

Global Transport Knowledge Partnership



BRT: A Historical Perspective



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Urban Mobility Theme Champion



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Definitions

Bus Lane

- A lane designed to give priority to buses.

Busway

- A special roadway for the exclusive use of buses.

Bus Rapid Transit (BRT)

- An integrated system of facilities, services, and amenities.....

.....that collectively improves the speed, reliability, and identity of bus transit.

- Most BRT systems use busways or exclusive bus lanes

The first bus lane



1964 Paris, France

- First with-flow bus lane
- Quai de la Megisserie
- 1000 m in length

The first busway



1968 Liege, Belgium

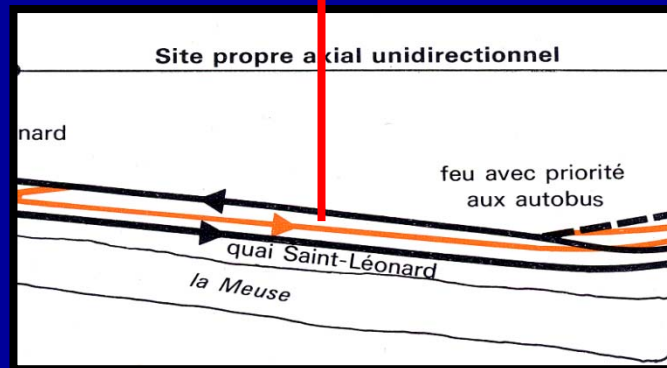
- Conversion of tram lines to exclusive bus use

The first busway



1968 Liege, Belgium

- First unidirectional busway

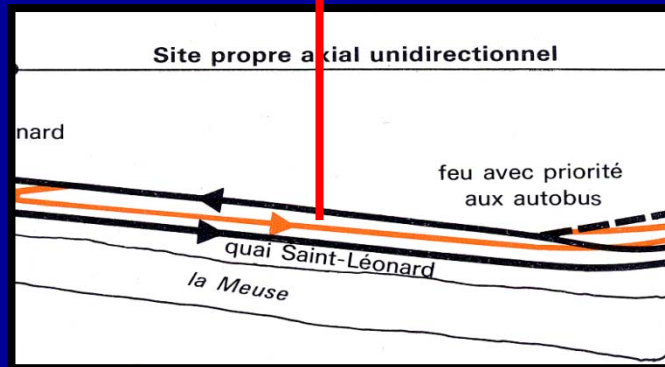


The first busway



1968 Liege, Belgium

- First unidirectional busway

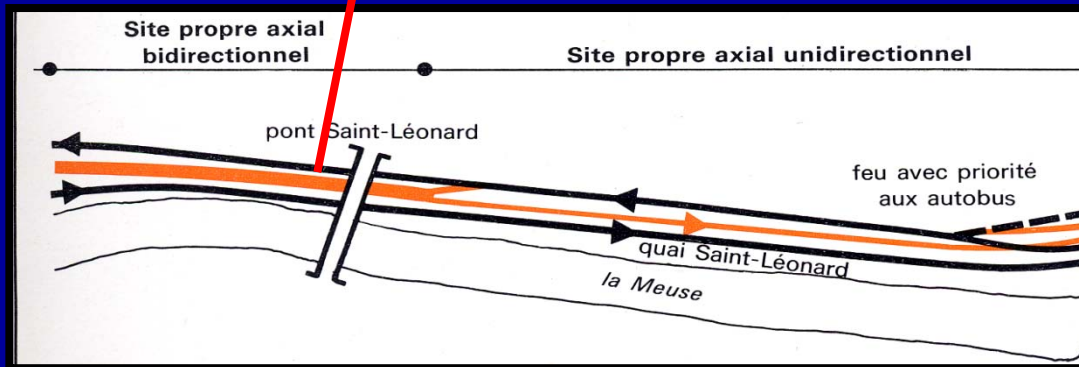


The first busway

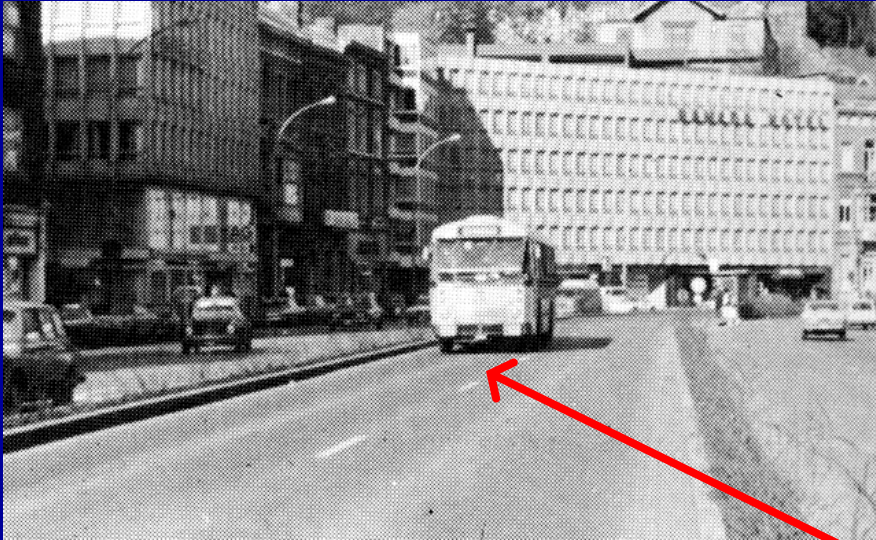


1968 Liege, Belgium

- First median busway

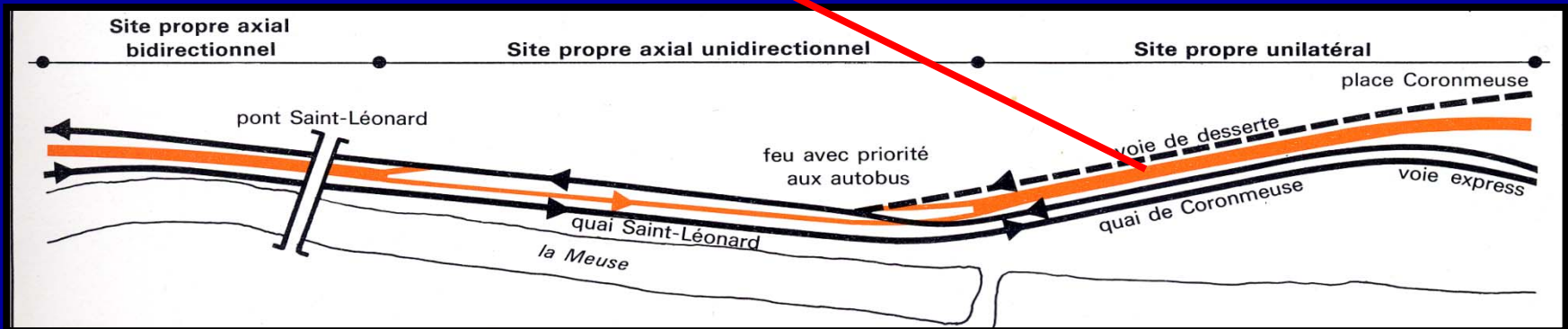


The first busway



1968 Liege, Belgium

- First unilateral busway

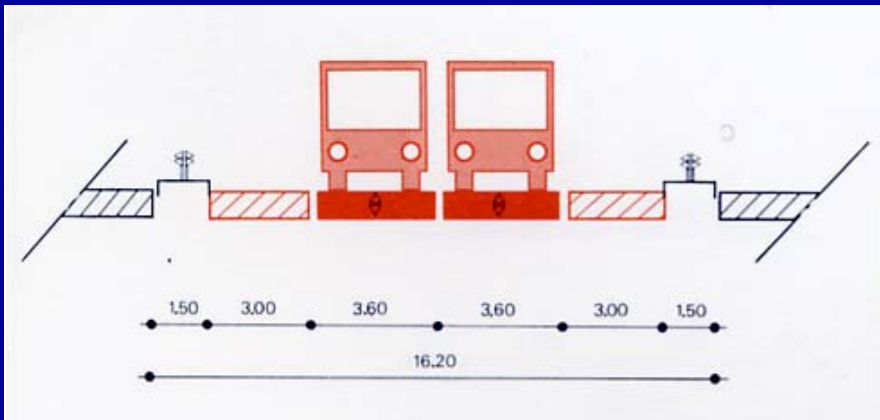


The first high speed busway



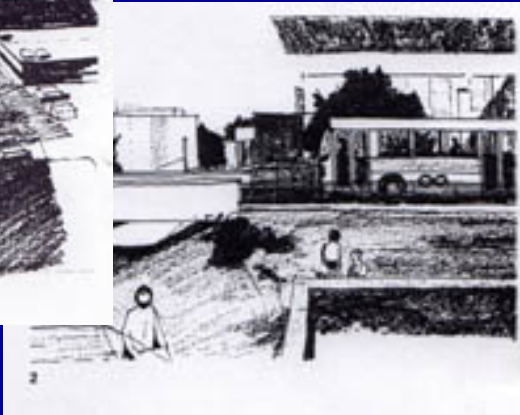
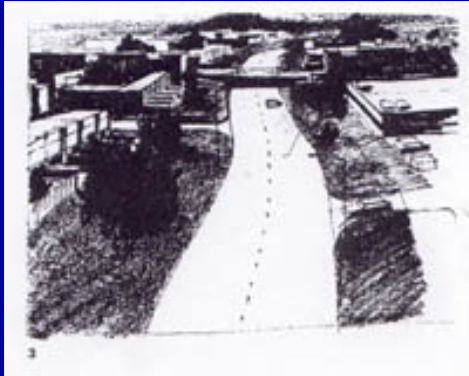
1969 Washington DC, USA

- Opening of the first 6.5 km of the Shirley Highway
- Tidal flow system
- 16 meter right of way (!)



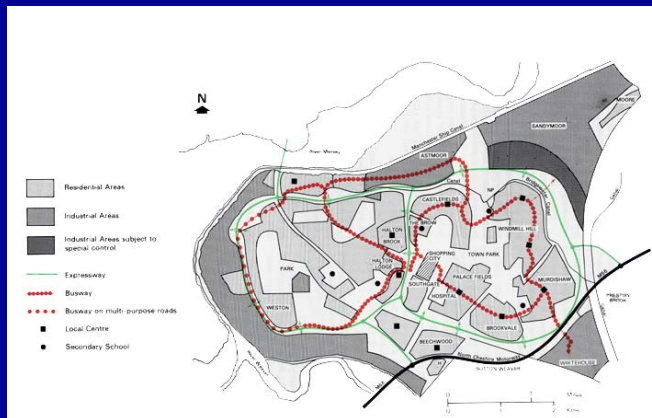
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The first dedicated busway



1971 Runcorn, England

- Designed in 1964
- Public transit spine of new town
- 19 km in length



The beginnings of BRT



1972 Curitiba, Brazil

- Designed in 1972
- Built in 1973
- First 20 km opened in 1974
- Basis for city development along bus corridors

But still a busway system

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And now for something completely different.....



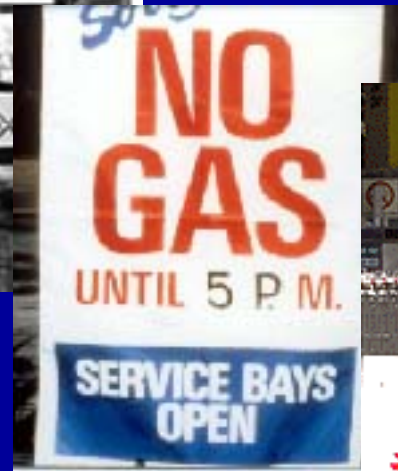
*Slide 13 Peter Midgley 2009
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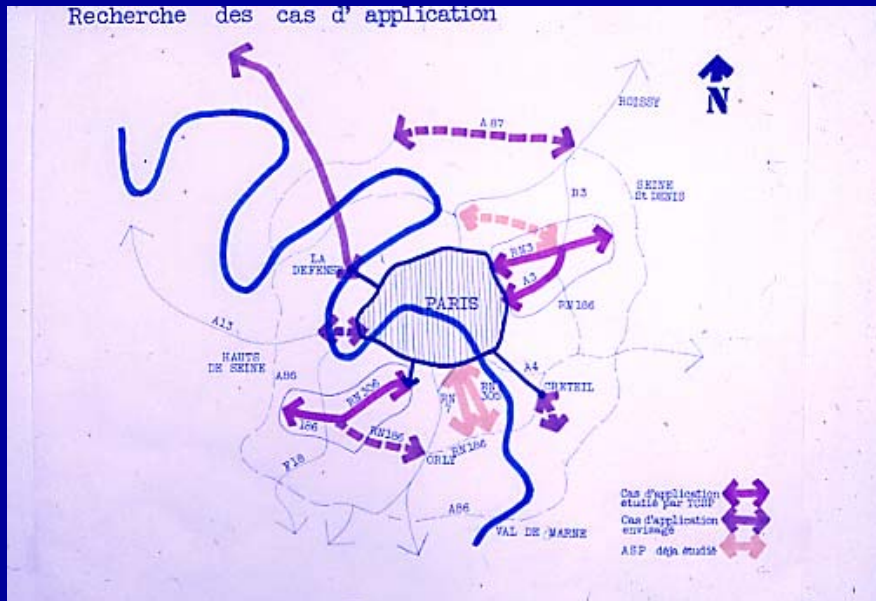
And now for something completely different.....



1973: Oil Crisis in US and Europe



1973: Oil Crisis in US and Europe



Paris, France, 1973

The US studies using busways to improve transit and publishes “Bus Use of Highways”

In Paris, we looked for busway opportunities

1973: Oil Crisis in US and Europe

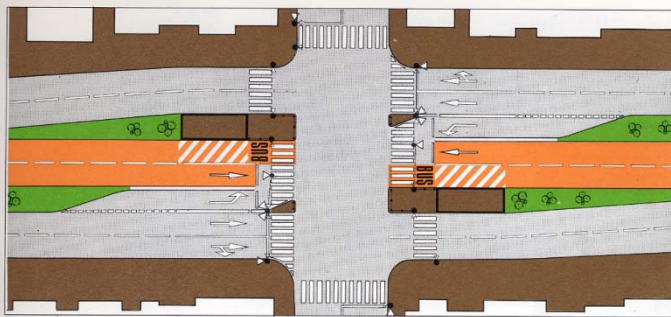


Fig 4.26 Site propre axial aménagement d'un carrefour (avec station sur chaussée)

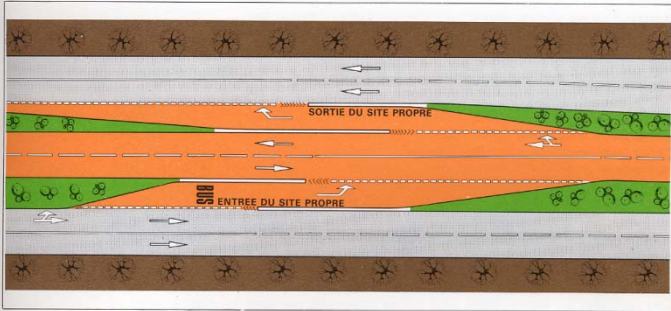
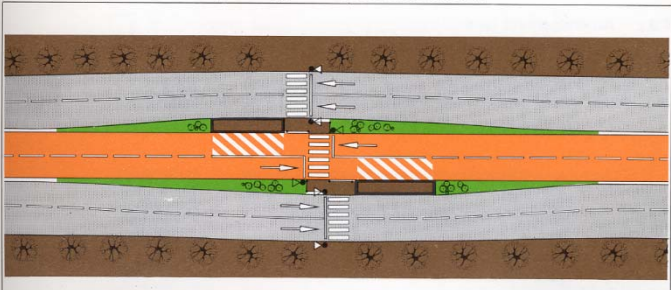


Fig 4.28 Site propre axial dispositifs d'accès hors carrefour

Fig 4.30 Site propre axial aménagement type d'une station hors carrefour



...and we devise our own guidelines and standards to fit European conditions

“Autobus en Site Propre”
172p RATP 1977

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By 1975: 19 Systems Worldwide



Evry (dedicated road)



Evry (dedicated road)

North America (10)

- USA (10) *Boston, Chicago, Dallas, Dayton, Los Angeles, Milwaukee, New York, Pittsburgh, San Francisco, Washington DC*

Europe (7)

- Belgium (1) *Liege*
- France (3) *Evry, Paris, Saint-Quentin-en-Yvelines*
- United Kingdom (3) *Redditch, Runcorn, London*

Latin America (2)

- Brazil (1) *Curitiba*
- Trinidad (1) *Port-of-Spain*

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By 1980: 27 Systems Worldwide



Porto Alegre (median)



Sao Paulo (median)

North America (10)

- USA (10) *Boston, Chicago, Dallas, Dayton, Los Angeles, Milwaukee, New York, Pittsburgh, San Francisco, Washington DC*

Europe (7)

- Belgium (1) *Liege*
- France (3) *Evry, Paris, Saint-Quentin-en-Yvelines*
- United Kingdom (3) *Redditch, Runcorn, London*

Latin America (7)

- Brazil (6) *Belo Horizonte, Curitiba, Goiania, Porto Alegre, Recife, Sao Paulo*
- Trinidad (1) *Port-of-Spain*

+5

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By 1980: 27 Systems Worldwide



Ankara (median)



Istanbul (lateral)

North America (10)

- USA (10) *Boston, Chicago, Dallas, Dayton, Los Angeles, Milwaukee, New York, Pittsburgh, San Francisco, Washington DC*

Europe (7)

- Belgium (1) *Liege*
- France (3) *Evry, Paris, Saint-Quentin-en-Yvelines*
- United Kingdom (3) *Redditch, Runcorn, London*

Latin America (7)

- Brazil (6) *Belo Horizonte, Curitiba, Goiania, Porto Alegre, Recife, Sao Paulo*
- Trinidad (1) *Port-of-Spain*

Middle East & North Africa (2)

- Turkey (2) *Ankara, Istanbul*

+2

By 1980: 27 Systems Worldwide



Abidjan (lateral)

North America (10)

- USA (10) *Boston, Chicago, Dallas, Dayton, Los Angeles, Milwaukee, New York, Pittsburgh, San Francisco, Washington DC*

Europe (7)

- Belgium (1) *Liege*
- France (3) *Evry, Paris, Saint-Quentin-en-Yvelines*
- United Kingdom (3) *Redditch, Runcorn, London*

Latin America (7)

- Brazil (6) *Belo Horizonte, Curitiba, Goiania, Porto Alegre, Recife, Sao Paulo*
- Trinidad (1) *Port-of-Spain*

Middle East & North Africa (2)

- Turkey (2) *Ankara, Istanbul*

Africa (1)

- Ivory Coast (1) *Abidjan*

+1

1988/90: The birth of BRT concept



Jaime Lerner develops the “tube” system and introduces articulated buses in Curitiba

For the first time, busways operate like a rapid transit “metro”

1988/90: The birth of BRT concept



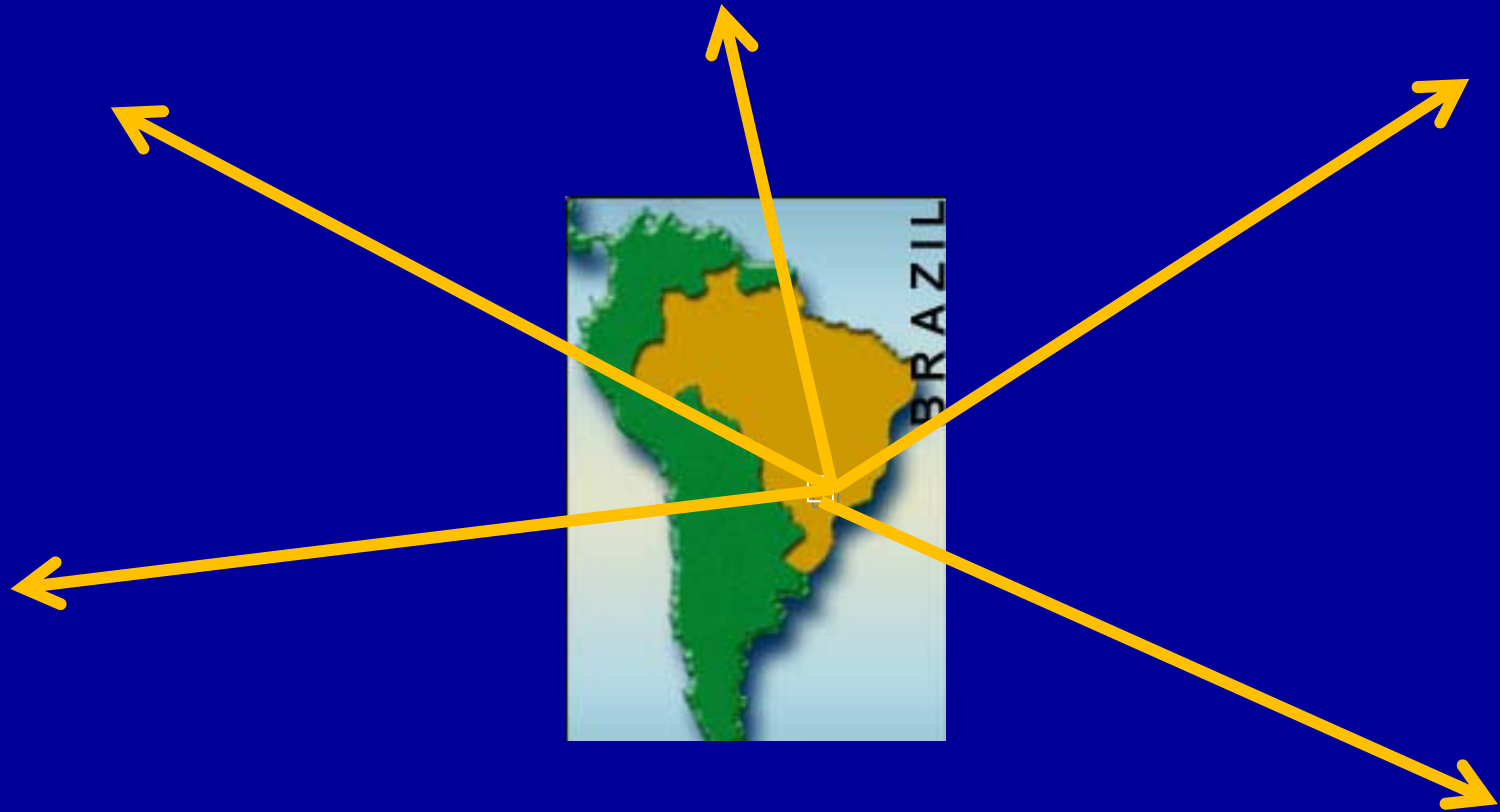
Public transport access to 90% of the city area

- 340 routes
- 1,902 buses
- 1.9 million passengers/ day
- 18-30 km/h average speeds
- 1,100km of roads
- Cost = \$3 million/km
 - Tram = \$8-12 million/km
 - Metro = \$50-100 million/km

1988/90: The birth of BRT concept

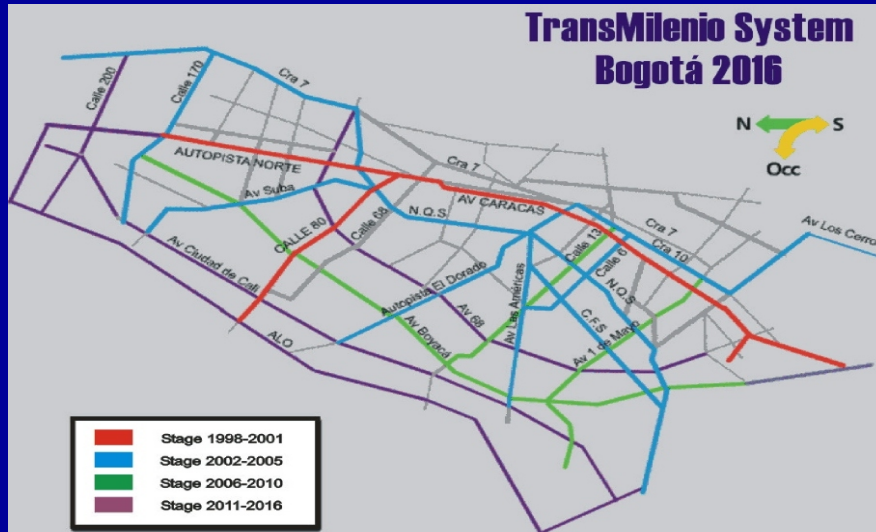
- Buses carry 50 times more passengers than 20 years ago...
 - *...and people spend only about 10% of their yearly income on transport.*
- Curitiba has the second highest car ownership rate in Brazil (one car for every three people)
 - *...but, Curitiba's gasoline use per capita is 30% below that of eight comparable Brazilian cities.*
- Other results include negligible emissions levels, little congestion, and an extremely pleasant living environment...

1988/90: BRT concept exported



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2000/02: BRT comes of age



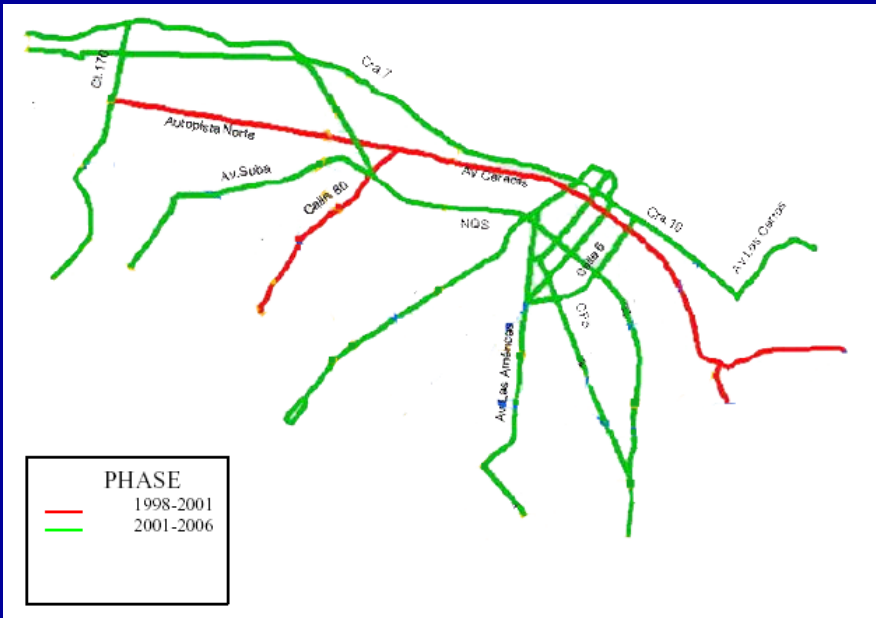
Enrique Peñalosa adapts and develops the Curitiba concept in Bogotá: the “Transmilenio”

“Bus Rapid Transit” hits the headlines globally.



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2000/02: BRT comes of age



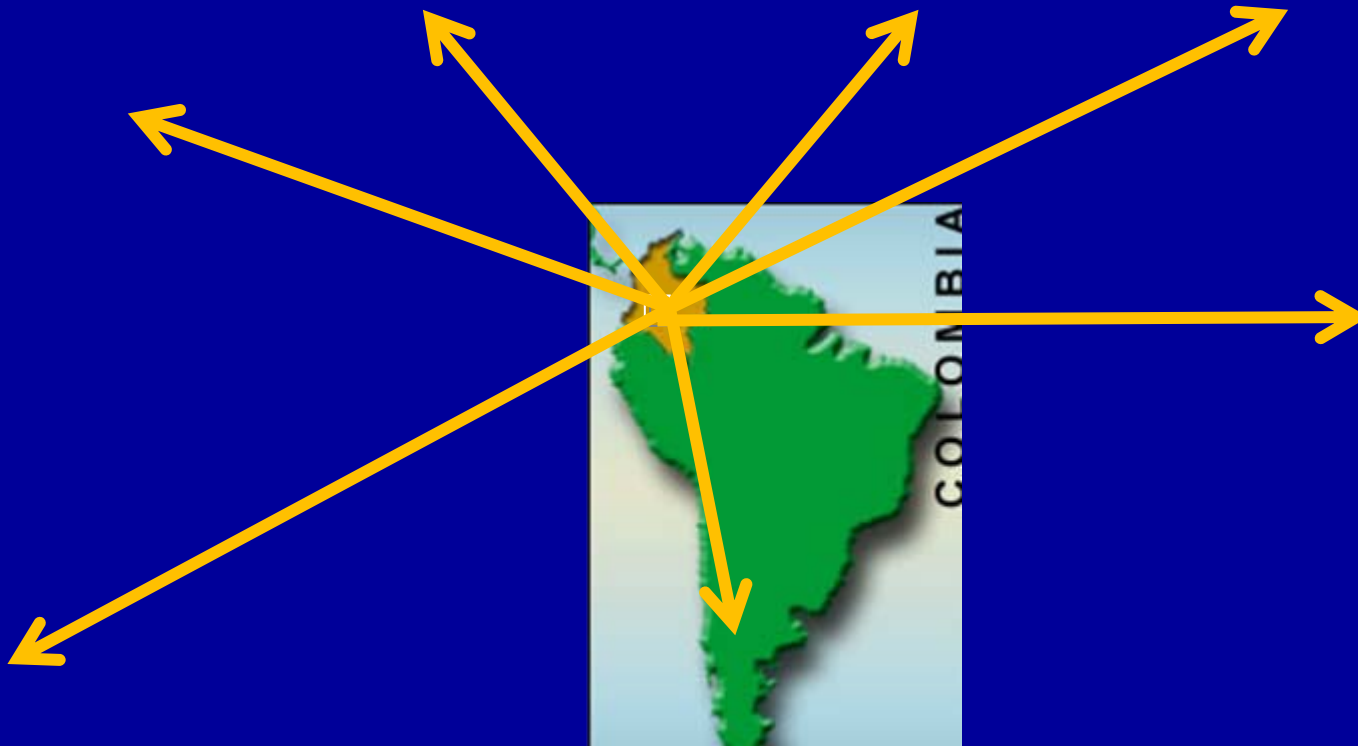
Within three years (by December 18, 2000)

- the system was operational.

Within 15 months (by March 2002)

- 800,000 passengers/day
- 42 km (26 miles) of exclusive lanes
- 62 stations (including four terminals)
- Peak direction passenger volumes 34,000 per hour
- Speeds increased from 10 to 26 kph (6 to 16 mph)

2000/02: BRT system exported



BRT systems outside US: 2005

Region	Operational
AFRICA	1
EAST ASIA PACIFIC	6
EUROPE	24
<i>Belgium</i>	1
<i>France</i>	13
<i>Germany</i>	1
<i>Italy</i>	1
<i>Netherlands</i>	3
<i>United Kingdom</i>	5
LATIN AMERICA	11
MIDDLE EAST NORTH AFRICA	2
NORTH AMERICA (Canada)	3
SOUTH ASIA	0
TOTAL	47

BRT systems outside US: 2005

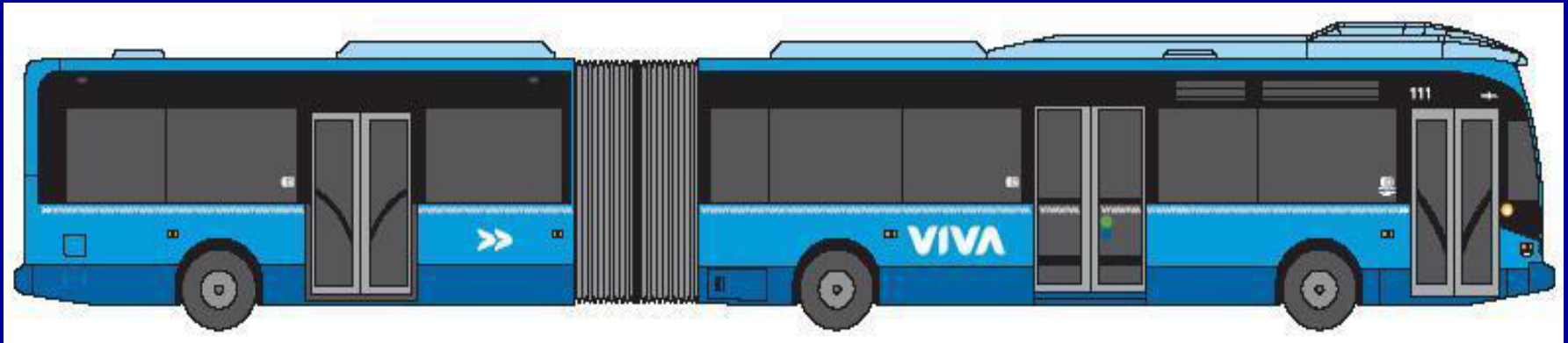
Region	Operational	Proposed
AFRICA	1	4
EAST ASIA PACIFIC	6	5
EUROPE	24	7
<i>Belgium</i>	1	0
<i>France</i>	13	6
<i>Germany</i>	1	0
<i>Italy</i>	1	0
<i>Netherlands</i>	3	0
<i>United Kingdom</i>	5	1
LATIN AMERICA	11	12
MIDDLE EAST NORTH AFRICA	2	0
NORTH AMERICA (Canada)	3	0
SOUTH ASIA	0	3
TOTAL	47	31

BRT systems outside US: 2005

Region	Operational	Proposed	Total
AFRICA	1	4	5
EAST ASIA PACIFIC	6	5	11
EUROPE	24	7	31
<i>Belgium</i>	1	0	1
<i>France</i>	13	6	19
<i>Germany</i>	1	0	1
<i>Italy</i>	1	0	1
<i>Netherlands</i>	3	0	3
<i>United Kingdom</i>	5	1	6
LATIN AMERICA	11	12	23
MIDDLE EAST NORTH AFRICA	2	0	2
NORTH AMERICA (Canada)	3	0	3
SOUTH ASIA	0	3	3
TOTAL	47	31	78

BRT: A Historical Perspective

BRT comes alive!



A last word

