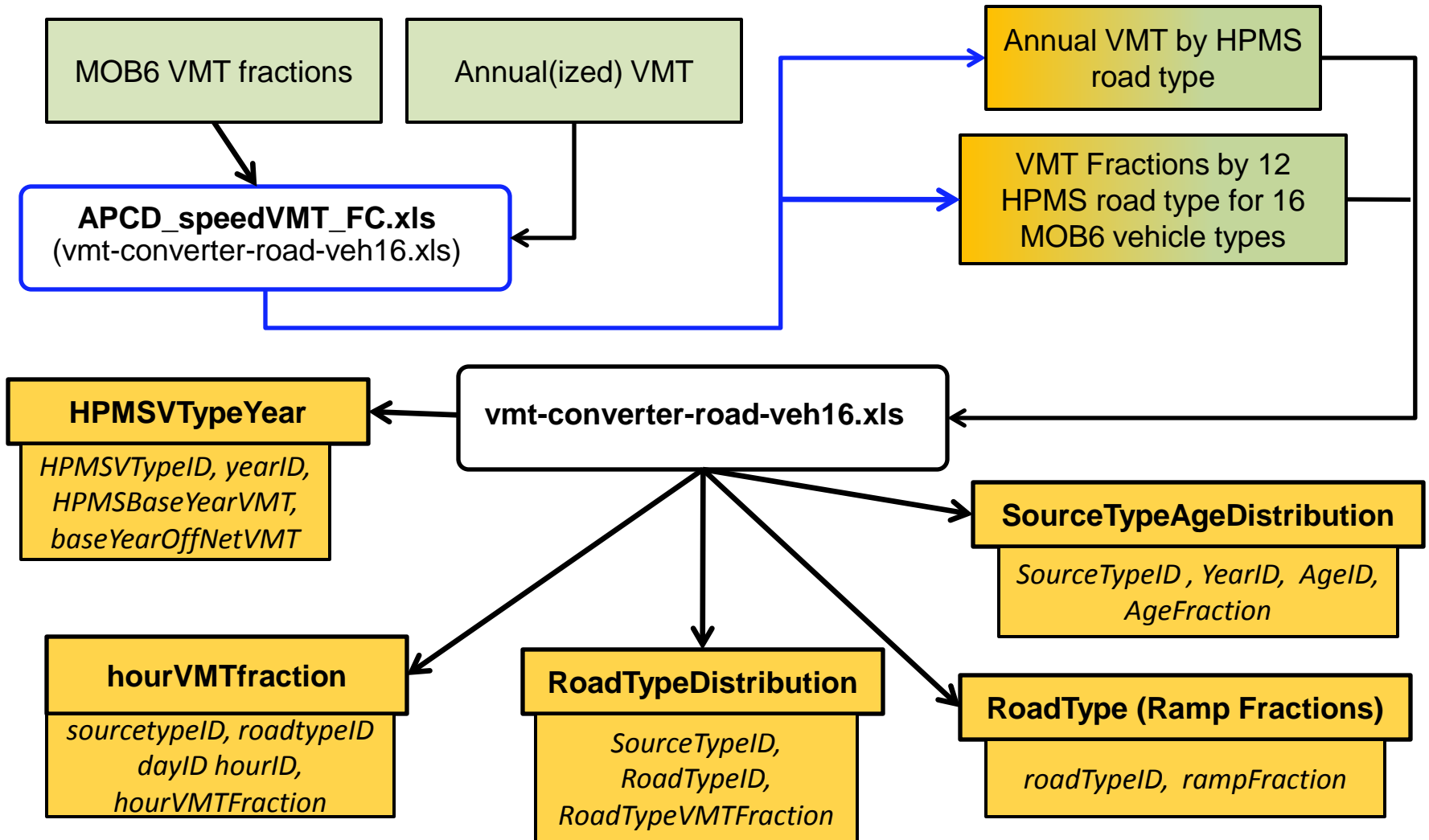
COUNTY DATABASE MANAGER INPUT DEVELOPMENT



MOVES DATABASE MANAGER INPUT FILES

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COUNTY DATABASE MANAGER INPUT DEVELOPMENT



Home Insert Page Layout Formulas Data Review View

Clipboard Font Alignment Number Styles Cells Editing

A1																	
		LDGV	LDGT1	LDGT2	LDGT3	LDGT4	Hdgv2B	Hdgv3	Hdgv4	Hdgv5	Hdgv6	Hdgv7	Hdgv8A	Hdgv8B	LDDV	LDDT12	HDDV2B
		0.4878	0.0744	0.2475	0.0142	0.0065	0.0395	0.0014	0.0004	0.0014	0.0029	0.0012	0	0	0.0005	0	0.0119
		LDGV	LDGT12	LDGT34	Hdgv	MC	LDY	LDT1	LDT2	LDT3	LDT4	HDY2	HDY3	HDY4			
		0.4878	0.3219	0.0207	0.0470	0.0090	0.4883	0.0744	0.2475	0.01435	0.00665	0.0514	0.0051	0.0042			
		LDDV	LDDT	HDDV			HDY5	HDY6	HDY7	HDY8A	HDY8B	HDBS	HDBT	MC			
		0.0005	0.0003	0.1128			0.0031	0.0115	0.0135	0.0147	0.0525	0.0024	0.0014	0.0090			
				sum:	1.0000								chksum:	1.0000			

need to desegregate by facility type

Fraction of VMT on Facility Type by Vehicle Type (each column should sum to 1)

Vehicle Type	11	13	15	17	19	21	23	25	27	29	31	33
LDY 1	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883
LDT1 2	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744
LDT2 3	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475
LDT3 4	0.01435	0.01435	0.01435	0.01435	0.01435	0.01435	0.01435	0.01435	0.01435	0.01435	0.01435	0.01435
LDT4 5	0.00665	0.00665	0.00665	0.00665	0.00665	0.00665	0.00665	0.00665	0.00665	0.00665	0.00665	0.00665
HDY2 6	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514
HDY3 7	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051
HDY4 8	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042
HDY5 9	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031
HDY6 10	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115
HDY7 11	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135
HDY8A 12	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147
HDY8B 13	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525
HDBS 14	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024
HDBT 15	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
MC 16	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090

RoadTyp	Area	Description (RoadDesc)
11	Rural	Interstate
13	Rural	Other Principal Arterial
15	Rural	Minor Arterial

VEHICLE VMT MAPPING: MOBILE6 > MOVES					
MOBILE6			MOVES		
ID	Name	ID	Name	Fraction	
1	LDGV	21	Passenger Car	1.00	
2	LDGT1	31	Passenger Truck	0.78	
		32	Light Commercial Truck	0.22	
3	LDGT2	31	Passenger Truck	0.78	
		32	Light Commercial Truck	0.22	
4	LDGT3	31	Passenger Truck	0.78	
		32	Light Commercial Truck	0.22	
5	LDGT4	31	Passenger Truck	0.78	
		32	Light Commercial Truck	0.22	
6	HDGV2B	31	Passenger Truck	0.63	
		32	Light Commercial Truck	0.37	
7	HDGV3	31	Passenger Truck	0.63	
		32	Light Commercial Truck	0.37	
8	HDGV4	31	Passenger Truck	0.05	
		32	Light Commercial Truck	0.95	
9	HDGV5	31	Passenger Truck	0.05	
		32	Light Commercial Truck	0.95	
10	HDGV6	43	School Bus	0.03	
		52	Single Unit Short-haul Truck	0.80	
		53	Single Unit Long-haul Truck	0.06	
		54	Motor Home	0.09	
		61	Combination Short-haul Truck	0.02	
11	HDGV7	43	School Bus	0.03	
		52	Single Unit Short-haul Truck	0.80	
		53	Single Unit Long-haul Truck	0.06	
		54	Motor Home	0.09	
12	HDGV8A	61	Combination Short-haul Truck	0.02	
		52	Single Unit Short-haul Truck	0.88	
		53	Single Unit Long-haul Truck	0.08	
13	HDGV8B	61	Combination Short-haul Truck	0.04	
		52	Single Unit Short-haul Truck	0.88	
		53	Single Unit Long-haul Truck	0.08	
14	LDDV	61	Combination Short-haul Truck	0.04	
		21	Passenger Car	1.00	
		31	Passenger Truck	0.41	
15	LDDT12	32	Light Commercial Truck	0.59	
		31	Passenger Truck	0.42	
16	HDDV2B	32	Light Commercial Truck	0.58	
		31	Passenger Truck	0.42	
17	HDDV3	32	Light Commercial Truck	0.58	
		31	Passenger Truck	0.42	
18	HDDV4	31	Passenger Truck	0.08	

Home Insert Page Layout Formulas Data Review View

Paste Font Alignment Number Styles Cells Editing

Clipboard Font Alignment Number Styles Cells Editing

T34 fx

Facility Type	VMT (Million Miles)	Road Type	Area Type	Description (RoadDesc)
11	75.50	11	Rural	Interstate
13	49.23	13	Rural	Other Principal Arterial
15	54.13	15	Rural	Minor Arterial
17	5.36	17	Rural	Major Collector
19	9.00	19	Rural	Minor Collector
21	14.23	21	Rural	Local
23	3,332.99	23	Urban	Interstate
25	205.26	25	Urban	Other Freeways and Expressways
27	1,486.52	27	Urban	Other Principal Arterial
29	1,270.01	29	Urban	Minor Arterial
31	609.94	31	Urban	Collector
33	699.85	33	Urban	Local

EXPORT TO: APCD_vmt-converter-road-veh16.xls

Fraction of VMT on Facility Type by Vehicle Type (each column should sum to 1)												
Vehicle Type	11	13	15	17	19	21	23	25	27	29	31	33
1	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883
2	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744
3	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475
4	0.0144	0.0144	0.0144	0.0144	0.0144	0.0144	0.0144	0.0144	0.0144	0.0144	0.0144	0.0144
5	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067
6	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514
7	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051
8	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042
9	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031
10	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115
11	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135
12	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147
13	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525
14	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024
15	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
16	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090
Sum	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Microsoft Excel ribbon showing tabs: Home, Insert, Page Layout, Formulas, Data, Review, View. The ribbon includes various toolbars for font, alignment, number, styles, and editing. A Security Warning banner is visible at the bottom of the ribbon area, stating "Data connections have been disabled".

J6

1	Enter Base Year	2009																		
2																				
3	HPMS Road Type	YMT (Million Miles)		RoadType	Area Type	Description (RoadDesc)														
4	11	75.50		11	Rural	Interstate														
5	13	49.23		13	Rural	Other Principal Arterial														
6	15	54.13		15	Rural	Minor Arterial														
7	17	5.36		17	Rural	Major Collector														
8	19	9.00		19	Rural	Minor Collector														
9	21	14.23		21	Rural	Local														
10	23	3332.99		23	Urban	Interstate														
11	25	205.26		25	Urban	Other Freeways and Expressways														
12	27	1486.52		27	Urban	Other Principal Arterial														
13	29	1270.01		29	Urban	Minor Arterial														
14	31	609.94		31	Urban	Collector														
15	33	699.85		33	Urban	Local														

Fraction of YMT on Road Type by Vehicle Type (each column should sum to 1)													
Vehicle Typ	11	13	15	17	19	21	23	25	27	29	31	33	
1	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883	0.4883
2	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744	0.0744
3	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475	0.2475
4	0.0144	0.0144	0.0144	0.0144	0.0144	0.0144	0.0144	0.0144	0.0144	0.0144	0.0144	0.0144	0.0144
5	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067
6	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514	0.0514
7	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051
8	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042
9	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031
10	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115	0.0115
11	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135
12	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147
13	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525	0.0525
14	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024
15	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
16	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090
Sum	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Home Insert Page Layout Formulas Data Review View

Clipboard Font Alignment Number Styles Cells Editing

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Sort & Filter Find & Select

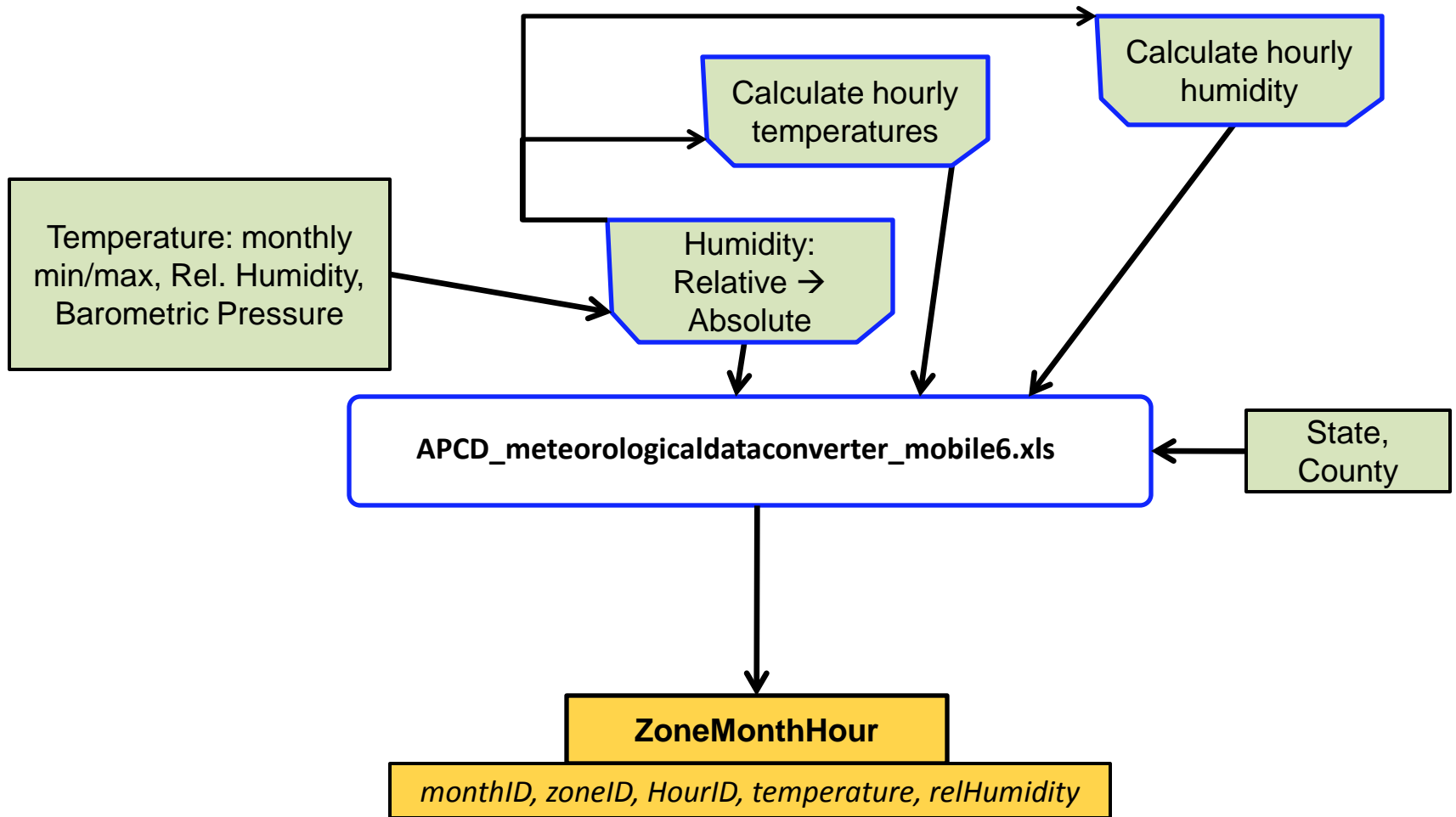
Security Warning Data connections have been disabled Options...

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	SourceTypeID	YearID	AgeID	AgeFraction									
2	11	2009	0	0.030257									
3	11	2009	1	0.093533									
4	11	2009	2	0.098821									
5	11	2009	3	0.088072									
6	11	2009	4	0.070475									
7	11	2009	5	0.088245									
8	11	2009	6	0.073075									
9	11	2009	7	0.063020									
10	11	2009	8	0.048457									
11	11	2009	9	0.039008									
12	11	2009	10	0.029039									
13	11	2009	11	0.277998									
14	11	2009	12	0.000000									
15	11	2009	13	0.000000									
16	11	2009	14	0.000000									
17	11	2009	15	0.000000									
18	11	2009	16	0.000000									
19	11	2009	17	0.000000									
20	11	2009	18	0.000000									
21	11	2009	19	0.000000									
22	11	2009	20	0.000000									
23	11	2009	21	0.000000									
24	11	2009	22	0.000000									
25	11	2009	23	0.000000									
26	11	2009	24	0.000000									
27	11	2009	25	0.000000									
28	11	2009	26	0.000000									

MOVES DATABASE MANAGER INPUT FILES

Other Input	MOBILE6 Input	MOVES Input	COUNTY DB MGR INPUT FILE
registration data	25 yrs/16 types	30 yrs/16 types	Age Distribution
registration data	16 input VMT fractions	13 vehicle type VMT totals (per year)	Source Type Population
	fractions for facility types 1 & 2 for 14 speed bins for 24 hours each	fractions for source type (vehicles, roadtype, hour/day, speed bin)	Average Speed Distribution
VMT (KIPDA) – county total	16 MOBILE6 veh. type fractions	6 HPMS vehicle VMT input → VMT for 13 source types (veh.'s) – internal to MOVES	Vehicle Type VMT , Month VMT, Day VMT
12 HPMS facility VMT fraction for 16 MOBILE6 veh. types	16 MOBILE6 veh. type fractions (integrate for 12 HPMS facilities)		Vehicle Type VMT, Hour VMT
ramp fractions (KIPDA)			Ramp Fractions
VMT (KIPDA) by road type			Road Type Distribution
custom fuel records	fuel formulation data (for custom)	default/edit for custom	Fuel Formulation
“ “	“ “	“ “	Fuel Supply
NOAA data	min/max temp, absolute humidity	hourly temp.'s & relative humidity	Meteorological (humidity, temperature)
none: after 2002 (KY), 2006 (IN)	none: after 2002 (KY), 2006 (IN)	none: after 2002 (KY), 2006 (IN) – 'N'	I/M Programs

COUNTY DATABASE MANAGER INPUT DEVELOPMENT



= user input

conversion from relative to absolute humid

AH Conversion Factors

INPUT MET DATA (seasonal or normals)			
	Avg Min Temp	Morning RH	Baro Press
Jan	24.9	78.0	29.92
Feb	28.5	77.0	29.92
Mar	37.1	76.0	29.92
Apr	46.0	76.0	29.92
May	56.1	82.0	29.92
Jun	65.1	83.0	29.92
Jul	69.8	85.0	29.92
Aug	68.2	87.0	29.92
Sep	60.9	88.0	29.92
Oct	48.5	85.0	29.92
Nov	39.3	80.0	29.92
Dec	29.9	79.0	29.92
average:	47.9	81.3	

Temporary Values						
Abs Humid	TK	TO	BETA	PV		
15.3	269.2	378.1	4.7	286.0		
17.5	271.2	376.1	4.6	249.7		
24.4	276.0	371.3	4.5	179.3		
34.5	280.9	366.3	4.3	127.0		
54.4	286.5	360.7	4.2	81.0		
76.2	291.5	355.7	4.0	58.1		
92.1	294.2	353.1	4.0	48.2		
89.1	293.3	354.0	4.0	49.8		
69.6	289.2	358.1	4.1	63.5		
42.5	282.3	364.9	4.3	103.3		
28.0	277.2	370.1	4.4	156.0		
19.0	272.0	375.3	4.6	229.8		

C(1)	4347.800000
C(2)	0.000153
C(3)	3.243700
C(4)	0.005878
C(5)	0.000000
C(6)	0.002188

Avg Max Temp Afternoon RH Baro Press			
	Avg Max Temp	Afternoon RH	Baro Press
Jan	41.0	65.0	29.92
Feb	46.6	61.0	29.92
Mar	56.8	57.0	29.92
Apr	66.8	52.0	29.92
May	75.4	56.0	29.92
Jun	83.3	57.0	29.92
Jul	87.0	58.0	29.92
Aug	85.8	57.0	29.92
Sep	79.4	57.0	29.92
Oct	68.4	55.0	29.92
Nov	55.9	61.0	29.92
Dec	45.4	66.0	29.92
average:	66.0	58.5	
overall average:	69.9		

historical Norm Average Relative Humidity: 69.9
(from table above/left or otherwise derived)

TEMPERATURE			HUMIDITY		
Avg Min	Avg Max	Daily Mean	Relative		Absolute
			Morning	Afternoon	MOBILE6
24.9	41.0	32.1	78.0	65.0	20.0
28.5	46.6	35.3	77.0	61.0	20.0
37.1	56.8	44.6	76.0	57.0	24.4
46.0	66.8	55.5	76.0	52.0	34.5
56.1	75.4	62.2	82.0	56.0	54.4
65.1	83.3	75.4	83.0	57.0	76.2
69.8	87.0	76.2	85.0	58.0	92.1
68.2	85.8	75.1	87.0	57.0	89.1
60.9	79.4	71.5	88.0	57.0	69.6
48.5	68.4	57.9	85.0	55.0	42.5
39.3	55.9	43.8	80.0	61.0	28.0
29.9	45.4	35.0	79.0	66.0	20.0

= used by conversion links



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
2		Creating a Revised Temperature Cycle:														
3		Historical norm temp average =				72.0										
4			Hour	Standard	degrees Fahrenheit		MOVES hourID (-- midnight -->)									
5		Time	Number	Cycle	Month	Min/Max	hourID:	1	2	3	4	5	6	7	8	
6		Midnight	19	77.2	1	24.9	Temp:	28.4	27.5	26.7	26.2	25.8	25.3	24.9	25.2	
7		1:00 AM	20	75.8		41.0										
8		2:00 AM	21	74.7	2	28.5	Temp:	32.4	31.4	30.5	29.9	29.5	29.0	28.5	28.9	
9		3:00 AM	22	73.9		46.6										
10		4:00 AM	23	73.3	3	37.1	Temp:	41.3	40.2	39.3	38.6	38.1	37.6	37.1	37.5	
11		5:00 AM	24	72.6		56.8										
12		6:00 AM	1	72.0	4	46.0	Temp:	50.5	49.3	48.3	47.6	47.1	46.5	46.0	46.4	
13		7:00 AM	2	72.5		66.8										
14		8:00 AM	3	75.5	5	56.1	Temp:	60.3	59.2	58.3	57.6	57.1	56.6	56.1	56.5	
15		9:00 AM	4	80.3		75.4										
16		10:00 AM	5	85.2	6	65.1	Temp:	69.0	68.0	67.1	66.5	66.1	65.6	65.1	65.5	
17		11:00 AM	6	89.4		83.3										
18		NOON	7	93.1	7	69.8	Temp:	73.5	72.5	71.7	71.2	70.7	70.2	69.8	70.2	
19		1:00 PM	8	95.1		87.0										
20		2:00 PM	9	95.8	8	68.2	Temp:	72.0	71.0	70.2	69.6	69.1	68.6	68.2	68.6	
21		3:00 PM	10	96.0		85.8										
22		4:00 PM	11	95.5	9	60.9	Temp:	64.9	63.8	63.0	62.4	61.9	61.4	60.9	61.3	
23		5:00 PM	12	94.1		79.4										
24		6:00 PM	13	91.7	10	48.5	Temp:	52.8	51.7	50.8	50.1	49.6	49.0	48.5	48.9	
25		7:00 PM	14	88.6		68.4										
26		8:00 PM	15	85.5	11	39.3	Temp:	42.9	41.9	41.2	40.6	40.2	39.7	39.3	39.6	
27		9:00 PM	16	82.8		55.9										
28		10:00 PM	17	80.9	12	29.9	Temp:	33.3	32.4	31.6	31.1	30.7	30.3	29.9	30.2	
29		11:00 PM	18	79.0		45.4										
30		Midnight	19	77.2												
31		1:00 AM	20	75.8												
32		2:00 AM	21	74.7												
33		3:00 AM	22	73.9												
34		4:00 AM	23	73.3												
35		5:00 AM	24	72.6												
36																
37																
38																

		HOUR ID											
Month	Hour 1 (6:00 AM)	Hour 2 (7:00 AM)	Hour 3 (8:00 AM)	Hour 4 (9:00 AM)	Hour 5 (10:00 AM)	Hour 6 (11:00 AM)	Hour 7 (12:00 Noon)	Hour 8 (1:00 PM)	Hour 9 (2:00 PM)	Hour 10 (3:00 PM)	Hour 11 (4:00 PM)	Hour 12 (5:00 PM)	
	Hour 13 (6:00 PM)	Hour 14 (7:00 PM)	Hour 15 (8:00 PM)	Hour 16 (9:00 PM)	Hour 17 (10:00 PM)	Hour 18 (11:00 PM)	Hour 19 (12:00 AM)	Hour 20 (1:00 AM)	Hour 21 (2:00 AM)	Hour 22 (3:00 AM)	Hour 23 (4:00 AM)	Hour 24 (5:00 AM)	

ENTER MOBILE6 HOURLY TEMPERATURES

1	28.4	27.5	26.7	26.2	25.8	25.3	24.9	25.2	27.3	30.5	33.8	36.6
2	39.1	40.4	40.9	41.0	40.7	39.7	38.1	36.0	34.0	32.1	30.9	29.6
3	32.4	31.4	30.5	29.9	29.5	29.0	28.5	28.9	31.1	34.8	38.5	41.6
4	44.4	45.9	46.5	46.6	46.2	45.2	43.4	41.0	38.7	36.6	35.2	33.8
5	41.3	40.2	39.3	38.6	38.1	37.6	37.1	37.5	39.9	43.9	47.9	51.4
6	54.4	56.1	56.6	56.8	56.4	55.2	53.3	50.7	48.2	45.9	44.4	42.8
7	50.5	49.3	48.3	47.6	47.1	46.5	46.0	46.4	49.0	53.2	57.4	61.1
8	64.3	66.0	66.6	66.8	66.4	65.2	63.1	60.4	57.7	55.4	53.7	52.1
9	60.3	59.2	58.3	57.6	57.1	56.6	56.1	56.5	58.9	62.8	66.7	70.1
10	73.1	74.7	75.2	75.4	75.0	73.9	71.9	69.4	66.9	64.8	63.3	61.7
11	69.0	68.0	67.1	66.5	66.1	65.6	65.1	65.5	67.8	71.4	75.1	78.3
12	81.1	82.6	83.1	83.3	82.9	81.9	80.0	77.7	75.3	73.3	71.8	70.4
13	73.5	72.5	71.7	71.2	70.7	70.2	69.8	70.2	72.3	75.8	79.3	82.3
14	84.9	86.4	86.9	87.0	86.6	85.6	83.9	81.7	79.5	77.5	76.2	74.8
15	72.0	71.0	70.2	69.6	69.1	68.6	68.2	68.6	70.8	74.3	77.9	81.0
16	83.7	85.1	85.7	85.8	85.4	84.4	82.7	80.4	78.1	76.1	74.7	73.3
17	64.9	63.8	63.0	62.4	61.9	61.4	60.9	61.3	63.6	67.3	71.1	74.3
18	77.2	78.7	79.2	79.4	79.0	77.9	76.1	73.7	71.3	69.2	67.8	66.3
19	52.8	51.7	50.8	50.1	49.6	49.0	48.5	48.9	51.4	55.4	59.4	62.9
20	66.0	67.6	68.2	68.4	68.0	66.8	64.8	62.3	59.7	57.5	55.9	54.3
21	42.9	41.9	41.2	40.6	40.2	39.7	39.3	39.6	41.7	45.0	48.4	51.3
22	53.9	55.3	55.8	55.9	55.6	54.6	52.9	50.8	48.6	46.8	45.5	44.1
23	33.3	32.4	31.6	31.1	30.7	30.3	29.9	30.2	32.2	35.3	38.4	41.1
24	43.5	44.8	45.3	45.4	45.1	44.2	42.6	40.6	38.6	36.9	35.6	34.4



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	monthID	zoneID	HourID	temperature	relHumidity									
2	1	211110	1	38.1	60.5									
3	1	211110	2	36.0	65.7									
4	1	211110	3	34.0	71.4									
5	1	211110	4	32.1	76.7									
6	1	211110	5	30.9	80.8									
7	1	211110	6	29.6	85.1									
8	1	211110	7	28.4	89.4									
9	1	211110	8	27.5	92.9									
10	1	211110	9	26.7	95.8									
11	1	211110	10	26.2	98.0									
12	1	211110	11	25.8	99.6									
13	1	211110	12	25.3	100.0									
14	1	211110	13	24.9	100.0									
15	1	211110	14	25.2	100.0									
16	1	211110	15	27.3	93.7									
17	1	211110	16	30.5	82.1									
18	1	211110	17	33.8	71.9									
19	1	211110	18	36.6	64.3									
20	1	211110	19	39.1	58.3									
21	1	211110	20	40.4	55.4									
22	1	211110	21	40.9	54.4									
23	1	211110	22	41.0	54.1									
24	1	211110	23	40.7	54.8									
25	1	211110	24	39.7	56.8									
26	2	211110	1	43.4	49.4									
27	2	211110	2	41.0	54.0									
28	2	211110	3	38.7	59.2									
29	2	211110	4	36.6	64.1									
30	2	211110	5	35.2	67.9									
31	2	211110	6	33.8	71.9									
32	2	211110	7	32.4	75.9									
33	2	211110	8	31.4	79.2									
34	2	211110	9	30.5	81.9									
35	2	211110	10	29.9	84.0									
36	2	211110	11	29.5	85.5									
37	2	211110	12	29.0	87.4									

MOVES DATABASE MANAGER INPUT FILES

Other Input	MOBILE6 Input	MOVES Input	COUNTY DB MGR INPUT FILE
registration data	25 yrs/16 types	30 yrs/16 types	Age Distribution
registration data	16 input VMT fractions	13 vehicle type VMT totals (per year)	Source Type Population
	fractions for facility types 1 & 2 for 14 speed bins for 24 hours each	fractions for source type (vehicles, roadtype, hour/day, speed bin)	Average Speed Distribution
VMT (KIPDA) – county total	16 MOBILE6 veh. type fractions	6 HPMS vehicle VMT input → VMT for 13 source types (veh.'s) – internal to MOVES	Vehicle Type VMT , Month VMT, Day VMT
12 HPMS facility VMT fraction for 16 MOBILE6 veh. types	16 MOBILE6 veh. type fractions (integrate for 12 HPMS facilities)		Vehicle Type VMT, Hour VMT
ramp fractions (KIPDA)			Ramp Fractions
VMT (KIPDA) by road type			Road Type Distribution
custom fuel records	fuel formulation data (for custom)	default/edit for custom	Fuel Formulation
“ “	“ “	“ “	Fuel Supply
NOAA data	min/max temp, absolute humidity	hourly temp.'s & relative humidity	Meteorological (humidity, temperature)
none: after 2002 (KY), 2006 (IN)	none: after 2002 (KY), 2006 (IN)	none: after 2002 (KY), 2006 (IN) – 'N'	I/M Programs

COUNTY DATABASE MANAGER INPUT DEVELOPMENT

can edit with local data

fuel_formulation.xls (MOVES default)

Fuel formulation data
(rvp, sulfur, ethanol, etc.)

Fuel Formulation ID's for each season
(gasoline, diesel, other)

* New: MOVES2010a – can import new Fuel Formulation ID's with records

FuelData

APCD_fuel_supply.xls

State,
County, Year

FuelFormulations

fuelFormulationID, fuelSubtypeID, RVP, sulfurLevel, ETOHVolume, MTBEVolume, ETBEVolume, TAMEVolume, aromaticContent, olefinContent, benzeneContent, e200, e300, bioDieselEsterVolume, cetaneIndex, PAHContent

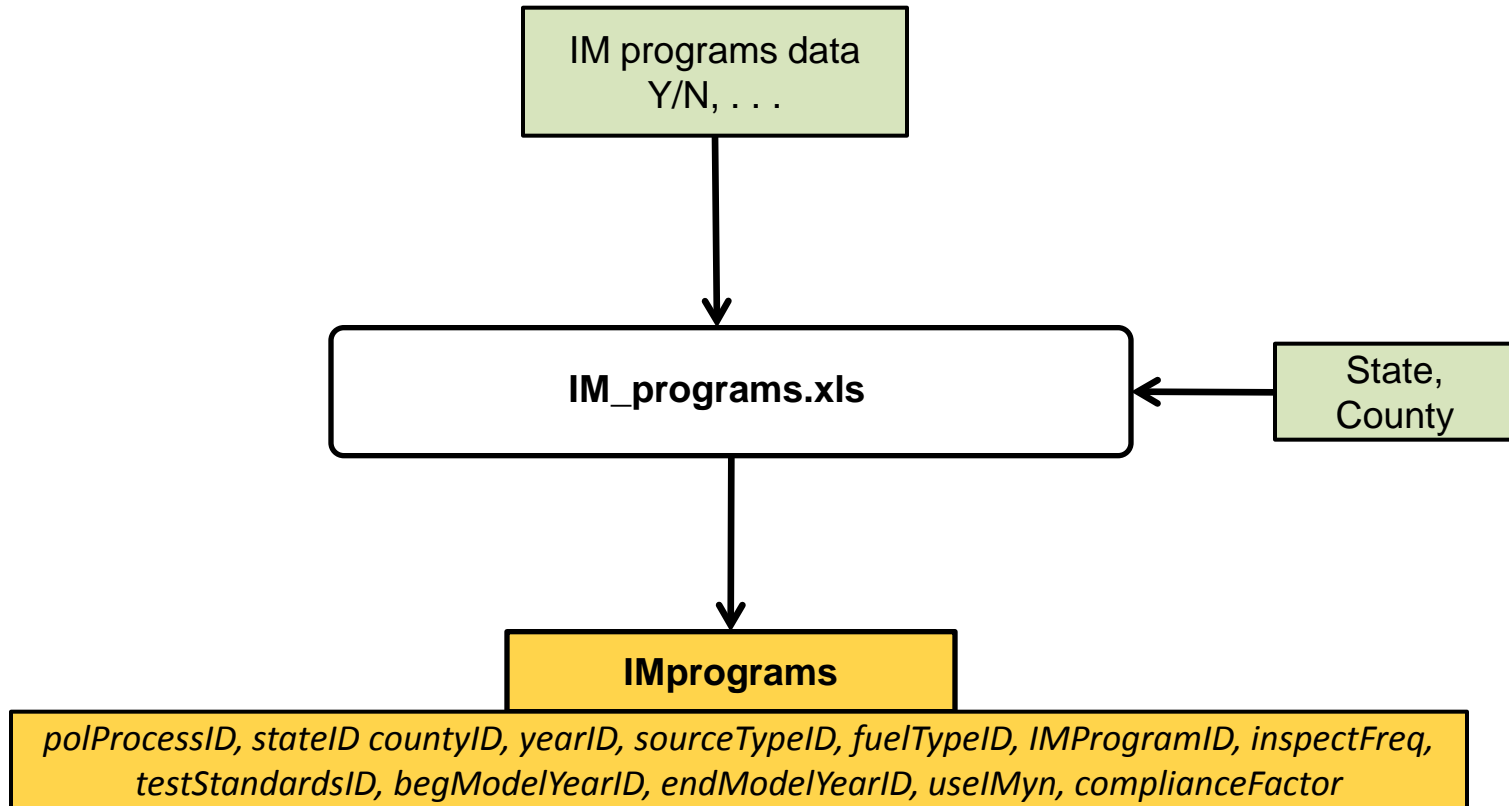
FuelSupply

countyID, fuelYearID, monthGroupID, fuelFormulationID, marketShare, marketShareCV

MOVES DATABASE MANAGER INPUT FILES

Other Input	MOBILE6 Input	MOVES Input	COUNTY DB MGR INPUT FILE
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12 HPMS facility VMT fraction for 16 MOBILE6 veh. types	16 MOBILE6 veh. type fractions (integrate for 12 HPMS facilities)		Vehicle Type VMT, Hour VMT
ramp fractions (KIPDA)			Ramp Fractions
VMT (KIPDA) by road type			Road Type Distribution
custom fuel records	fuel formulation data (for custom)	default/edit for custom	Fuel Formulation
“ “	“ “	“ “	Fuel Supply
NOAA data	min/max temp, absolute humidity	hourly temp.'s & relative humidity	Meteorological (humidity, temperature)
none: after 2002 (KY), 2006 (IN)	none: after 2002 (KY), 2006 (IN)	none: after 2002 (KY), 2006 (IN) – ‘N’	I/M Programs

COUNTY DATABASE MANAGER INPUT DEVELOPMENT



LESSONS LEARNED SO FAR

Export .xls spreadsheets to .csv files before importing into County Database Manager., or paste into exported template (and don't delete or add rows).

Become familiar with options that increase run times (sometimes dramatically), such as the number of hours, months, output options (model years, etc);

BUT, make sure you choose all the output detail you need, because if you don't choose it, you lose it (not available, so you have to make another run).



File Edit Pre Processing Action Post Processing Tools Settings Help

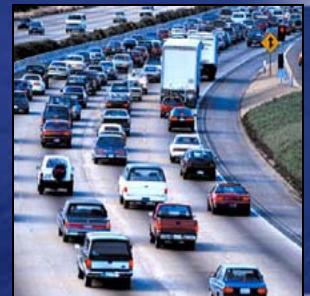
- ✓ Description
- ✓ Scale
- ✓ Time Spans
- ✓ Geographic Bounds
- + ✓ Vehicles/Equipment
- ✓ Road Type
- ✓ Pollutants And Processes
- ✓ Manage Input Data Sets
- + ✓ Strategies
- + ✓ Output
- ✓ Advanced Performance Features

Description:

Open an existing RunSpec



CONTACT INFORMATION:



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