

CITA

The International Motor Vehicle Inspection Committee (CITA) has pleasure to welcome you to the workshops at the 2005 CITA conference in Chicago, USA



2005 CITA CONFERENCE 'Global Perspective on Roadworthiness Enforcement'



KEY NOTE SPEECH 2 ENVIRONMENT

NORTH-AMERICA



CITA aisbl | Rue de la Technologie 21-25 | B-1082 BRUSSELS (Belgium)

TEL. + 32 (0)2 469 06 70 | FAX+ 32 (0)2 469 07 95 | cita.vehicleinspection@skynet.be

MOVES

An Update on EPA's Plans

Gene Tierney

Director

Center for Air Quality and Modeling

National Vehicle and Fuel Emissions Laboratory

Office of Transportation & Air Quality

May 25, 2005



Agenda

- **Status of MOVES2004**
- **Plans for MOVES2006**
- **Discussion of I/M in MOVES**
 - Emission trends
 - I/M benefits
 - Implications

What is MOVES?

- **M**otor **V**ehicle **E**mission **S**imulator
- **New emission model**
 - Covers both highway and offroad vehicles
 - Will replace MOBILE and NONROAD
 - Complete redesign
 - New software platform (Java)
- **MOVES Goals**
 - Data driven (MySequel database)
 - Quick and easy to update based on new data
 - Validated and fully defensible

Timeline

- **MOVES2004: draft fleet and activity model**
- **MOVES2006: draft highway vehicle model**
- **MOVES2007: final highway vehicle model**
draft nonroad model
- **MOVES2008: final nonroad model**

MOVES2004

- **Released for 6 month review**
 - Comments due by July 15
 - Send comments to: mobile@epa.gov
- **Capabilities**
 - Models the light duty fleet and its activity
 - Estimates energy consumption
 - Estimates CH₄, N₂O (only!)
 - Estimates basic emission processes
 - Well-to-Pump
 - Starts
 - Exhaust
 - Extended Idle
 - Allows analysis of fuel/technology changes

MOVES2006

➤ Next major implementation of MOVES

- A draft replacement for MOBILE6
- Draft release in 2006 (MOVES2006)
- Final version in 2007 (MOVES2007)

➤ New data

- Modal data - second-by-second measurements
- More in-use data
- Data collected with portable emission measurement systems
- Real world!

MOVES2006 Will Include...

- **Add Pollutants**
 - HC, CO, NO_x, PM, CO₂ and toxics
- **Add Emission Processes**
 - Evaporative and crankcase emissions
 - Tire and break wear
- **Add Control Strategies**
 - Turning off regulations (no CAAA, etc.)
 - **Inspection/Maintenance program**
- **Mesoscale and microscale modeling**
- **Updated fleet and activity estimates**

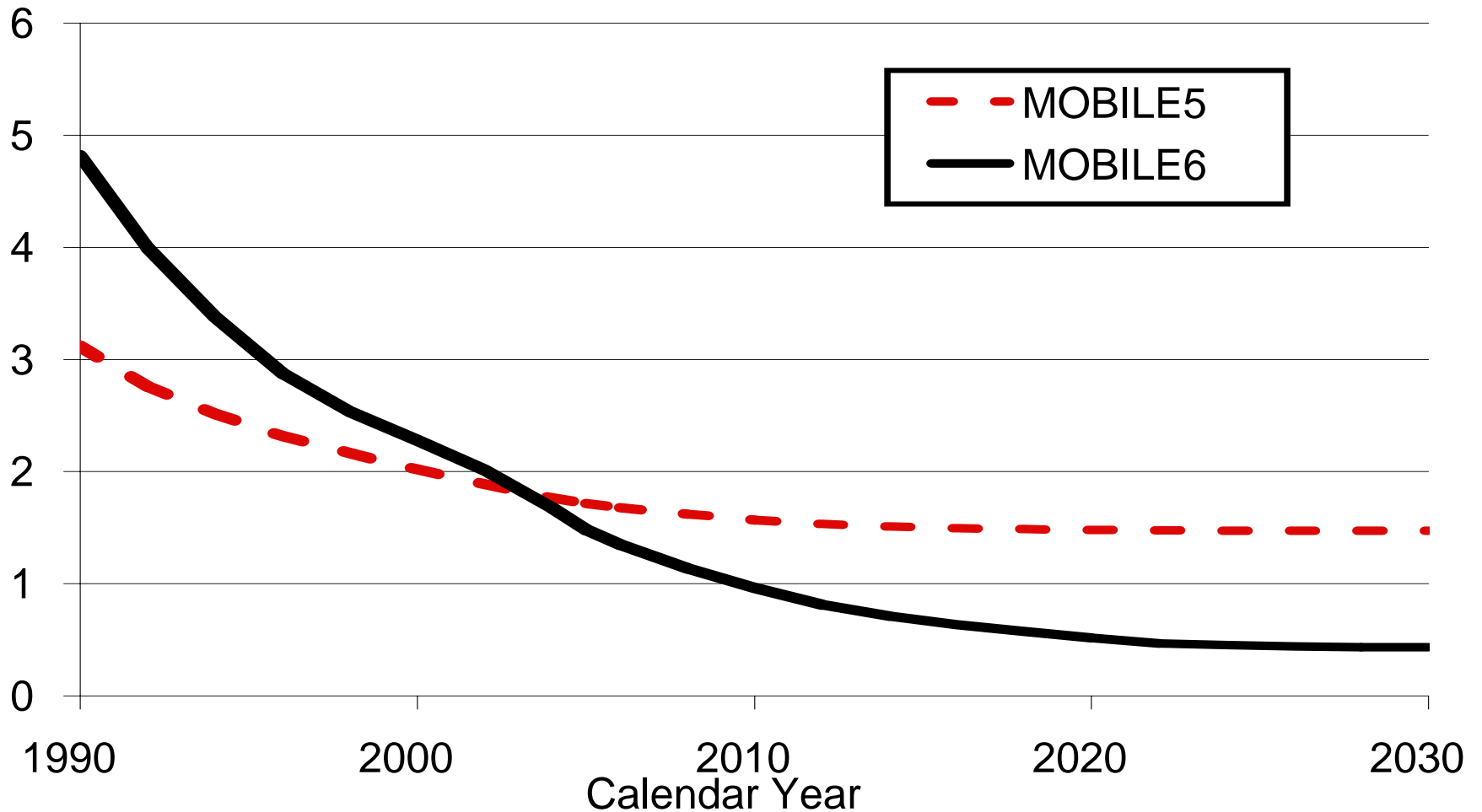
MOVES

Modeling I/M



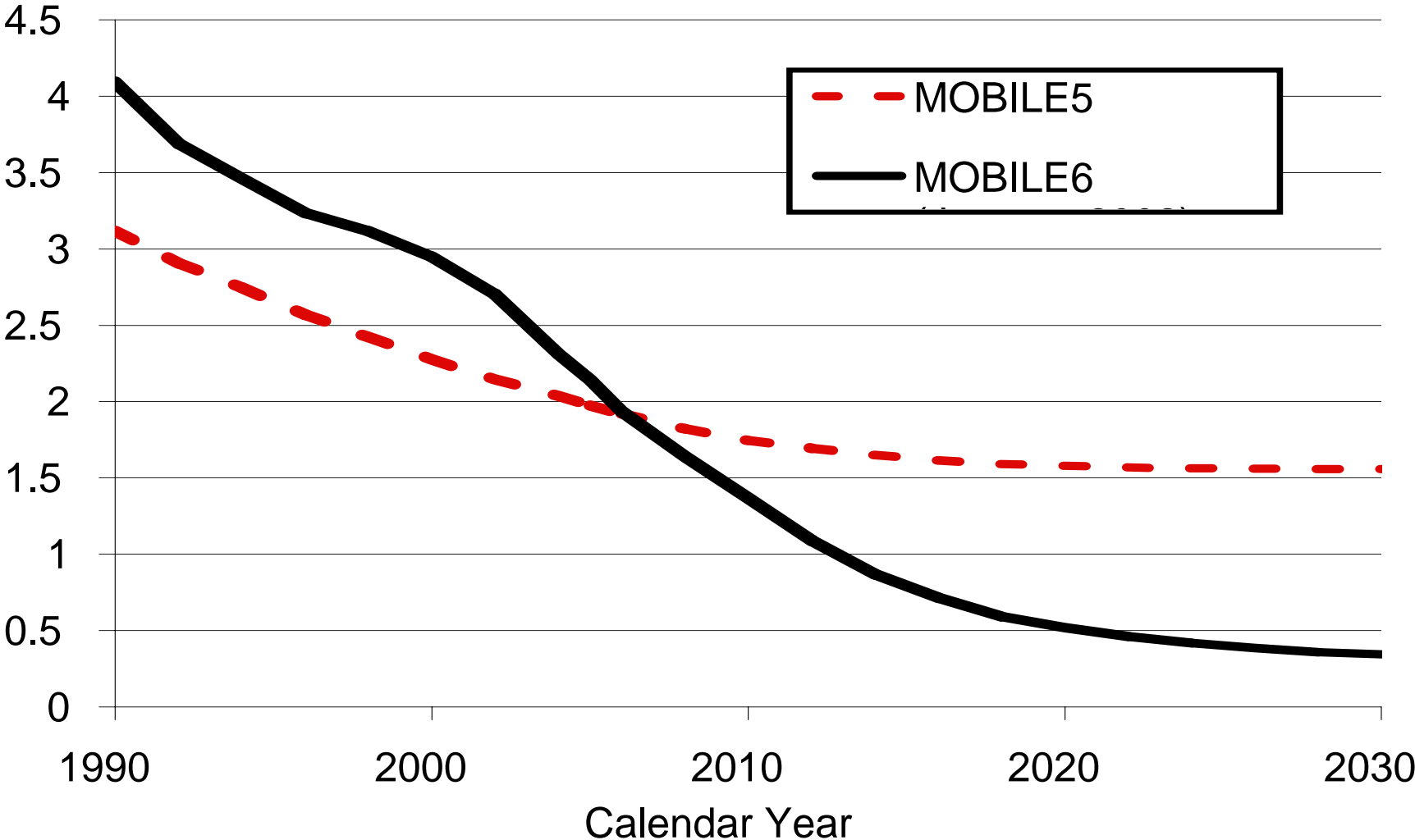
VOC Emissions

All Highway Vehicles
Evap and Exhaust



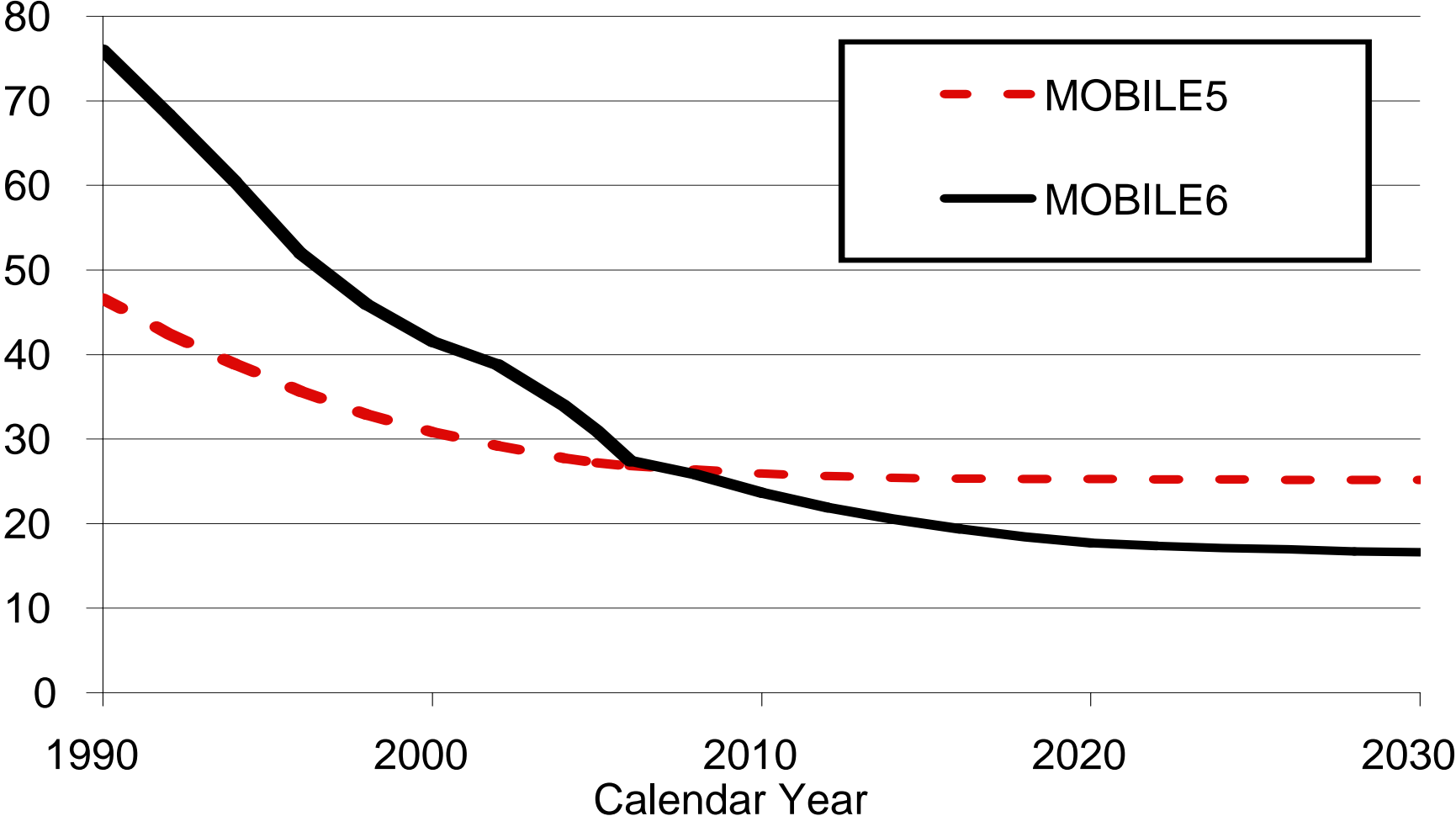
NOx Emissions

All Highway Vehicles

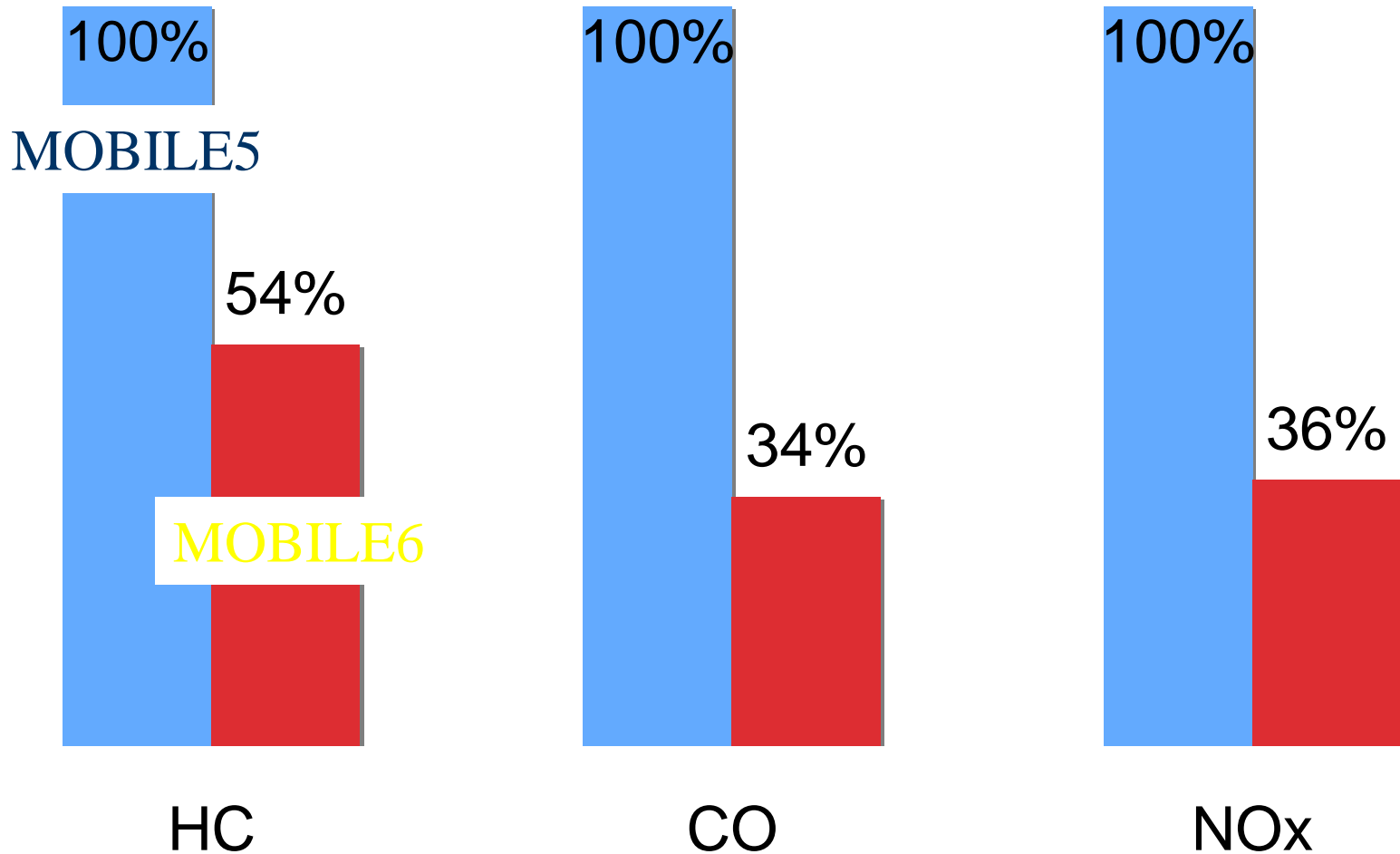


Cold CO Emissions

All Highway Vehicles
20 Degrees

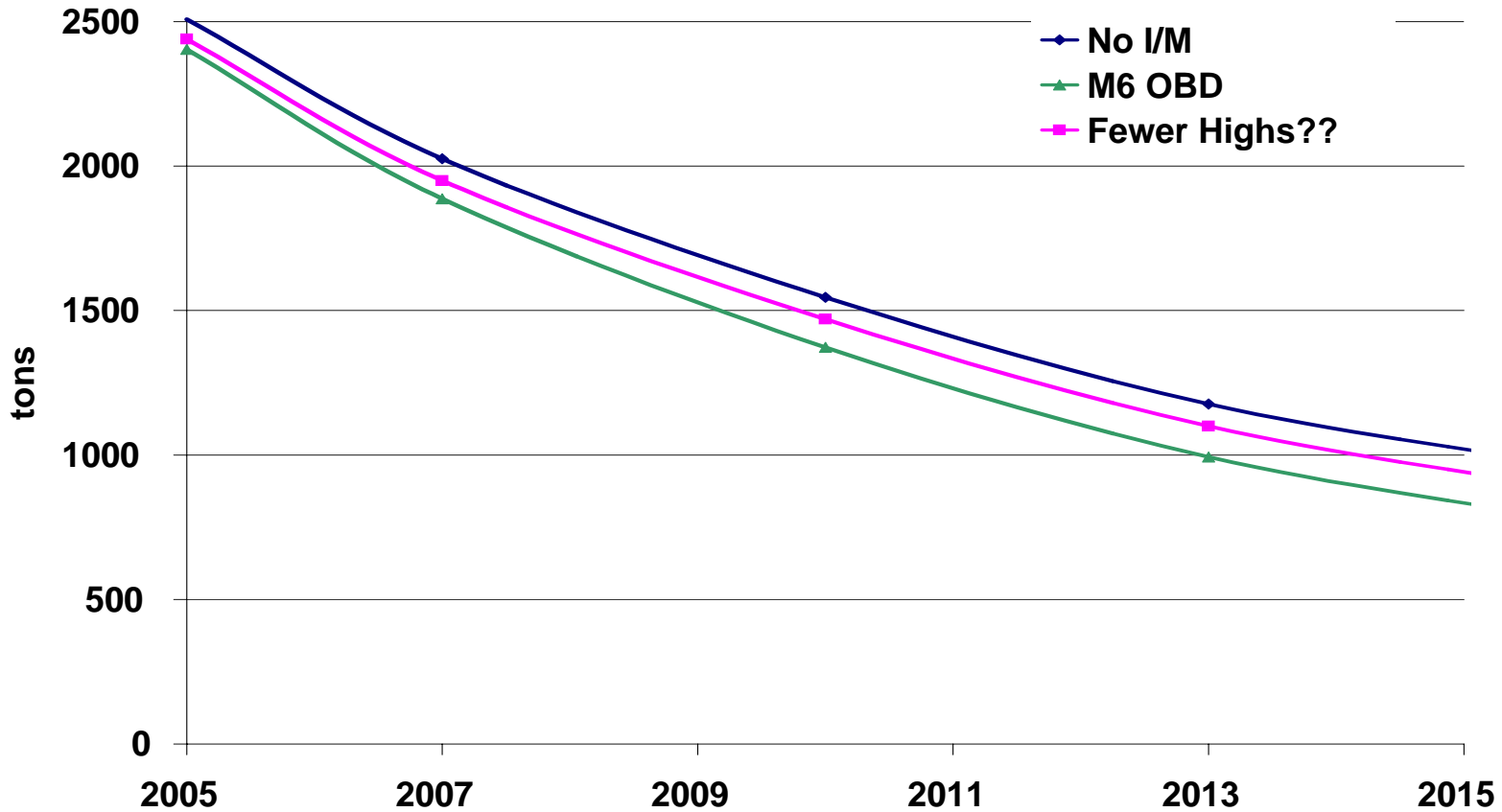


I/M Benefit Drop MOBILE5 and MOBILE6



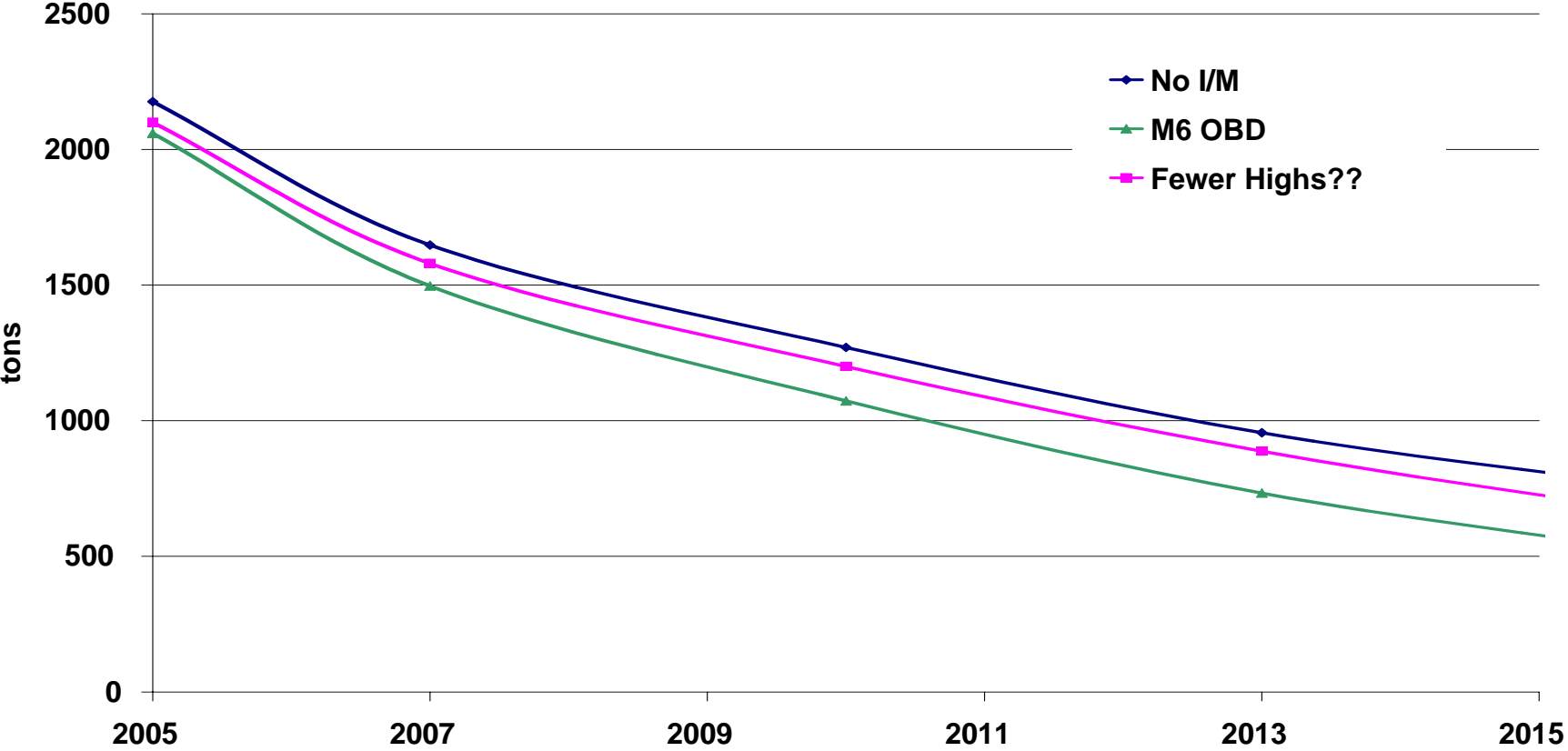
VOC Emissions are Declining

Light Duty Vehicles
Urban County Example



NOx Emissions are Declining

LDGV
urban county example



I/M Benefits in MOBILE6

- **Big reductions from MOBILE5**
- **Lower deterioration rates**
 - Less excess emissions for I/M to reduce
 - Tier2 further reduces excess and thus I/M effects
 - Cars cleaner and more durable
- **Many assumptions/old data underlie credits**
 - “Empirical data show that the underlying I/M modeling approach is flawed” - NRC
 - Given fleet change, I/M benefits should decline over time
 - I/M assumptions overly optimistic
 - Assumptions about number of high emitters not real

What Will I/M Benefits Look Like?

➤ **We don't know**

- ➔ Basic emission rates not developed yet
- ➔ Analysis to derive I/M credits not been performed
- ➔ Method for developing I/M credit under development

➤ **We anticipate**

- ➔ Further reductions in I/M benefit
- ➔ Some emissions will go up (e.g., cold temperature HC)
- ➔ Others will go down (e.g., running CO)
- ➔ Net affect is that less excess emissions to be reduced by I/M
- ➔ Order of magnitude likely to be similar to change from MOBILE5 to MOBILE6

What Does This Mean for I/M?

- **Greater need to reduce inspection costs**
 - Periodic I/M probably does not make sense in most places
 - Tailpipe testing provides small marginal benefits at high costs
 - OBD is quicker, faster, better
- **New forms of inspection needed**
 - Remote sensing to identify high emitters
 - OBD-only programs
 - Self-administered
 - Refueling
 - Kiosks
 - Remote sensing with transponders