

**W e l c o m e T o T h e**  
**F A C A**  
**MSTRS Quarterly Meeting**

**Auburn Hills, Michigan**  
**October 2000**

**Jerry Gallagher, Ph.D.**  
Co-Chair, FACA OBDII Workgroup

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***A NEW PARADIGM***  
**OBDII FACA**  
**WORKGROUP**


**FUTURE OF OBDII**

Slide Assistance by Ed Gardetto

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***EMISSION BASED  
TESTING***



***TECHNOLOGY BASED  
TESTING***

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***OBD II***

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# MAJOR ACTIVITIES



- **FACA**
- **WEBER STATE UNIVERSITY**
- **COLORADO STATE UNIVERSITY**
- **PILOT PROJECT**
- **TESTING AT COLORADO DEPT.  
OF HEATH & ENVIRONMENT**

## *EPA OBD Tailpipe Test Program*

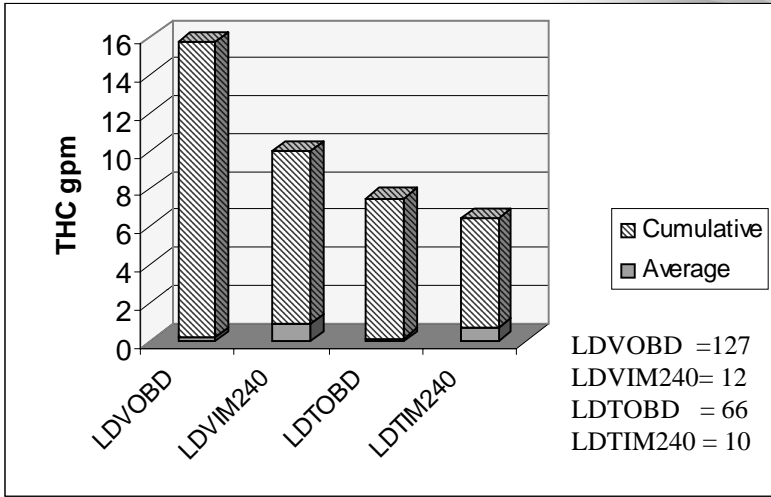


- FTP Testing vs. OBD and IM240
  - manufacturer production weighted sample
- Goal: 200 vehicles by end of Sept., '99
- Aid in development of SIP credits for OBD I/M (required in 01/01/01)
- FACA advised EPA on testing protocol
- Testing of vehicles at high mileage continues (30 vehicles this FY)

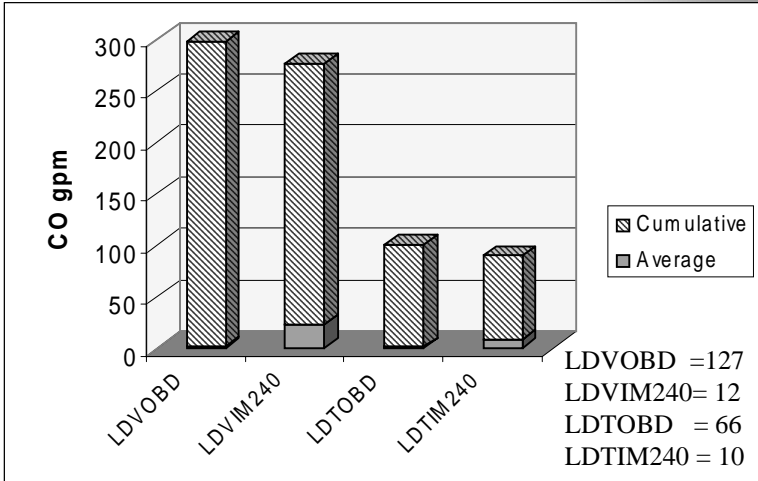
## EPA FTP Testing Test Sequence

- Preconditioning (LA-4)
- IM240
- Drain and fill with Indolene
- Preconditioning (LA-4)
- 12 hour soak
- FTP dyno test (no evap. test)
- IM240
- Repair

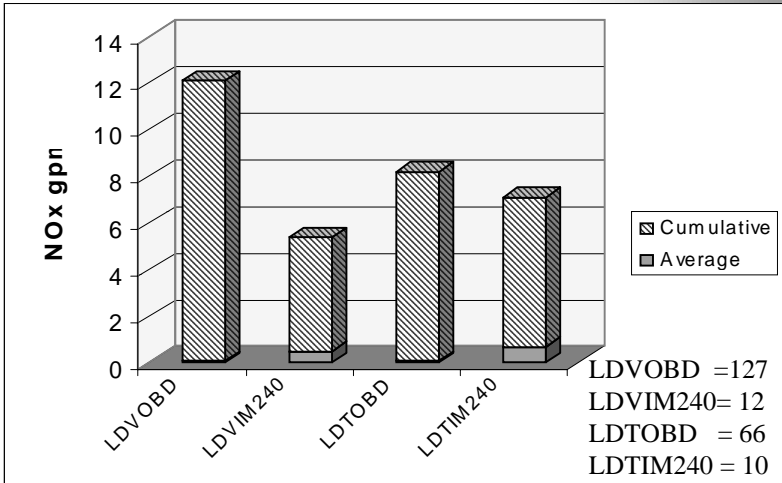
## THC Emissions Reductions OBD and IM240



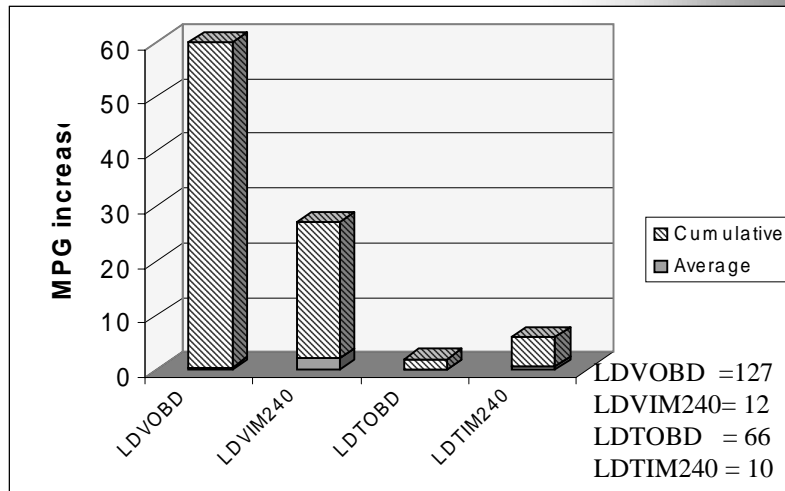
### CO Emissions Reductions OBD and IM240



### NOx Emissions Reductions OBD and IM240



## *MPG Increases OBD and IM240*



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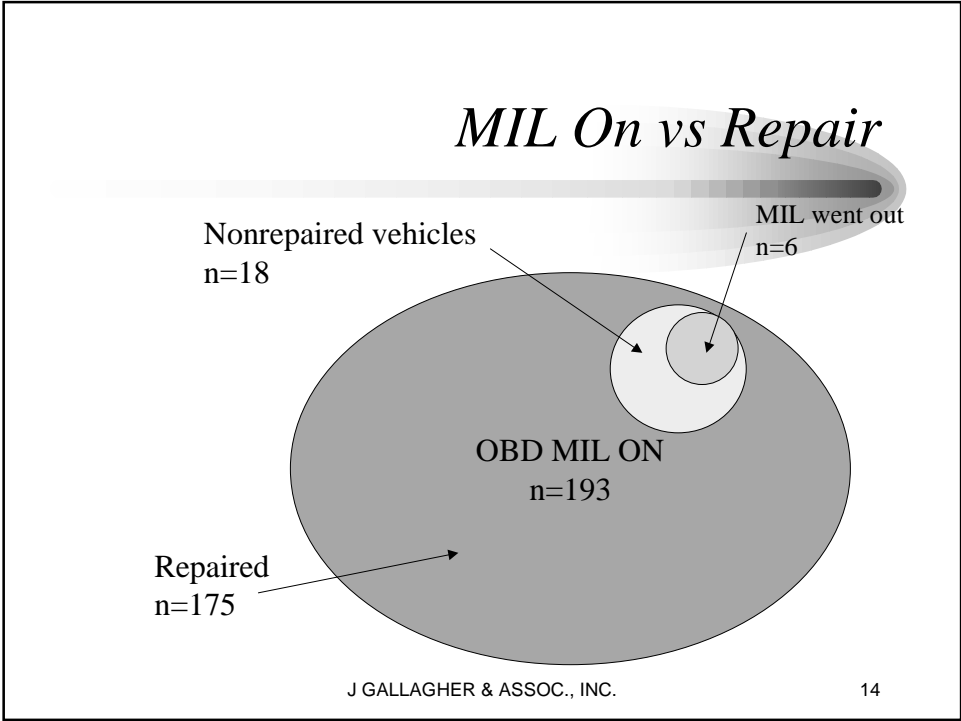
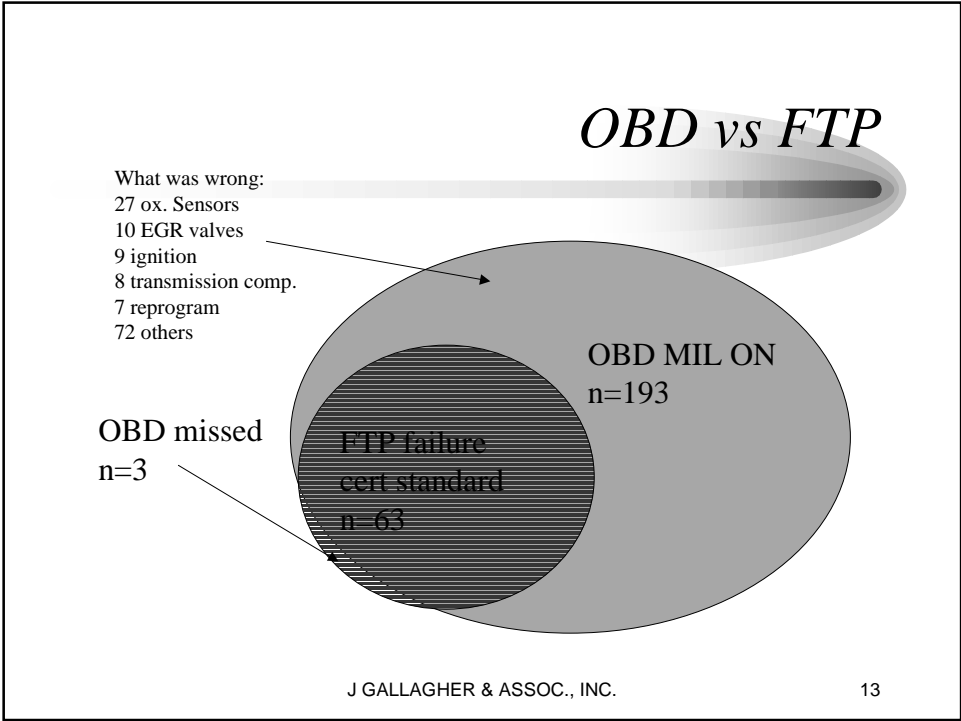
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## *Other Information*

- OBD Repair costs:
  - LDV = \$252; LDT = \$284
  - LDV = \$287; LDT = \$322 w/o nonrepaired vehicles
  - If adjusted waiver limit is used 94% of LDVs would have been repaired and 91% of LDTs

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## *OBD's Ability to Identify High-Emitters*

- 15 LDV found with over twice cert. Standard tailpipe emissions
- 14 with MIL on (missed vehicle failed 240)
- 5 failed the IM240
- 5 LDTs found with twice cert. Standard
- 4 with MIL on (missed truck failed 240)
- 5 failed the IM240

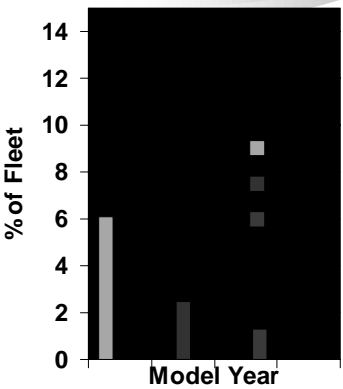
## *EPA data from Wisconsin OBD I/M lane*

- 167,768 vehicles scanned from Sept, 98 to Dec, 99
- Three areas investigated
  - MIL rate
  - Readiness status
  - Data Link Connection location



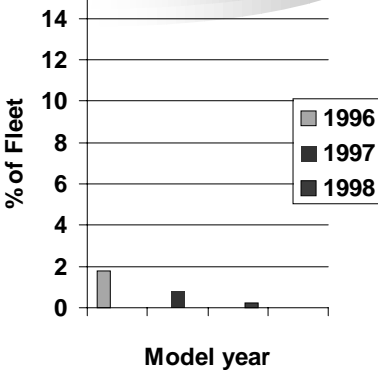
## Wisconsin OBD Readiness Status

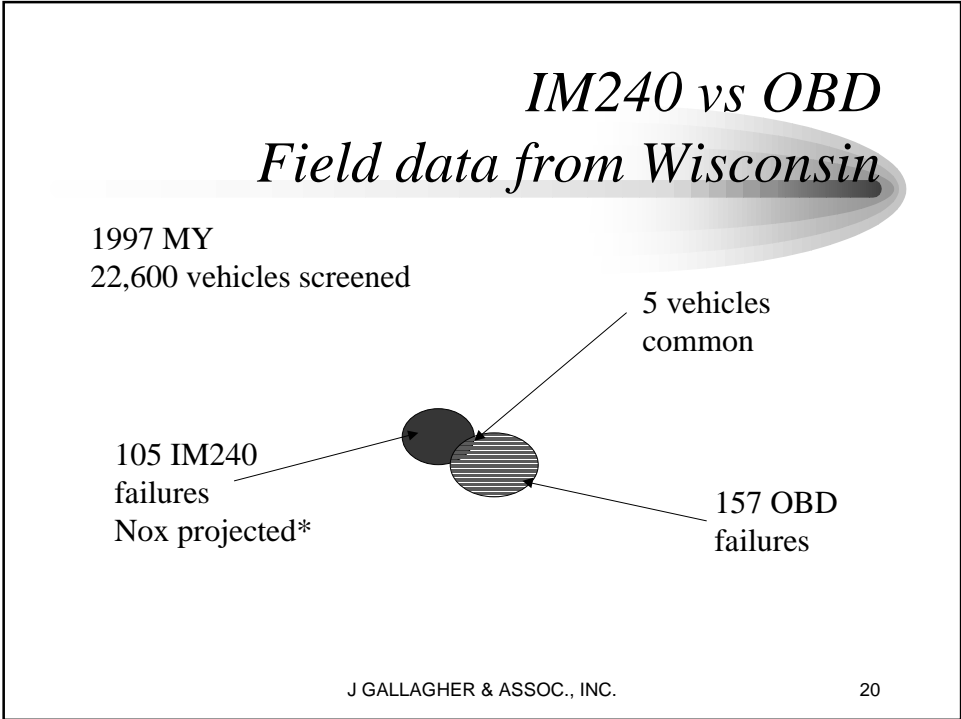
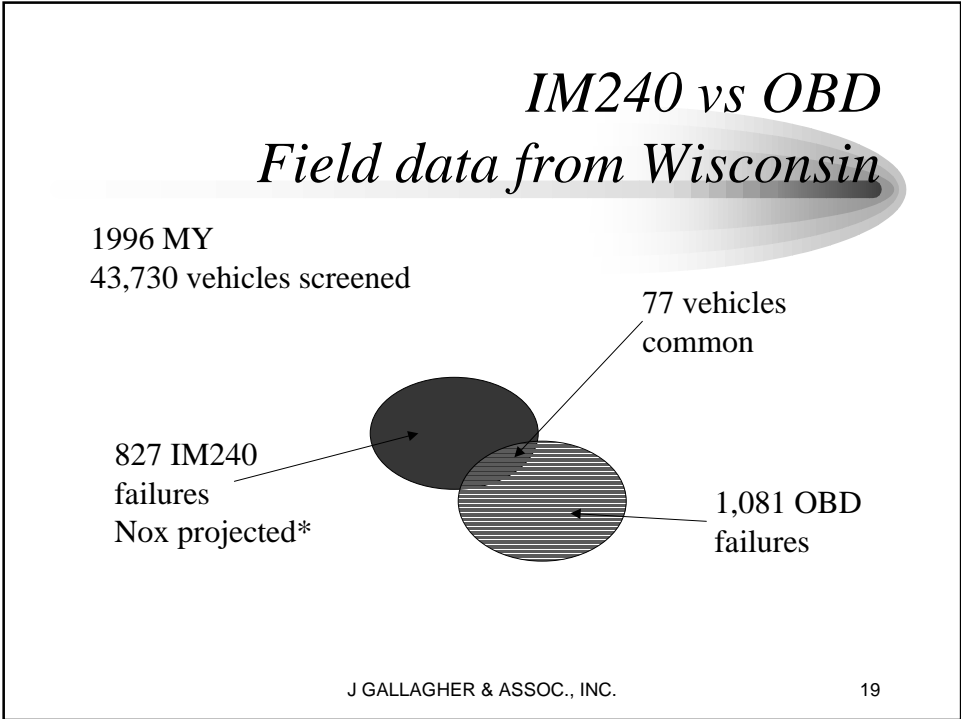
- 1996 “Not Ready” driven by one manufacturer (3.1% w/o this manufacturer)
- 1996 rate drops to 2.2% if any 2 monitors ignored and known problems
- Overall “Not Ready” drops to 0.9% (from 3.2%)

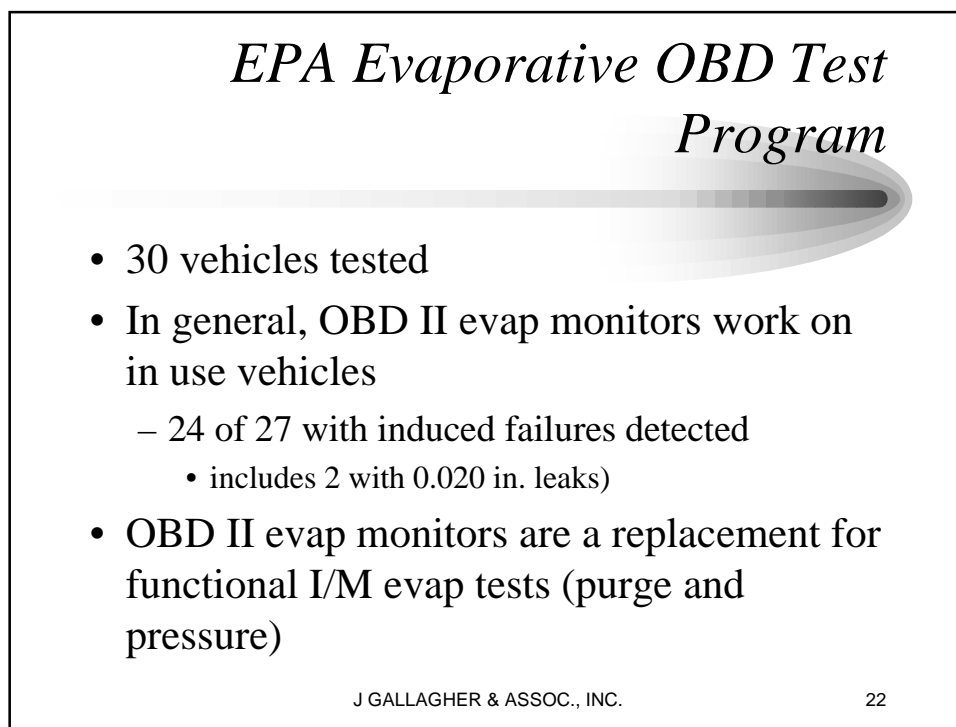
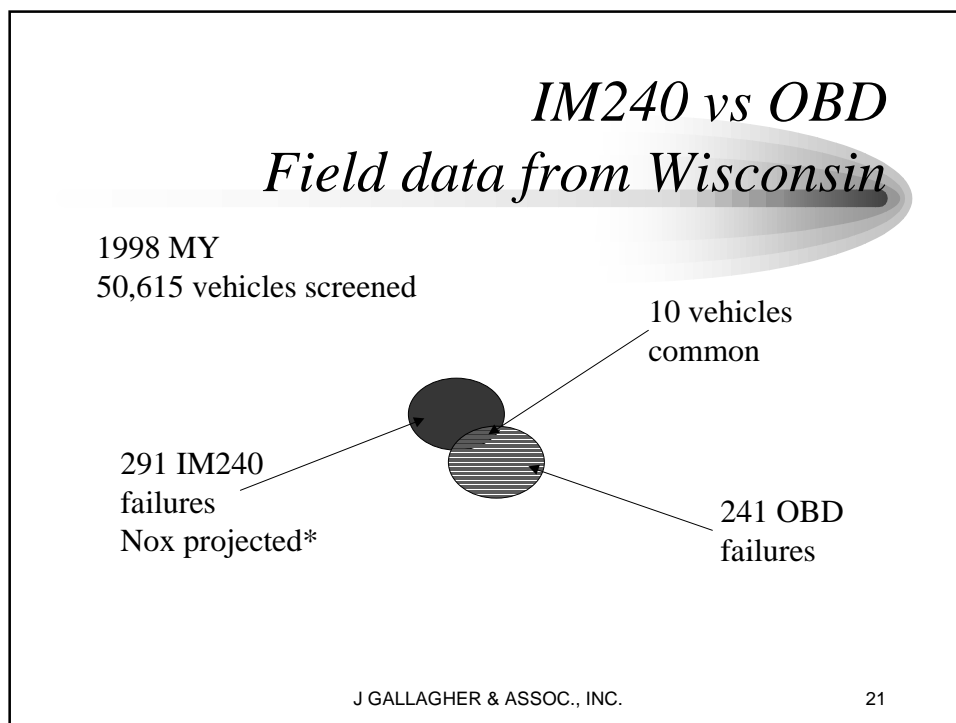


## Wisconsin MIL Information

- Mileage and evolving OBD technology driving trend
- Evap, Misfire, Ox sensor and transmission are most common (65%) cause of MIL illumination
- Projecting MIL rate of approximately 8% at 100k if current trend holds







## *EPA Evaporative OBD Test Program Results*

- Repair effects (benefits) of OBD II evap are substantial:
- SHED Data Summary (from 26 vehicles):
  - Running loss avg. delta 5.57 g/m (0.05 g/mi std)
  - 1 hr hot soak loss avg. delta 5.8 g (2.0g std hs+dl)
  - 24 hr diurnal loss delta 11.7 g

## *OBD and High Emitters*

- 196 vehicle/trucks tested
  - 63 over applicable cert. Standard
  - 60 caught by OBD
    - 22 caught by IM240 (lab)
  - 18 vehicles with MIL on and no repair
  - 23 vehicles with MIL on and no repair in lab but expected to be repaired in field
    - misfire and fuel control

## ***Pending Activities***



- OBD EVALUATION**
  - **Cost Effectiveness**
  - **Errors of Omission**
  - **Errors of Commission**
  
- NO PROBLEM FOUND**