

# **California Transit Association Updated Status of Transit Bus Fleet Rule**

**Presented to the California  
Air Resources Board**

**March 2002 ARB Board Meeting**

# Presentation Outline

- **Clarify any misunderstandings**
- **Show transit programs meet/exceed**
- **Advanced NOx tests: 2004-2006**
- **Hybrids and ZEBs**
- **Transit's commitment**
- **CTA - CARB partnership**

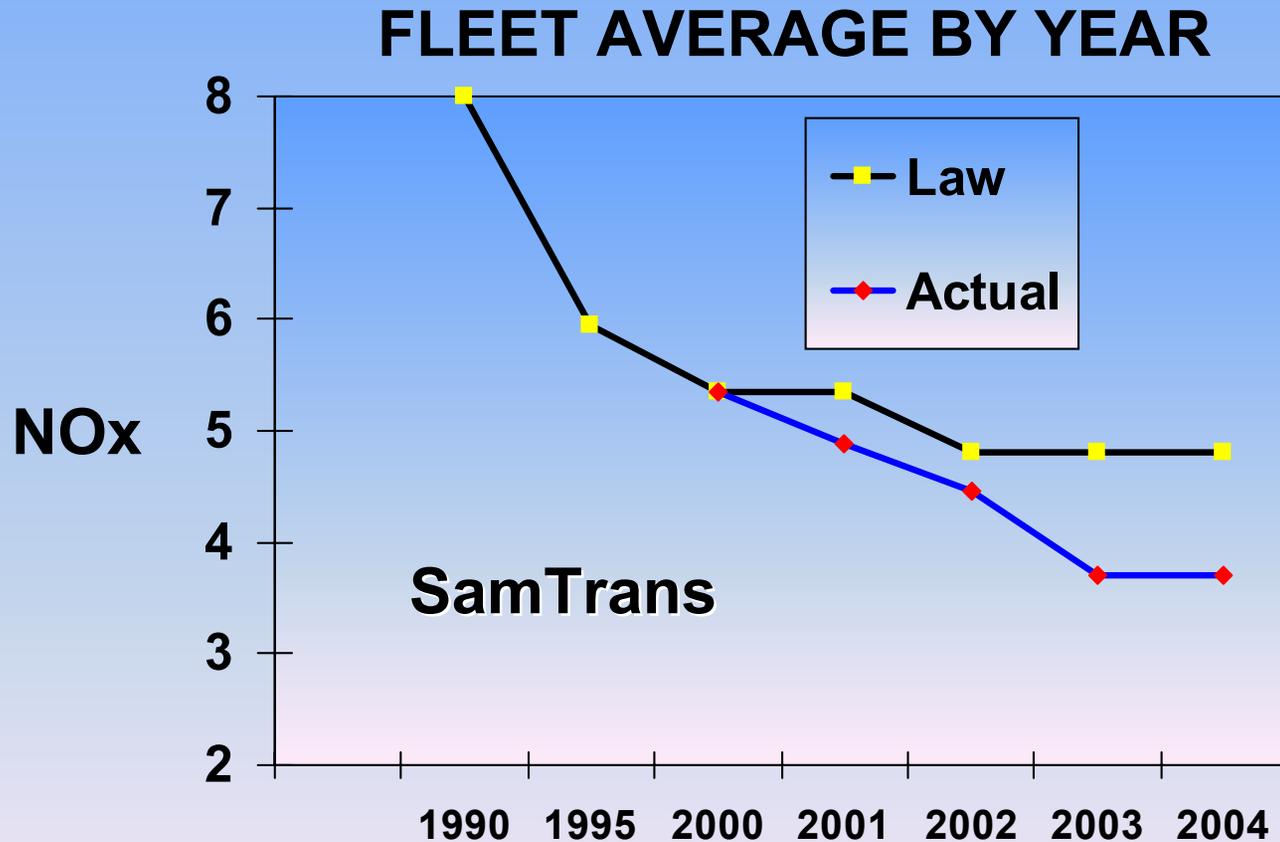
# Clarify any misunderstandings

- Transit is not standing still or planning to circumvent the regulation
- Transit funding cycles are unique and changing (2004-2006)
- Transit is committed to testing advanced NOx reduction technology
- Transit wants to partner with CARB

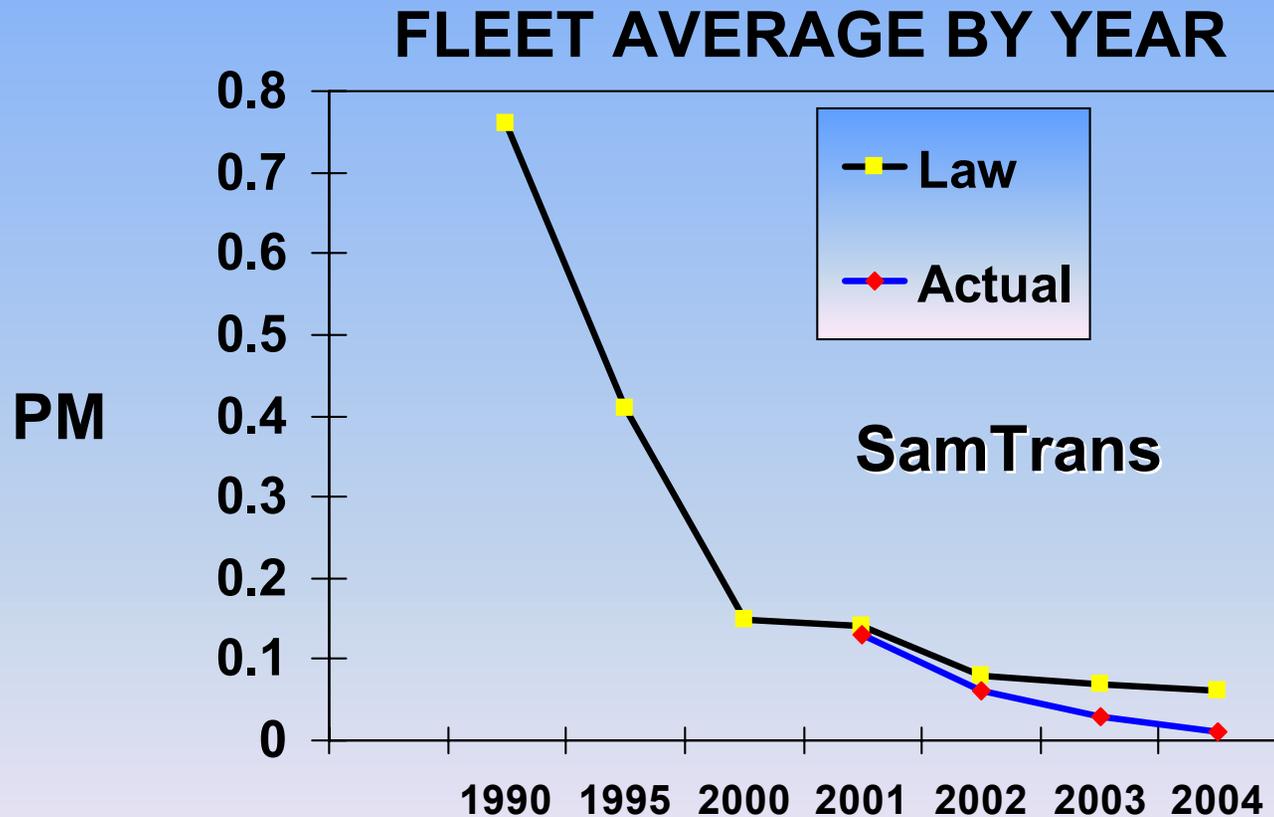
# Transit is complying & exceeding

- Paths have been selected and documentation submitted (15 years)
- Programs are in place to meet 4.8 NOx fleet average
- Significant funding has been committed
- Bus emissions are going down
- Programs are exceeding the regulation
- Multiple technologies in testing

# Example of emissions reduction



# Example of emissions reduction



# How are we reducing emissions?

- **Replace/Retire model year 1984-1990 buses.**
  - Programmed prior to regulation
  - Funding from Federal/Local sources
  - New programs ex: Express Bus
- **Repower engines 2 cycle to 4 cycle**
  - Lower NOx, PM, Increase fuel economy
  - Allows older buses to use Traps
  - Properties repowering more than required to meet regulation

# How are we reducing emissions?

- **ULSF Diesel Fuel**
  - Early conversion by properties
  - Volume in Bay Area has reduced cost to 2-3 cents/gallon
  - ULSF diesel fuel lowers emissions of all engines in inventory
- **PM Traps**
  - Possible with 4 cycle engines and ULSF
  - Properties are accelerating retrofits
  - Significant PM fleet average reductions

# How are we reducing emissions?

- **NOx Technology testing**
  - EGR 2-2.5 gm engines
  - Purinox demo/tests
  - Cummins STT bolt on 50% reduction
  - EXT technology demo/tests
  - All these efforts are voluntary
- **Preparing for advanced NOx testing**
  - Discussions with SCR providers
  - Cooperating to map engines/certify

# Bus funding cycles are changing

- **Minimum FTA use is 12 years**
  - Does not include bid/delivery time
  - Typical fleet today operates 14-15 years
- **Federal/State/Local sources**
  - MTC moving funding cycle to 14-16 years
  - Economy/competing projects (Rail)
- **Properties are currently replacing 1984-1990 model buses for delivery from 2000 - 2003**

# **Bus purchases in 2004-2006**

- **Limited buses sold 1991-1992 due to methanol and PM regulations**
- **Extended replacement cycle moves 1993-1994 buses out to 2007-2010**
- **Many properties expanded mid-life rehab and repower projects to insure bus lives will match funding**
- **Many properties have built-in gaps in fleet buys from 3-8 years**

# **Bus purchases in 2004-2006**

- **Properties are not planning to buy illegal engines in 2004-2006.**
  - **Properties with need submitted application for alternative plans**
  - **Properties can meet and exceed the regulation without purchases**
  - **Funding cycle changes and lack of clarity of best technology will impact some properties (small/rural location)**

# Advanced NOx Demonstrations

- **Transit is prepared to demonstrate advanced NOx reduction technology**
  - **Regardless of path or 2004-2006 plans**
  - **Based on what is available and acceptable to CARB staff**
  - **SCR technology to meet 70% target**
  - **CTA properties have committed funding and plans to begin Advanced NOx Reduction Program in 2002**

# Advanced NOx Demonstrations

- **Transit is prepared to demonstrate advanced NOx reduction technology**
  - **Northern California Test Consortium**  
**VTA      AC Transit      Golden Gate**  
**ECCTA   El Dorado      SamTrans**  
**Merced   Visalia**
  - **Southern California Test**  
**Torrance**

# Other initiatives - Hybrids

- **Hybrid drive technology**
  - Certification processes in design
  - Huge potential impact on fleet averages
  - Cost effectiveness compared to ZEB
  - Properties already buying/testing
- **CARB tests with OCTA diesel hybrid**
  - “Limited testing at ARB has demonstrated that similarly equally sized hybrid and CNG buses offer similar emission levels of NOx and PM.”

# Other initiatives - ZEB

- **Zero Emissions Bus Demonstrations**
  - Funding committed by multiple agencies
  - Infrastructure investments in progress
  - Negotiating Bus/Fuel Cell availability
  - Changes to regulation may impact ZEB program commitments
  - Future application of ZEB and Hybrids to transit fleets requires extensive testing and measurement of emissions and cost effectiveness

# CTA/CARB Partnership

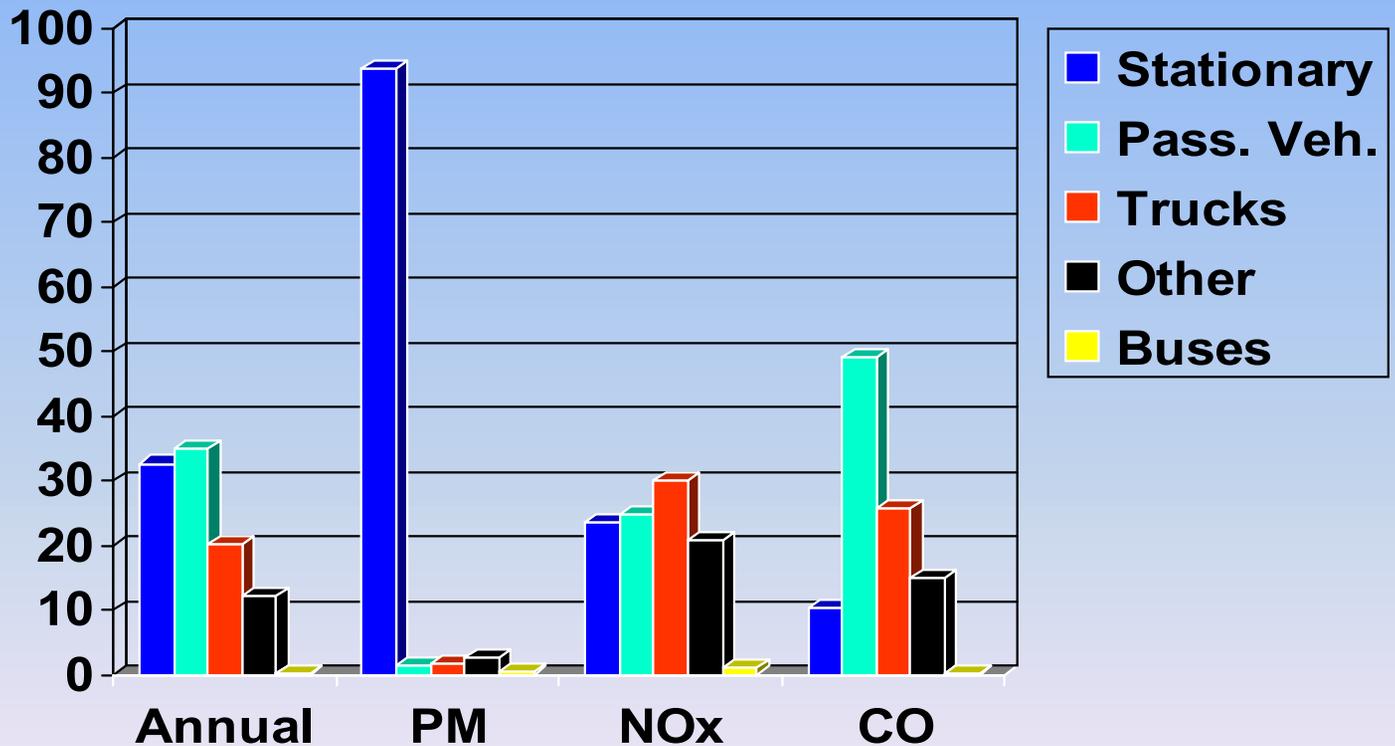
- Transit is committed to being CARB's partner to lower emissions
- Transit supports the technology forcing initiatives in the regulation
- Transit has committed funding and established programs in place
- Transit has selected paths and committed to 15 year programs

# CTA/CARB Partnership

- **Diesel path allows multiple emissions platforms to be developed**
- **Transit and the multiple technology in development is the gateway to Zero & Near Zero Emissions Vehicles**
- **Proving multiple technology paths will allow CARB to apply to vocations with greater potential to reduce overall emissions**

# CTA is the path to H-D Vocations

Total Bay Area Emissions by Category (% of total)



1996 BAAQMD Rankings

# Conclusions/Next Steps

- **Regardless of path we would like to continue our emissions reductions programs including programs that exceed CARB's regulations**
- **Transit is limited by the marketplace to what it can do to reduce emissions. Transit suggests an open market allowing multiple technology development to force reductions**
- **Transit is ready and eager to utilize ULSF fuel and test advanced NOx reduction devices**
- **Transit is prepared to move forward on PM trap technology, accelerating where possible**

# Conclusions/Next Steps

- **Transit is eager to test Hybrid and ZEB technologies to develop options and cost effectiveness models for CARB**
- **Transit would like to work with CARB staff and the Board to provide any information that is needed to clarify our position and our commitment to the Transit Bus Fleet Rule**
- **The CTA would like to continue this open dialog with CARB to improve communications and foster a partnership that encourages innovation and demonstrates technology**