SMT STRATEGIES
2011

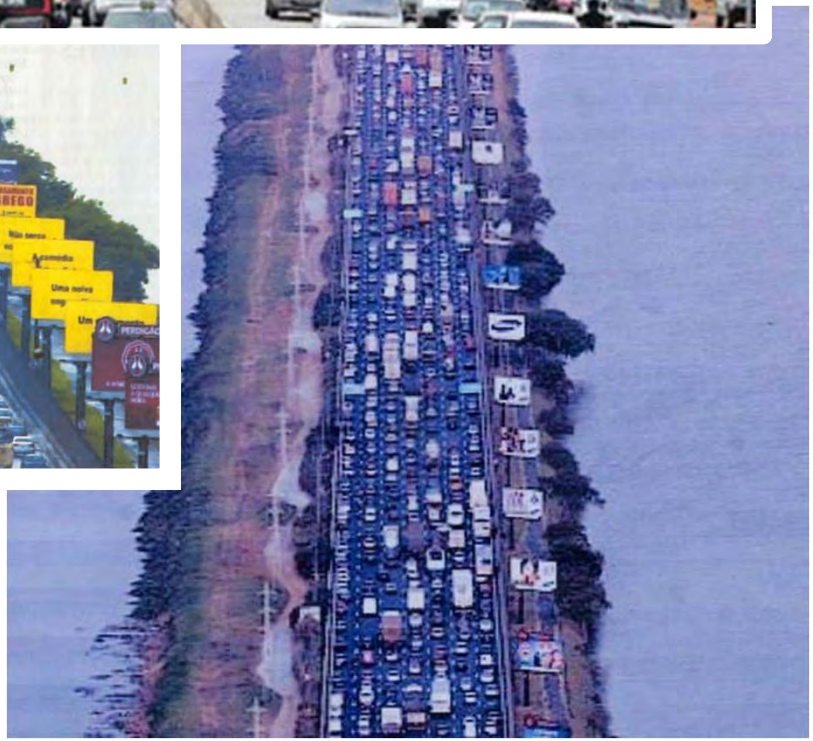
PREFEITURA DE
SÃO PAULO
TRANSPORTES

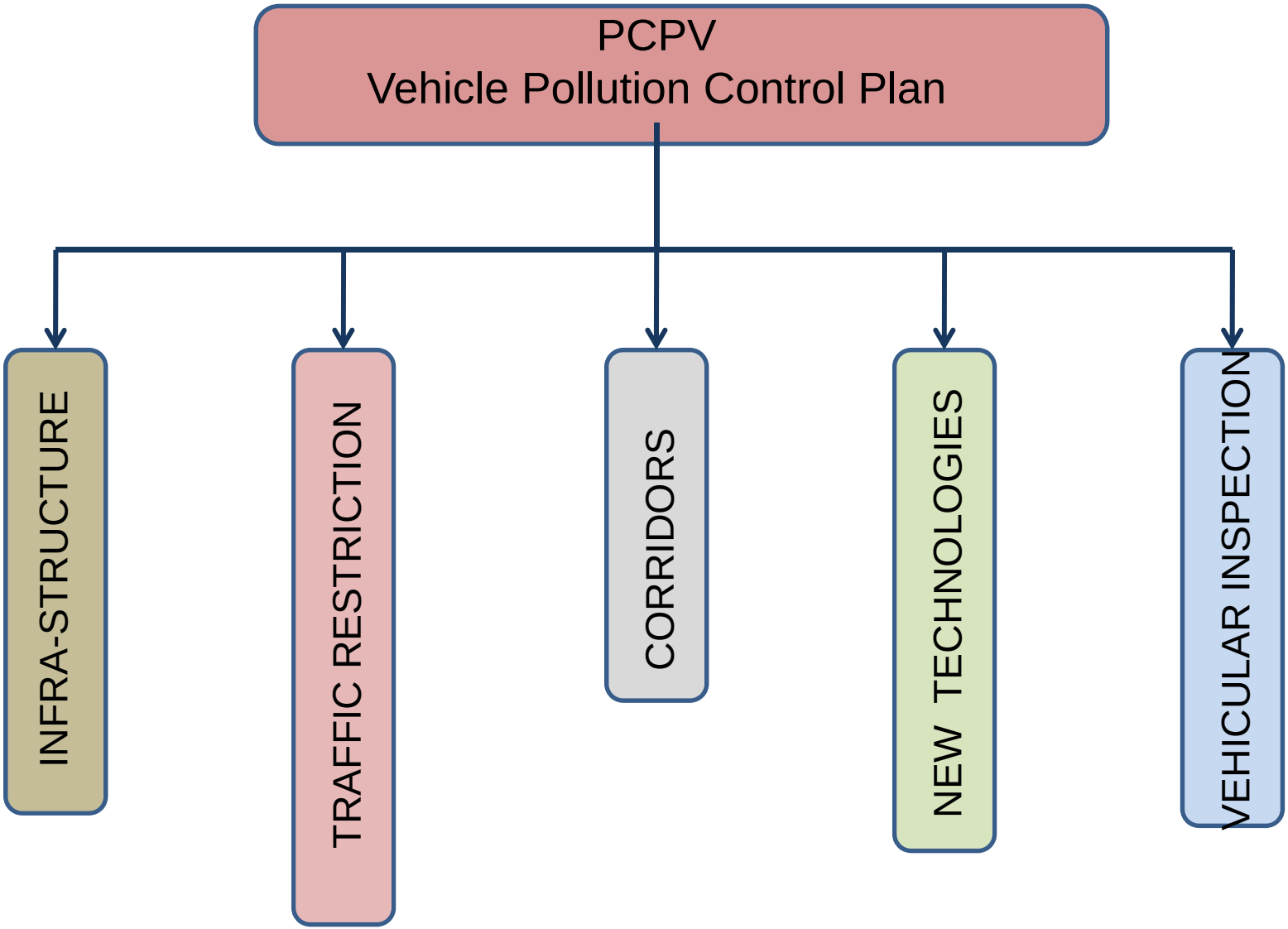
Air Polution in São Paulo

90 % OF CONTAMINANTS COME FROM TRAFFIC

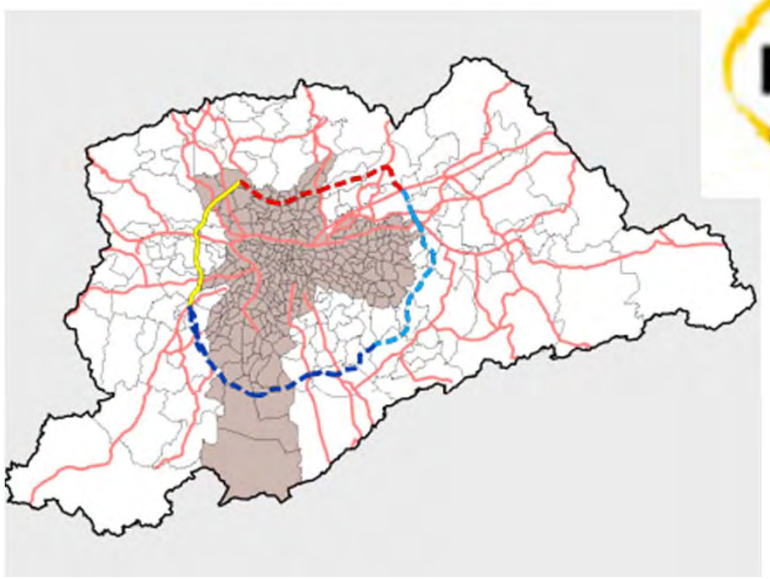
PREFEITURA DE SÃO PAULO
TRANSPORTES

Traffic Lanes Saturation




PCPV
Vehicle Pollution Control Plan
INFRA-STRUCTURE
TRAFFIC RESTRICTION
CORRIDORS
NEW TECHNOLOGIES
VEHICULAR INSPECTION

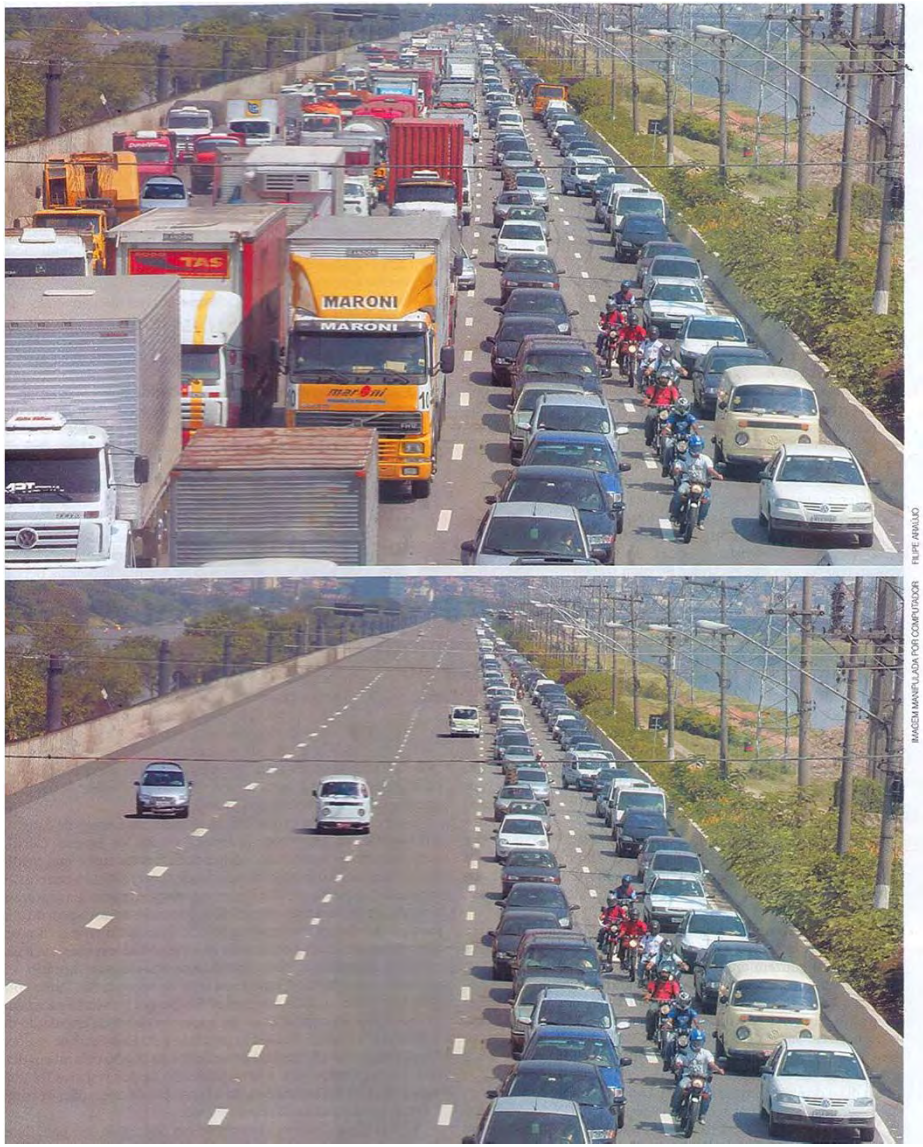
Infra-structure issues

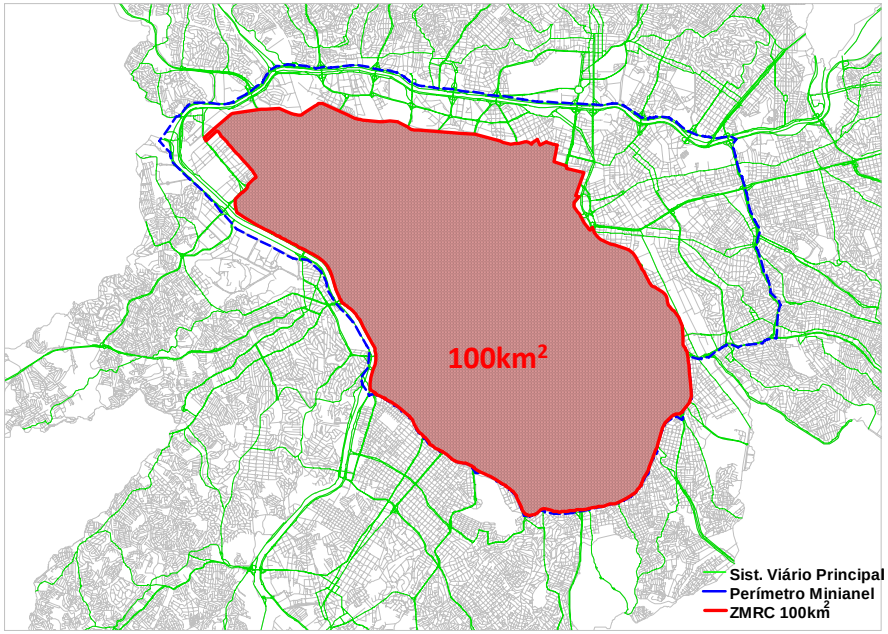


RODOANEL

Marginal Tiete

Restriction of heavy duty trucks in congested areas

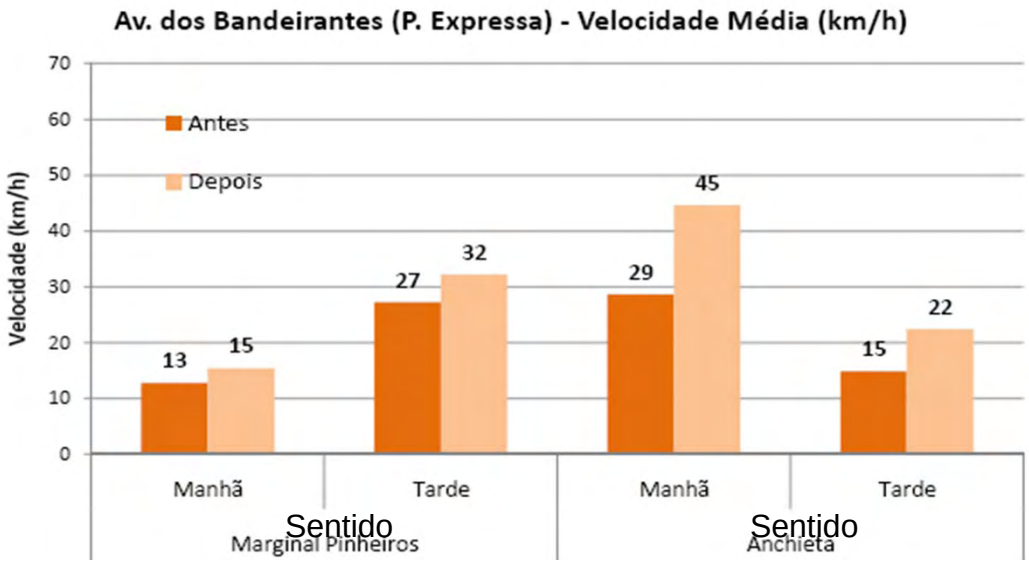




- **Special permission**
- **Priority for light duty trucks**

Restriction of heavy duty trucks in congested areas

RODOANEL SOUTH AND NEW RIVERSIDE LINES: RESULTS



TRAFFIC REDUCTION
TRUCKS

TIETÊ:	**- 9 %**
BANDEIRANTES:	**- 45 %**
PINHEIROS:	**- 27 %**
CIDADE:	**- 10 %**

TRAFIC CONGESTION INDEX
(ANNUAL AVERAGE)

2008	**115,6 km**
2009	**107,5 km**
2010	**99n km**

PREFEITURA DE SÃO PAULO
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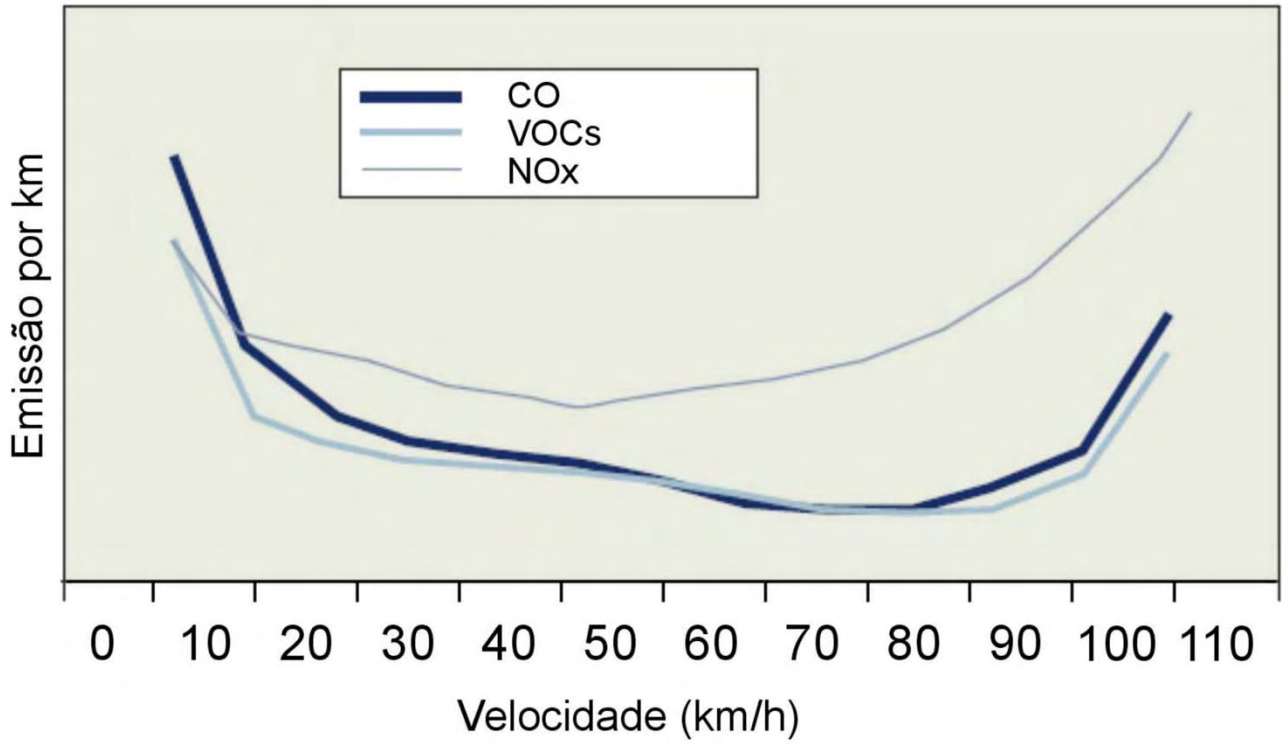
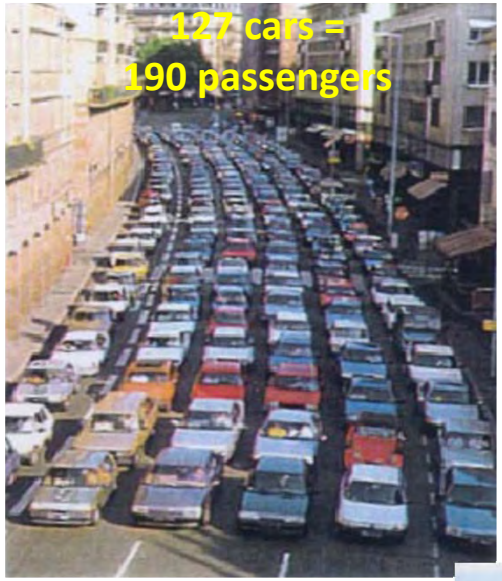
EMISSION INCREEAES AT LOW SPEED

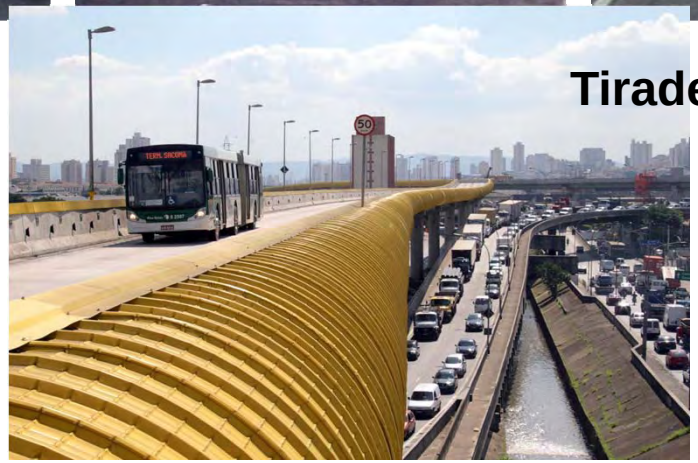


Fonte: IPEA - ANTP / 1998

Public Transportation Opportunity

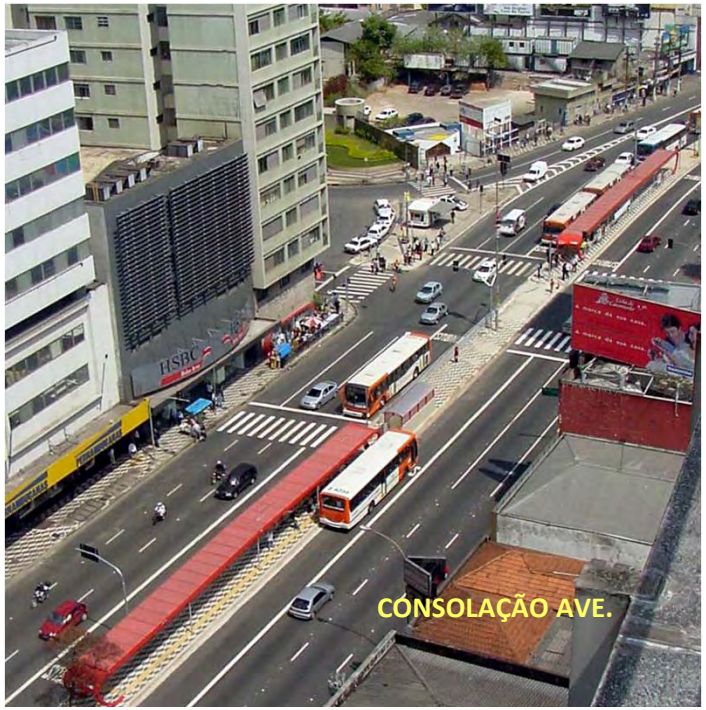
Reduce private car trips by offering public and mass transportation systems with troncal lines





Tiradentes Express

Current corridors

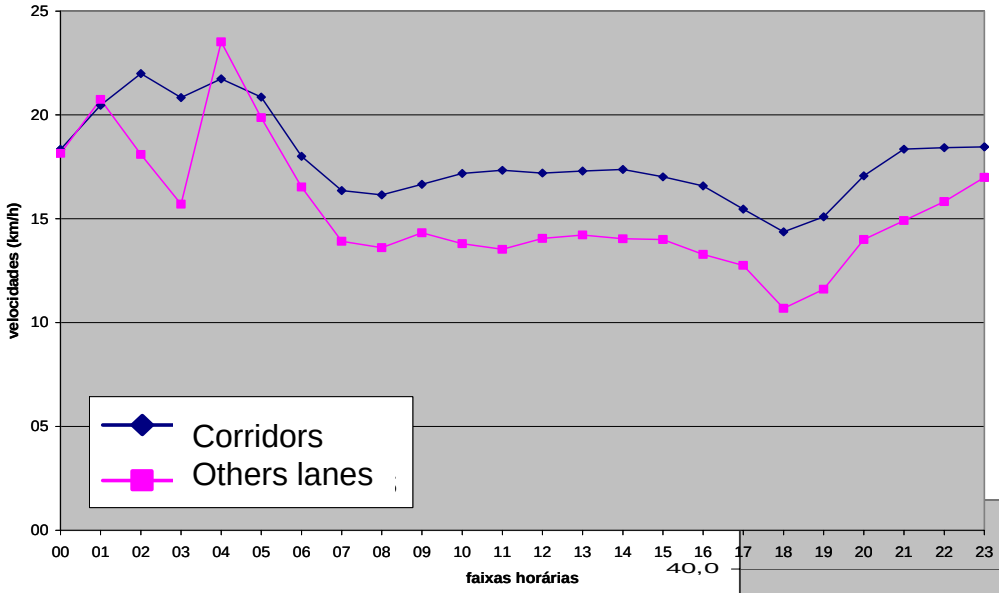


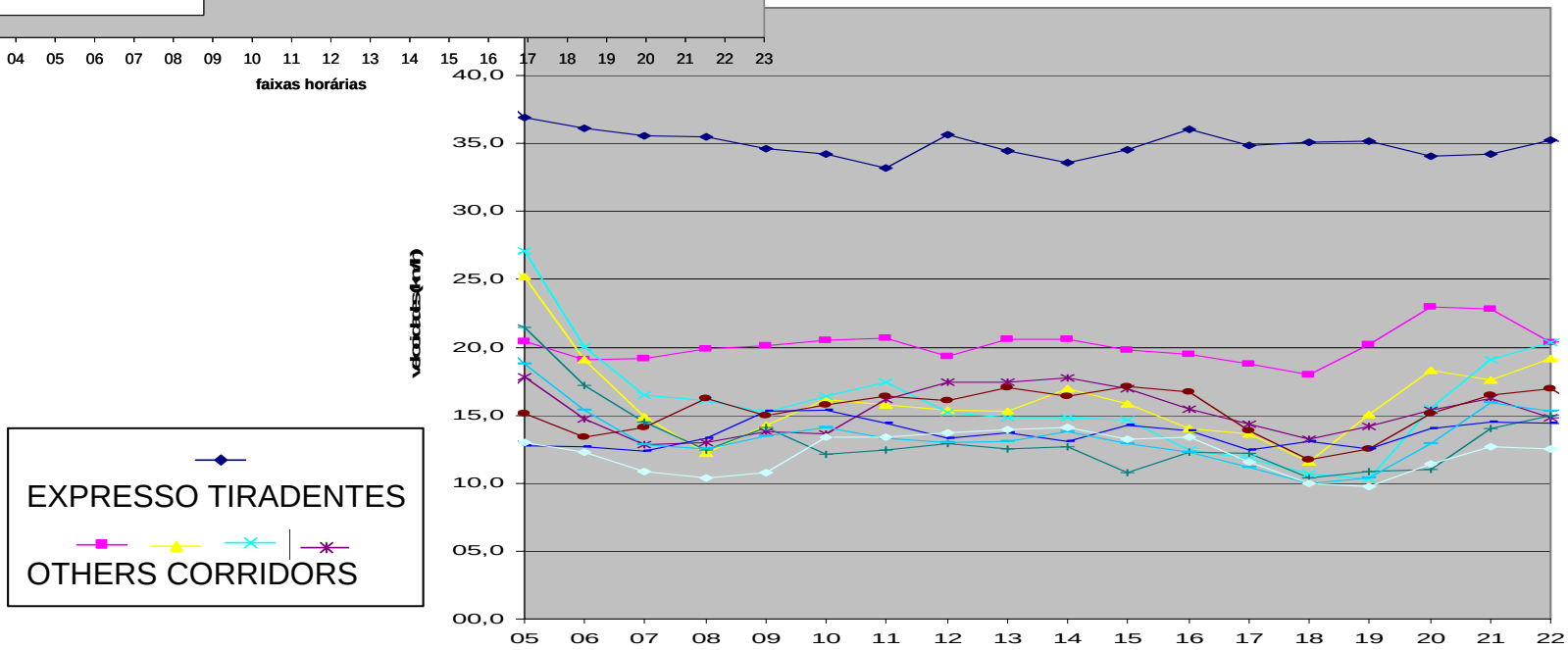
Tiradentes Express – exclusive lane corridor

Same level of other traffic lanes

Elevated Exclusive Lanes

Bus Commercial Speed





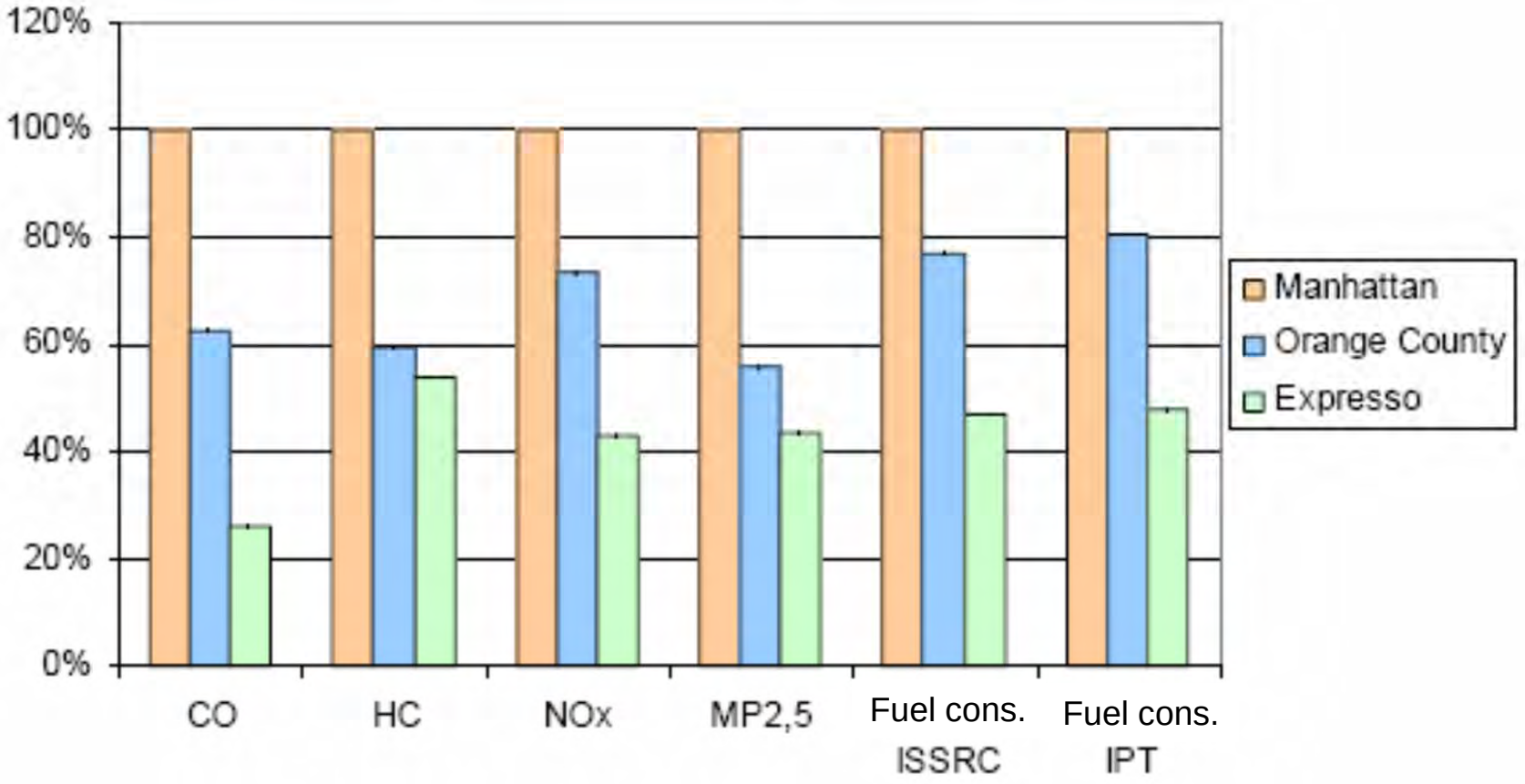
Fonte: SPTRANS / 2008

RESULTS

Fuel consumption and emissions according to different operational conditions:

Manhattan= representative of normal routes;

Orange County = representative of current corridors.



Tested vehicle: Padron bus - 13,20 m with diesel S500 without exhaust aftertreatment

Fonte: Relatório IPT

Renewable Alternatives Under Development

- ✓ Biodiesel (Bxx%)
- ✓ Ethanol
- ✓ Electric Energy
  - • Trolleybus
  - • Hybrid
- ✓ Sugar cane Diesel
- ✓ Hydrogen Fuel Cell

Biodiesel

- B20 – diesel S50 + 20% biodiesel;
- 1200 buses – Operator: VIP;
- Easier logistics distribution;
- Available in the market and independent of vehicle modification;
- Reduction of 22% Particuates and ~20% CO2

Ethanol

- Scania Technology;
- 50 buses april/may 2011;
- Reduction of 90% Particulates and 64% NOx;
- Reduction of 80% CO2;
- Ethanol + 5% additive.

Trolleybus

- Present fleet: 190 vehicles;
- 12 new vehicles (Alternate Current);
- 140 vehicles to be replaced;
- Proven and operational technology;

Technologies under Test

Sugar Cane Diesel

- Test fleet – 3 vehicles (Viação Sta. Brígida);
- Diesel S50 + 10% sugar cane diesel
- Accumulated 54.000 km;
- Same fuel consumption and performance;
- Lower opacity

Hybrid Diesel Electric Vehicle

- Up to 35% reduction on fuel consumption and CO2;
- 50% reduction on NOx and Particulates emissions;
- Diesel engine is compatible to B30 (30% biodiesel);
- Accumulated 7.500 km in Rio de Janeiro;
- Tests in São Paulo – May 2011.

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