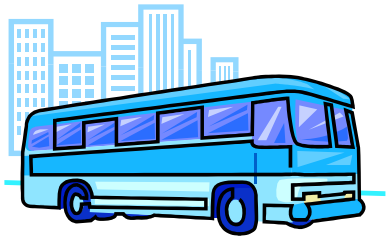
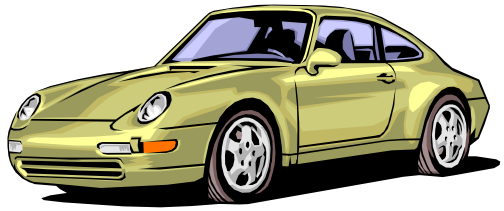
Item #8





Estimating Mobile Emissions: MOVES Model

MOVES: Motor Vehicle Emission Simulator

MWAQC
September 23, 2009

Overview

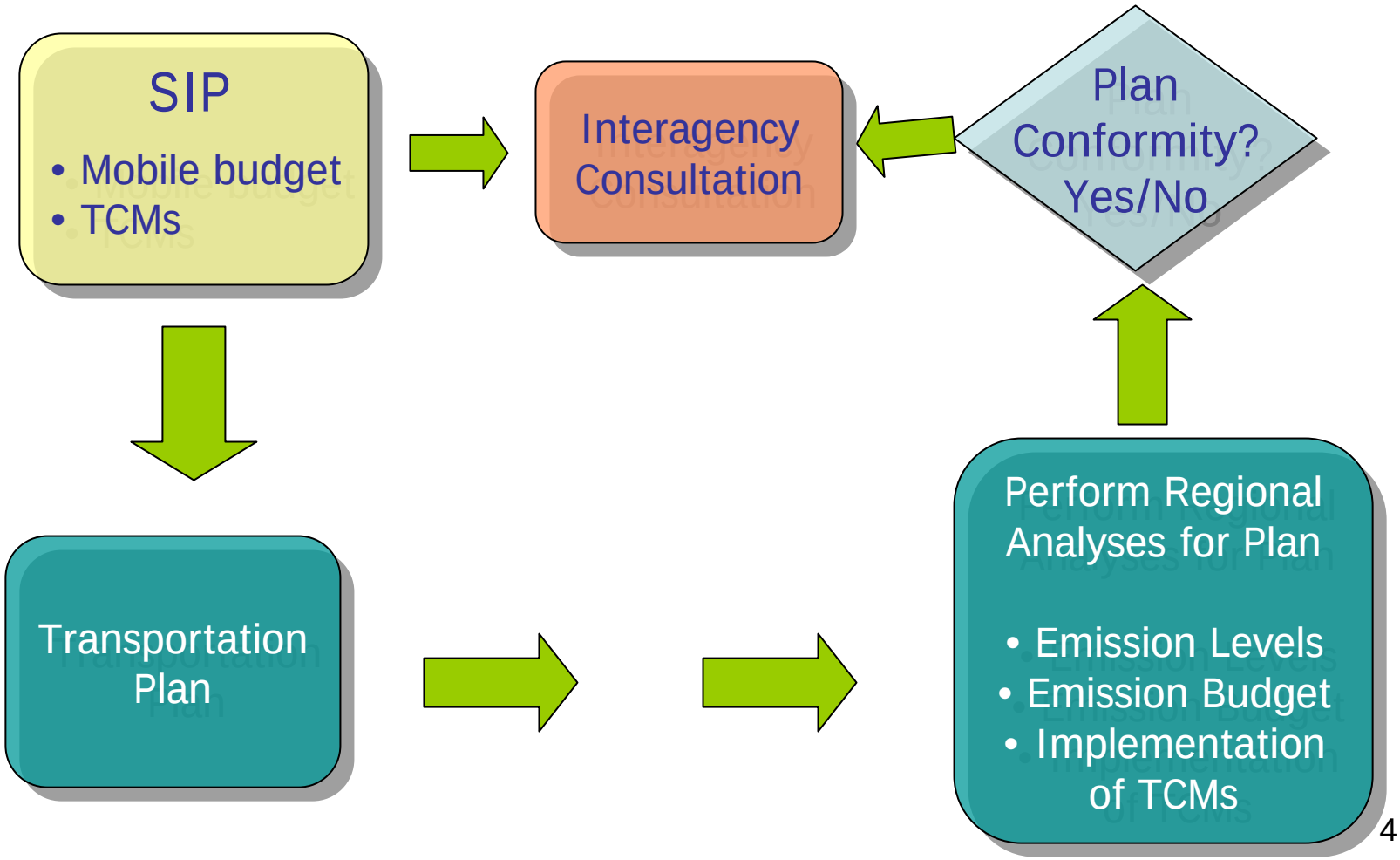
- Introduction of MOVES, new mobile model
- Importance of mobile emissions
- MOVES makes a difference
- MOVES Transition: Task Force
- MOVES Schedule

Introduction to MOVES Model

MOVES = **Mo**tor **V**ehicle **E**mission **S**imulator

- DRAFT MOVES2009 model - April 2009.
- Final version – Expected Dec 2009/Jan 2010.
- MOVES will replace current official Mobile6.2 model.

Conformity Process



Current Process to Estimate Mobile Emissions

- COG Transportation staff uses 2 models to estimate mobile emissions :
  - Travel Demand Model
    - Network of roads, vehicle miles traveled
  - MOBILE 6.2
    - Emissions factors for vehicles

What difference does MOVES make?

- More *accurate,* improved emissions factors
- Complete mobile estimation model
- Estimates greenhouse gas emissions from transportation sources

MOVES

Calculates total emissions for:

- Criteria pollutants: Volatile organic compounds (VOC); oxides of nitrogen (NOx), carbon monoxide (CO), and fine particles (PM2.5).
- Greenhouse gases: Carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and CO2 equivalent.
- Gasoline, Diesel, Ethanol (E85), Methanol (M85), CNG, LPG, Electricity, Gaseous H2, Liquid H2 fueled vehicles.
- Calendar years 1990 and 1999 to 2050.

MOVES - IMPROVEMENTS

- Updated basic emission rates.
- Real-time emissions based on more realistic driving patterns.
- Up to 31 year old vehicles included.
- Focus on dirty heavy-duty trucks.
- Several new fuels and vehicle technologies (e.g. hybrids) included.

MOVES Vs. MOBILE6.2

National trends -

- VOC emissions – 5-40% lower than MOBILE6.2
- NOx emissions – 27-47% Higher than MOBILE6.2
- PM emissions – 57-75% Higher than MOBILE6.2

Washington, DC region trends (preliminary) -

- VOC emissions - Higher than MOBILE6.2
- NOx emissions - Higher than MOBILE6.2
- PM emissions - Substantially higher than MOBILE6.2

What do Higher MOVES Emissions Mean?

- Actual emissions remain the same, only their estimation has changed.
- Attainment analysis - Relative change in emissions between base and attainment years more important than absolute emissions.
- Higher NOx and PM2.5 emissions mean onroad mobile sources have bigger role in attainment.

2008 8-hr Ozone SIP Schedule

- Draft MOVES Inputs for photochemical modeling (OTC) – **October 23, 2009**

- MOVES Inputs & Outputs for Draft SIP Mobile inventories – **2012**

- MOVES Inputs & Outputs for Final SIP Mobile inventories – **2013**

Conformity Schedule

- MOVES required for mobile conformity analyses two year after final release
- Estimated release date: December 2009
- Use in conformity: 12/2011- January 2012

MOVES Task Force

- MOVES changes the way mobile emissions have been estimated
- Transportation and air quality planners are testing MOVES to prepare for final version
- COG has formed a MOVES Task Force
  - To discuss inputs to new model
  - Test new model with sensitivity runs
  - Questions and comment to EPA