

Integrated transport planning: learnings from Curitiba

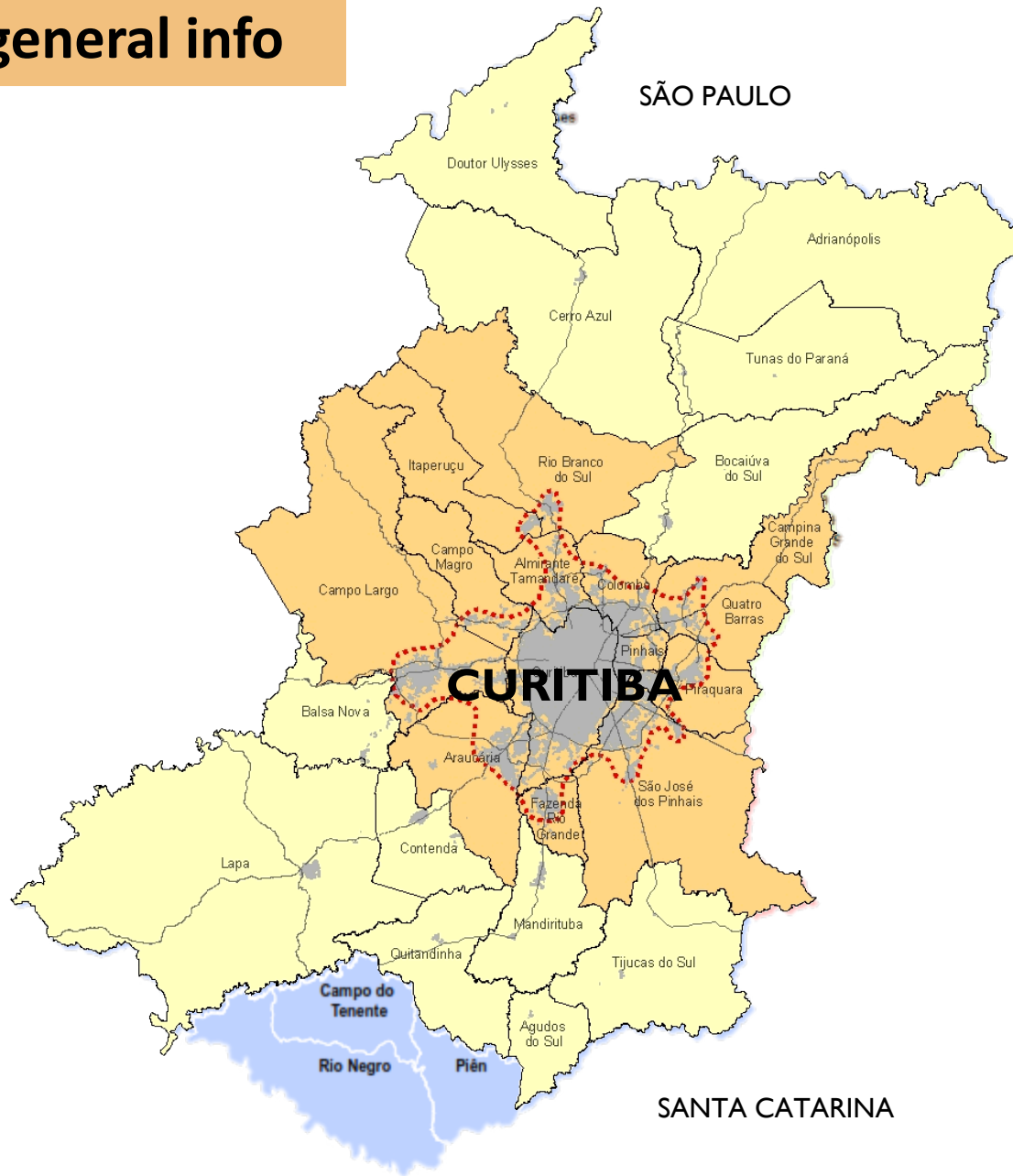
Luisiana Paganelli



01/02/2023



City's general info



CURITIBA

Area: 435 km²

Population:
1.751.907 (Census 2010)
1.985.895 (2022)*

RMC (29 municipalities)

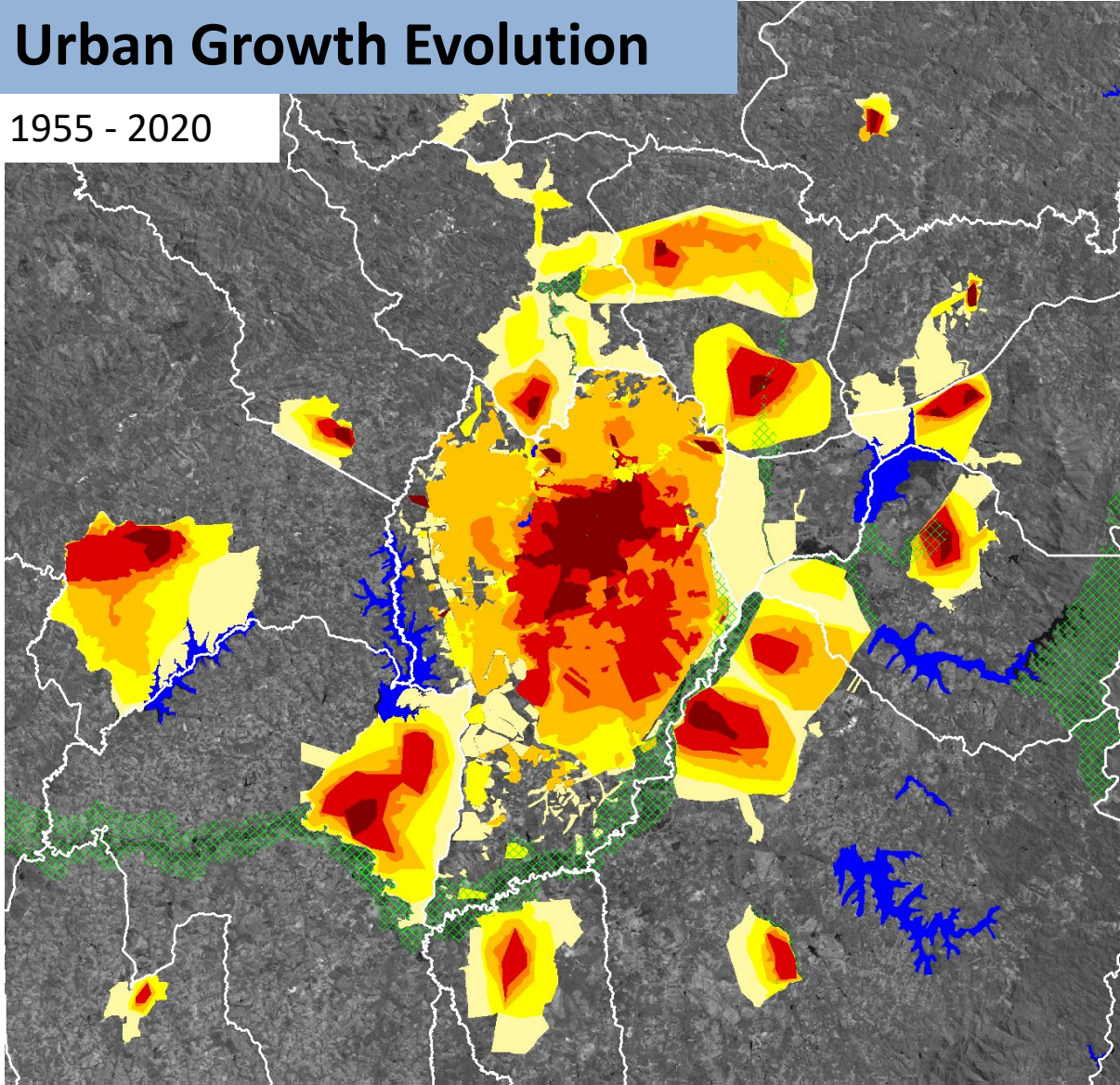
Area: 15.602 km²

Population:
3.224.286 (2010)
3.797.576 (2022)*

*Estimated (IPPUC 2022)

Urban Growth Evolution

1955 - 2020



Curitiba and Metropolitan Region

■	1955	360.000
■	1965	550.000
■	1975	1.140.000
■	1985	1.700.000
■	2000	2.770.000
■	2010	3.223.836

Agache Plan - 1943

population: 127.000 inhab.

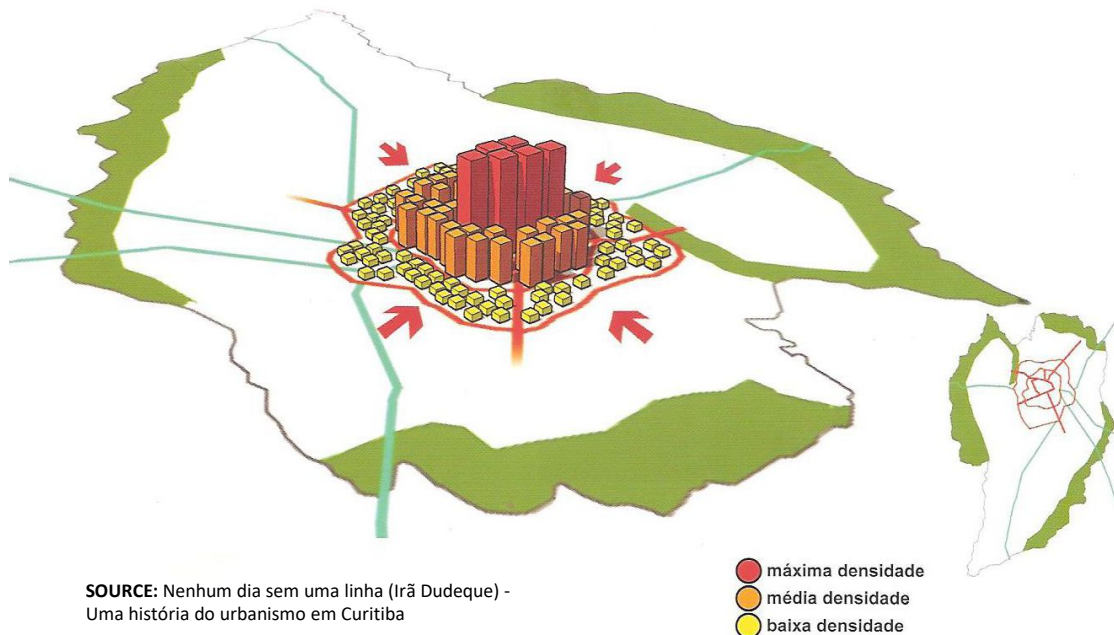
First Master Plan

Radial and Perimetral Development

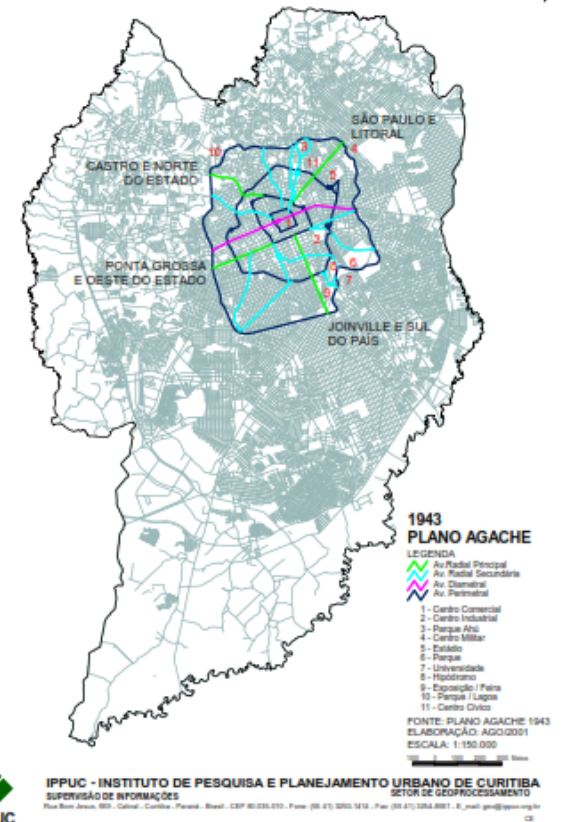
Developed by Coimbra Bueno & Cia. Ltda., RJ

and French architect Alfred Agache.

Creation of functional centers



SOURCE: Nenhum dia sem uma linha (Irã Dudeque) -
Uma história do urbanismo em Curitiba



Preliminary Plan – 1965

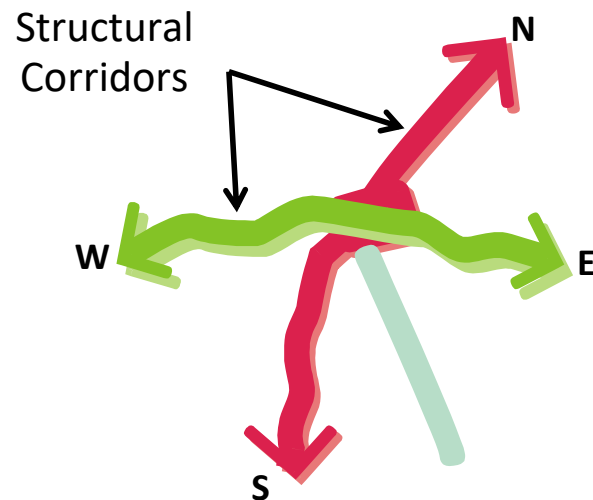
Population: 500.000 inhab.

Second Master Plan

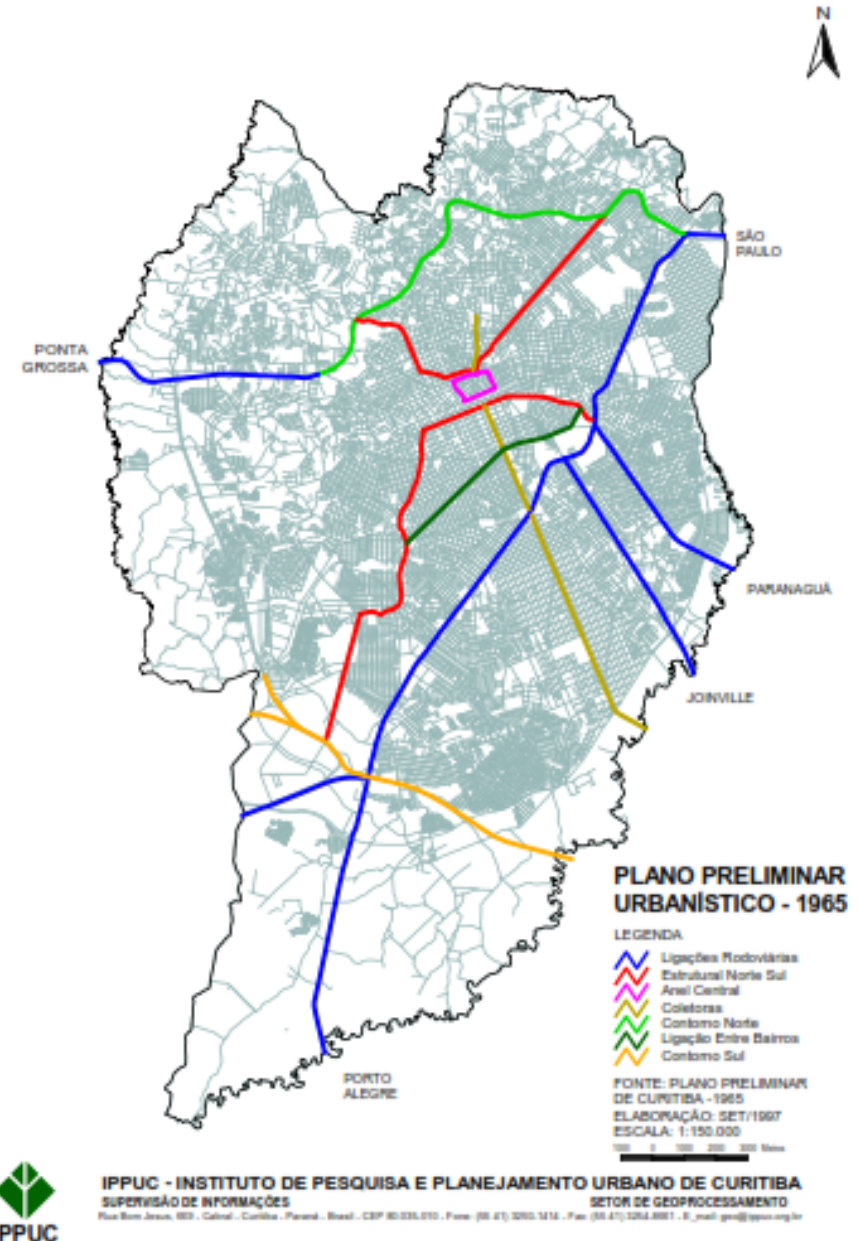
Linear Structure – Linear Growth

Public contest organized by the Municipality to continue the urban planning process.

Developed by Serete and Jorge Wilhelm Linear
Creation of Structural Axis – high density



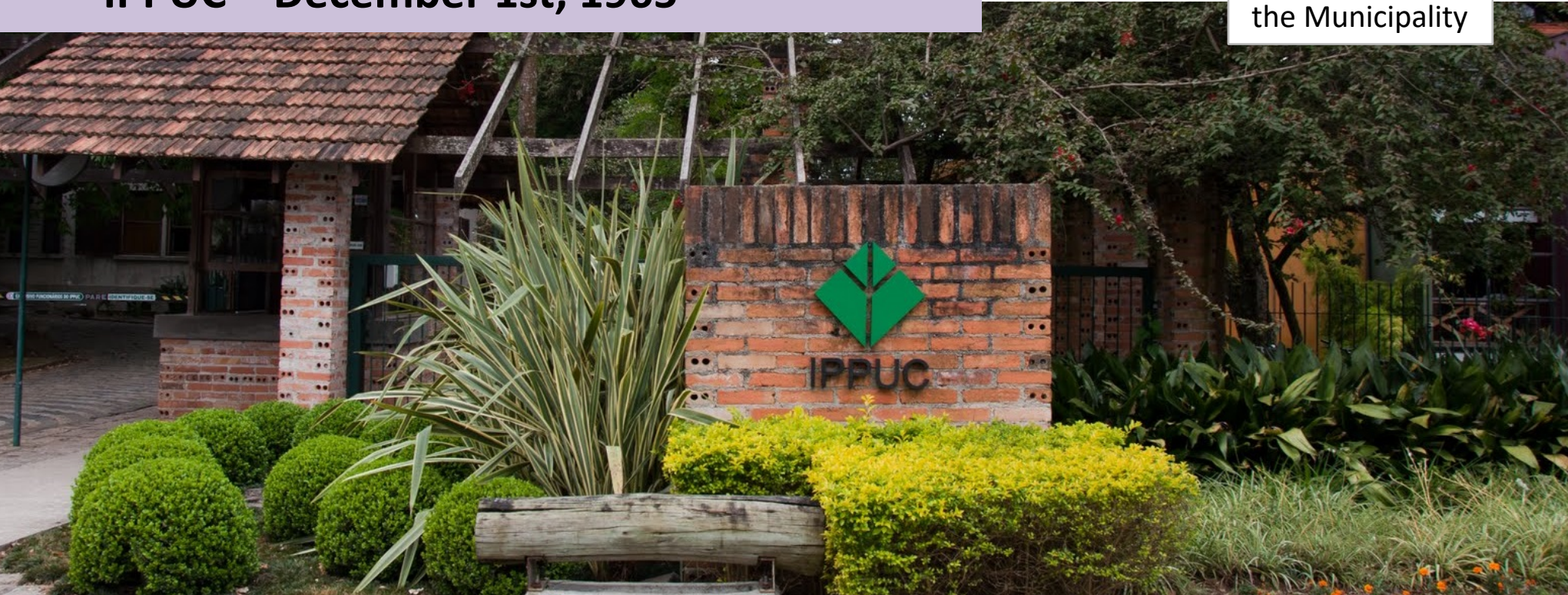
Linear development



Preliminary Plan (1965)

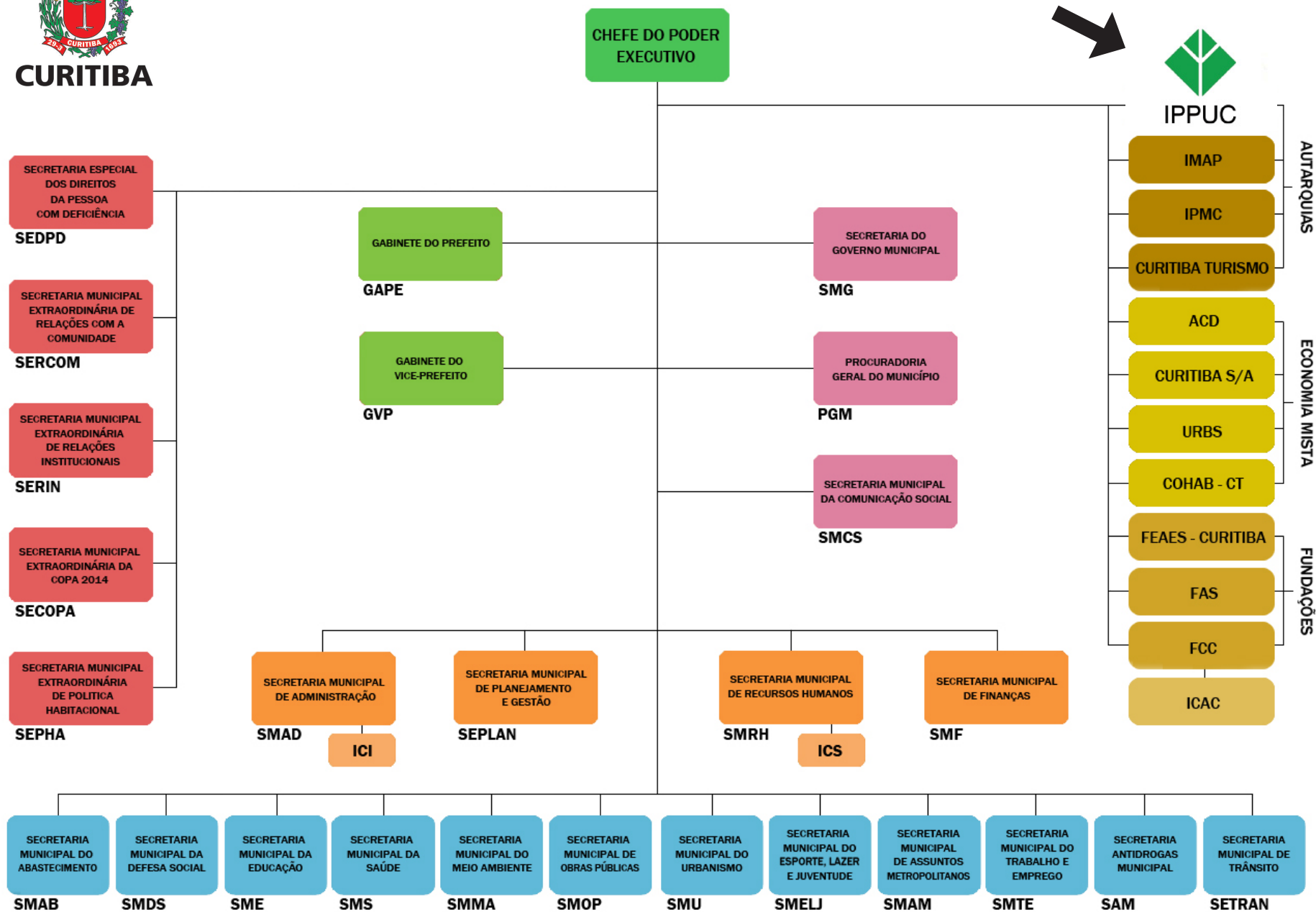
IPPUC – December 1st, 1965

Department of
the Municipality

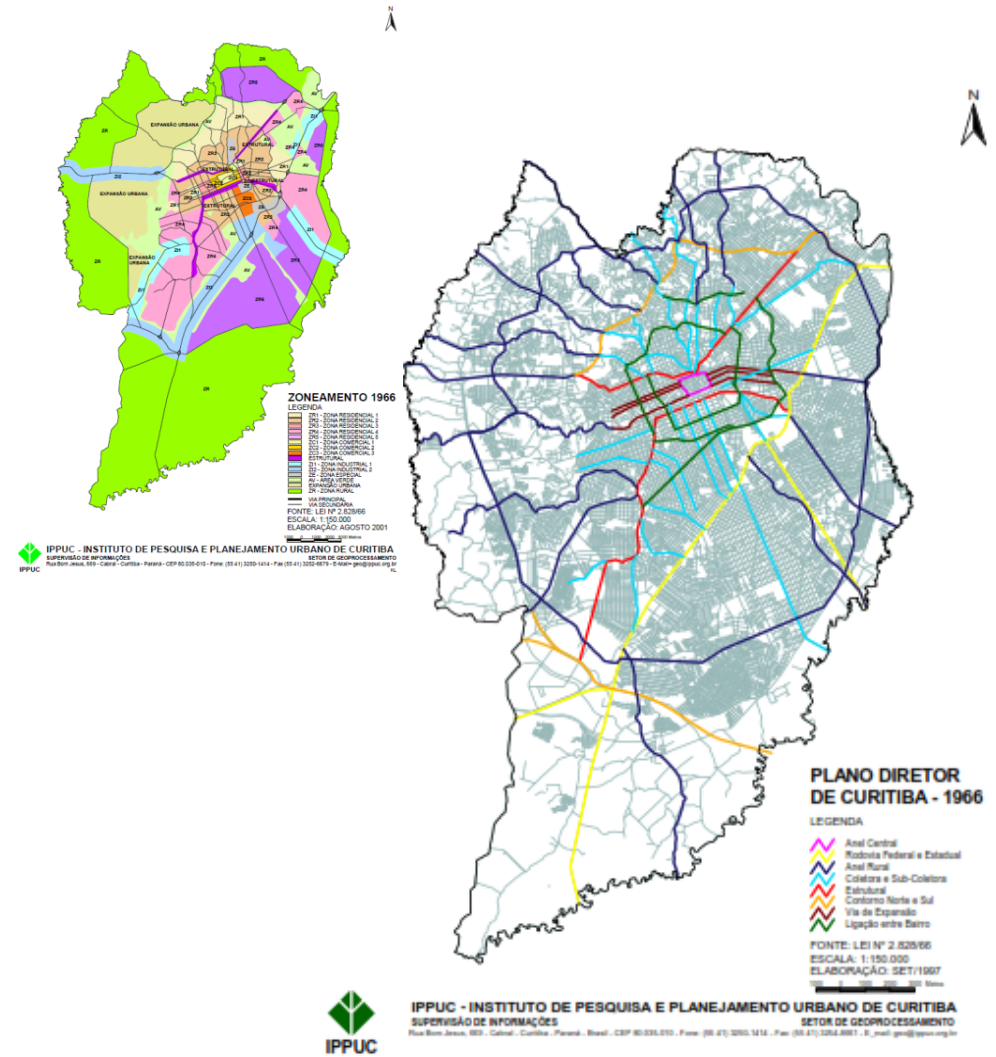
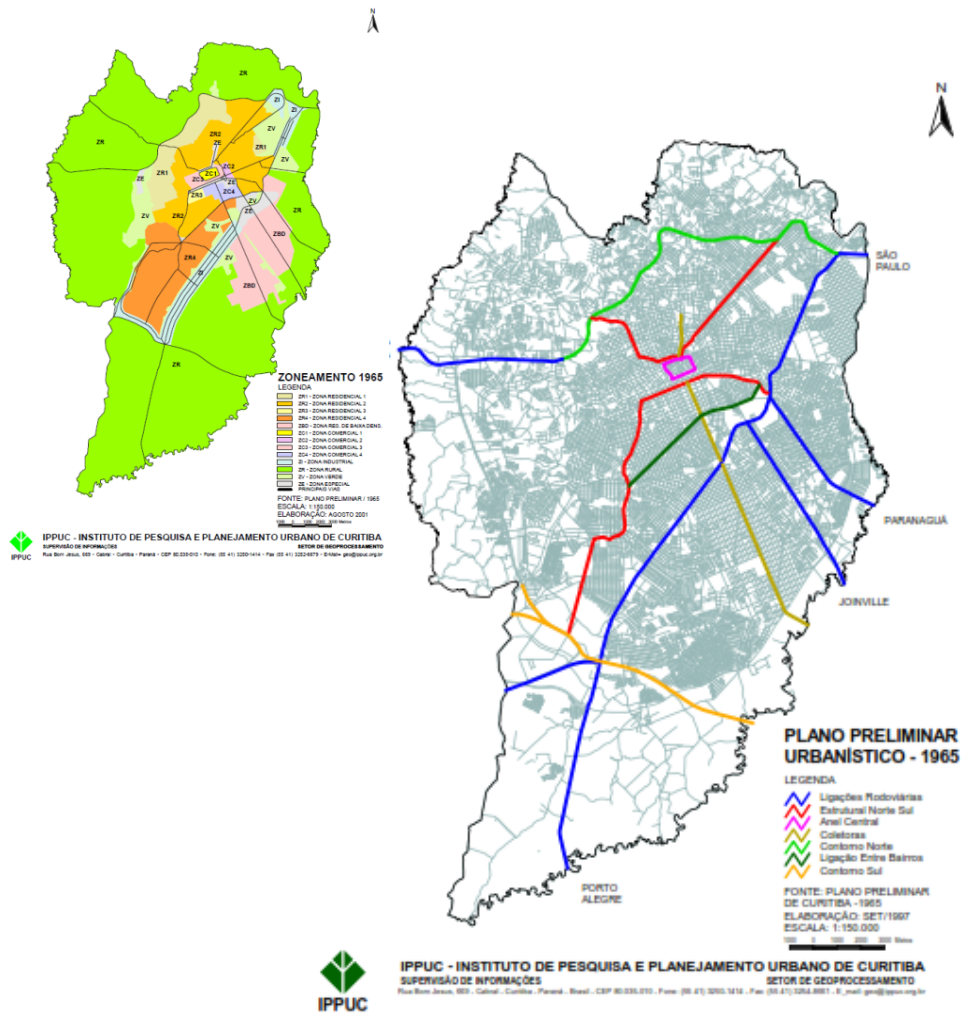


Institute for Research and Urban Planning of Curitiba

to research, evaluate, plan and monitor the organization of Curitiba's urban environment...



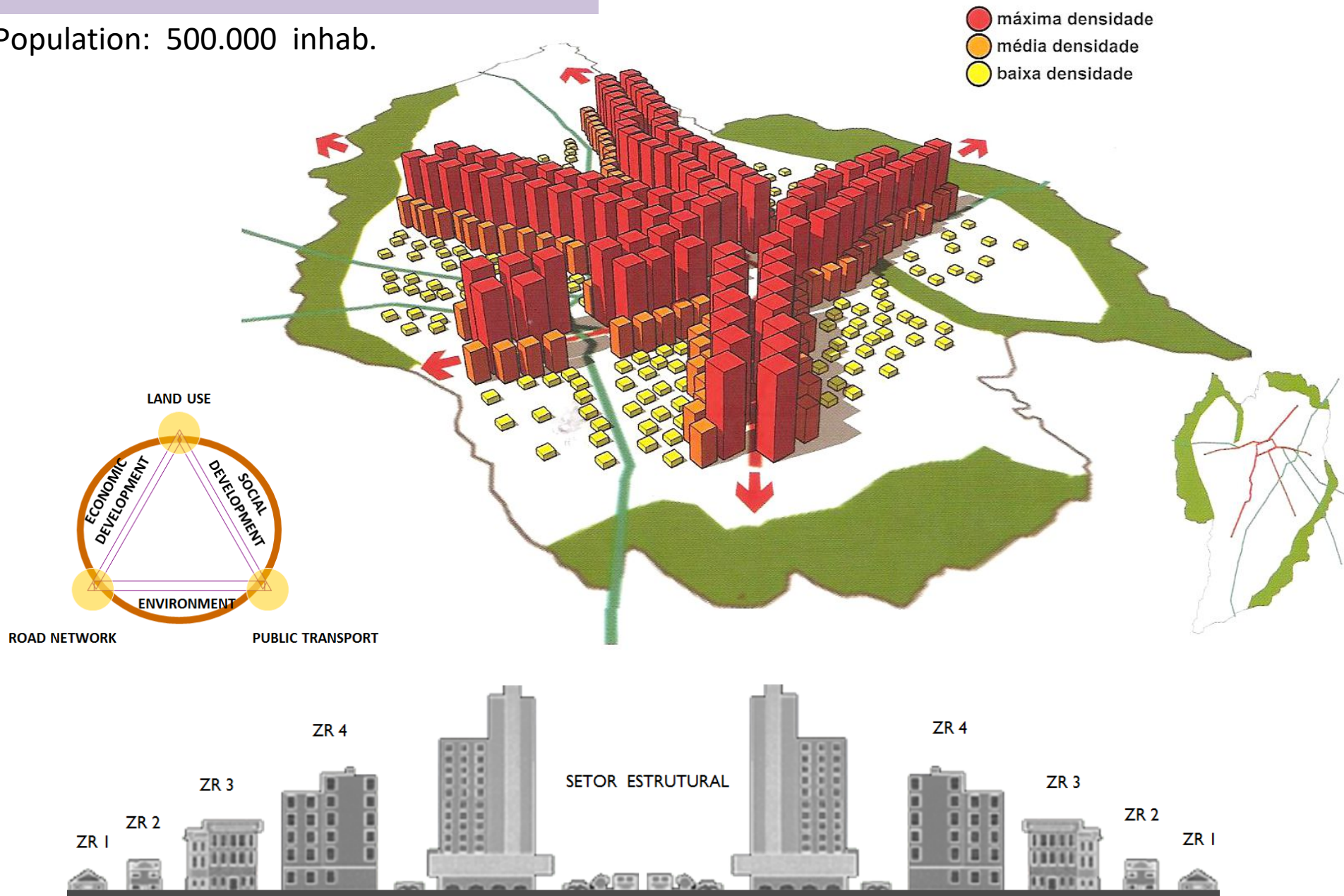
Preliminary Plan (1965) and Master Plan (1966) + Zoning



New Master Plan – 1966

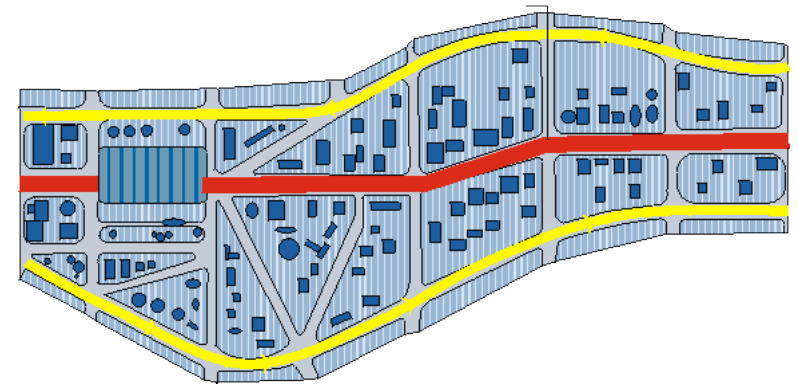
Population: 500.000 inhab.

SOURCE: Nenhum dia sem uma linha (Irã Dudeque) -
Uma história do urbanismo em Curitiba





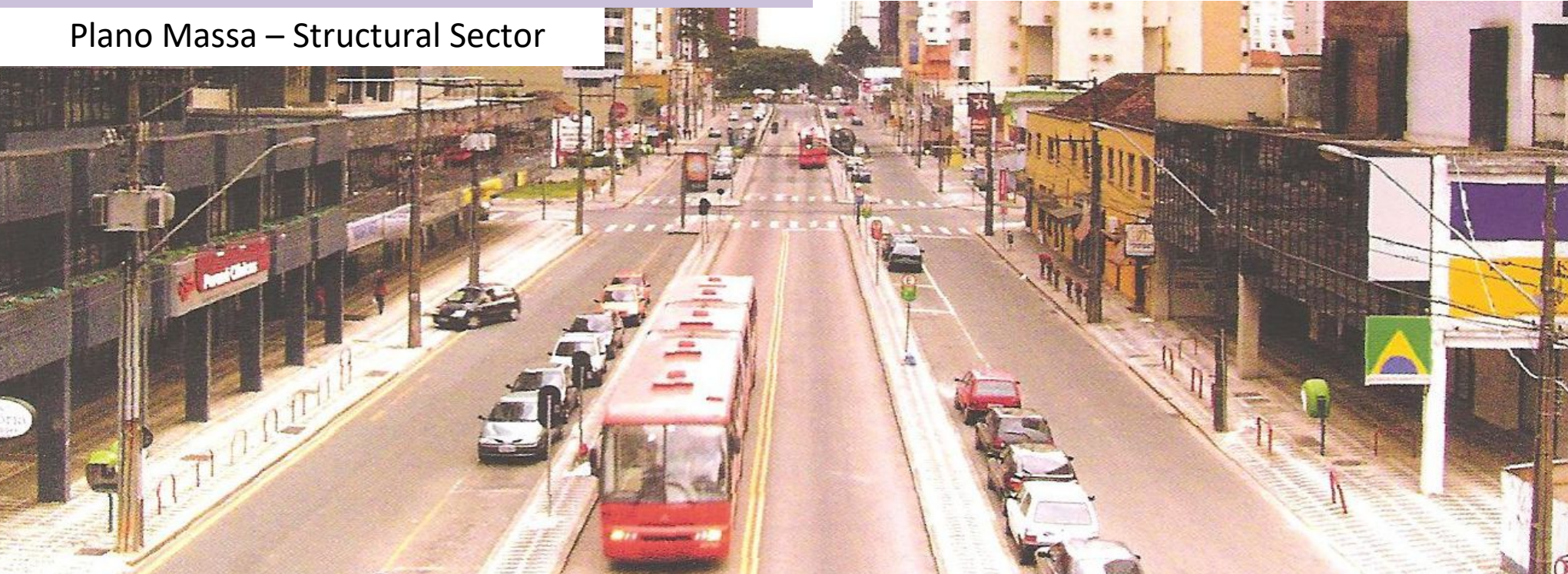
Rapid avenues, one-way



Exclusive lanes for buses

Trinary System

Plano Massa – Structural Sector



XV de Novembro St. closed for pedestrians

1972

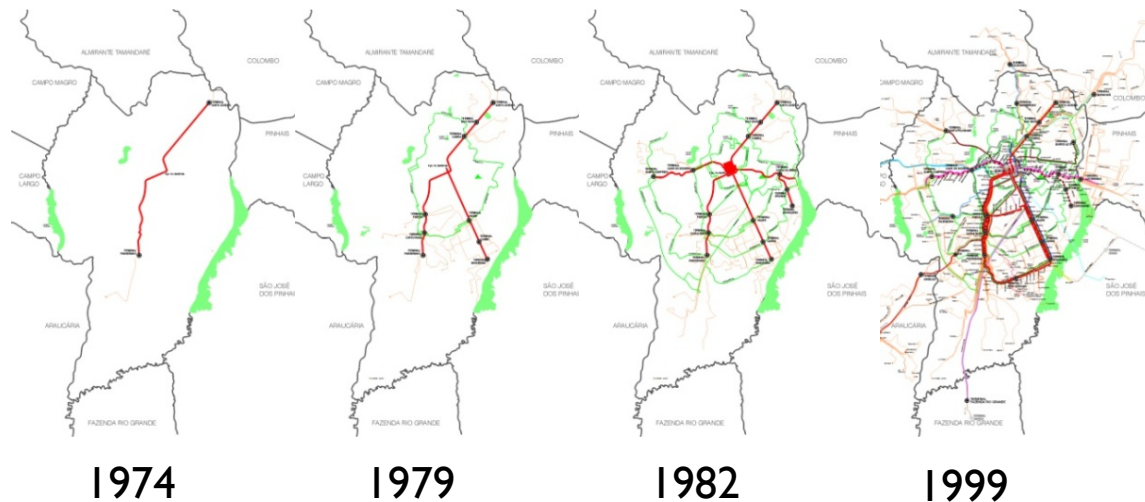
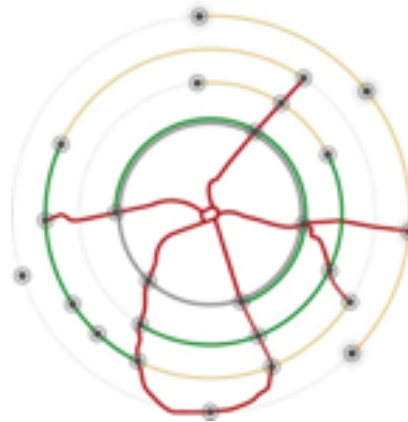




Transportation network evolution - RIT

2000's decade

Accessible network: 500m
 Single fare
 81 km of dedicated lanes
 1.368 buses
 250 lines
 15.210 trips/work day
 1.746.224 passengers/work day (CWB)
 21 terminals
 342 tube stations
 6.500 bus stops



Types of buses



Direct Line



"Tube station" –1990's

Biarticulated Express Bus



Interdistricts



Feeder bus



Conventional



Inter-hospitals
























Special line



Circular Line



Tourism Line

CATEGORIA DE LINHA	TIPOS DE VEÍCULO		CAPACIDADE / VEÍCULO
EXPRESSO LIGEIRÃO	BIARTICULADO		250
EXPRESSO	BIARTICULADO		230/250
	ARTICULADO		170
LINHA DIRETA	ARTICULADO		150
	PADRON		110
INTERBAIRROS	ARTICULADO		140
	PADRON		100
	HÍBRIDO		79
ALIMENTADOR	ARTICULADO		140
	COMUM		85
	MICRO ESPECIAL		70
TRONCAL	ARTICULADO		140
	COMUM		85
	MICRO ESPECIAL		70
	HÍBRIDO		79
CONVENCIONAL	COMUM		85
	HÍBRIDO		79
	MICRO ESPECIAL		70
	MICRO		40
CIRCULAR	MICRO		40
TURISMO	DOUBLE-DECK		65

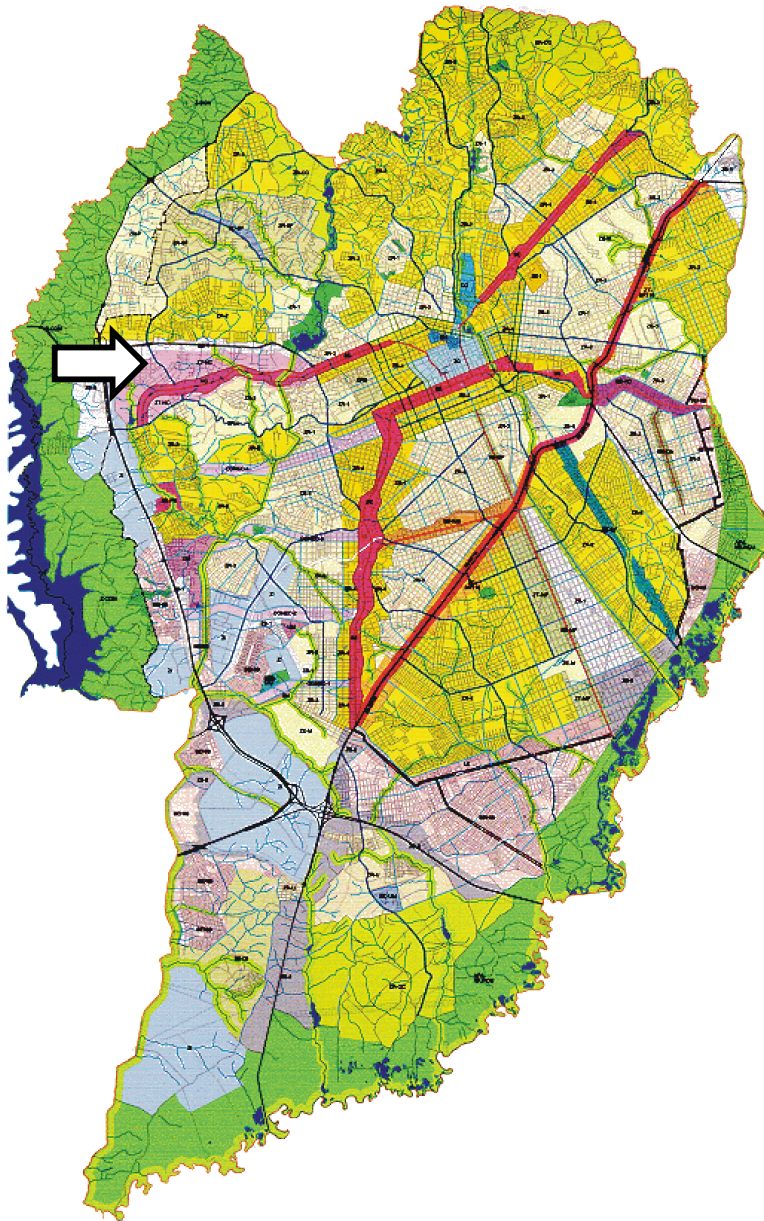


João Gualberto Ave. – 1974 (first BRT) x 2010

Population: 500.000 inhab.
Evolution of the BRT



Zoning and Land Use - 2000



Integrated Planning = **Occupation**

42 ZONES

- ✓ To orientate
- ✓ To discipline
- ✓ To promote development
- ✓ To monitor urban growth
- ✓ 17% Preservation areas
- ✓ 58% Predominantly residential areas
- ✓ 16% Predominantly commerce and services areas
- ✓ 06% Predominantly industrial areas
- ✓ 03% Mixed uses areas

Structural Axis in two periods

1970's - 2000's

SOURCE: Nenhum dia sem uma linha (Irã Dudeque) -
Uma história do urbanismo em Curitiba



Transit Oriented Development - TOD

2000's



Implemented plan: transport as an inducer of urban development



Master Plan Revision – 2004

Population: 1,7 million inhab.

*City's Statute 2001

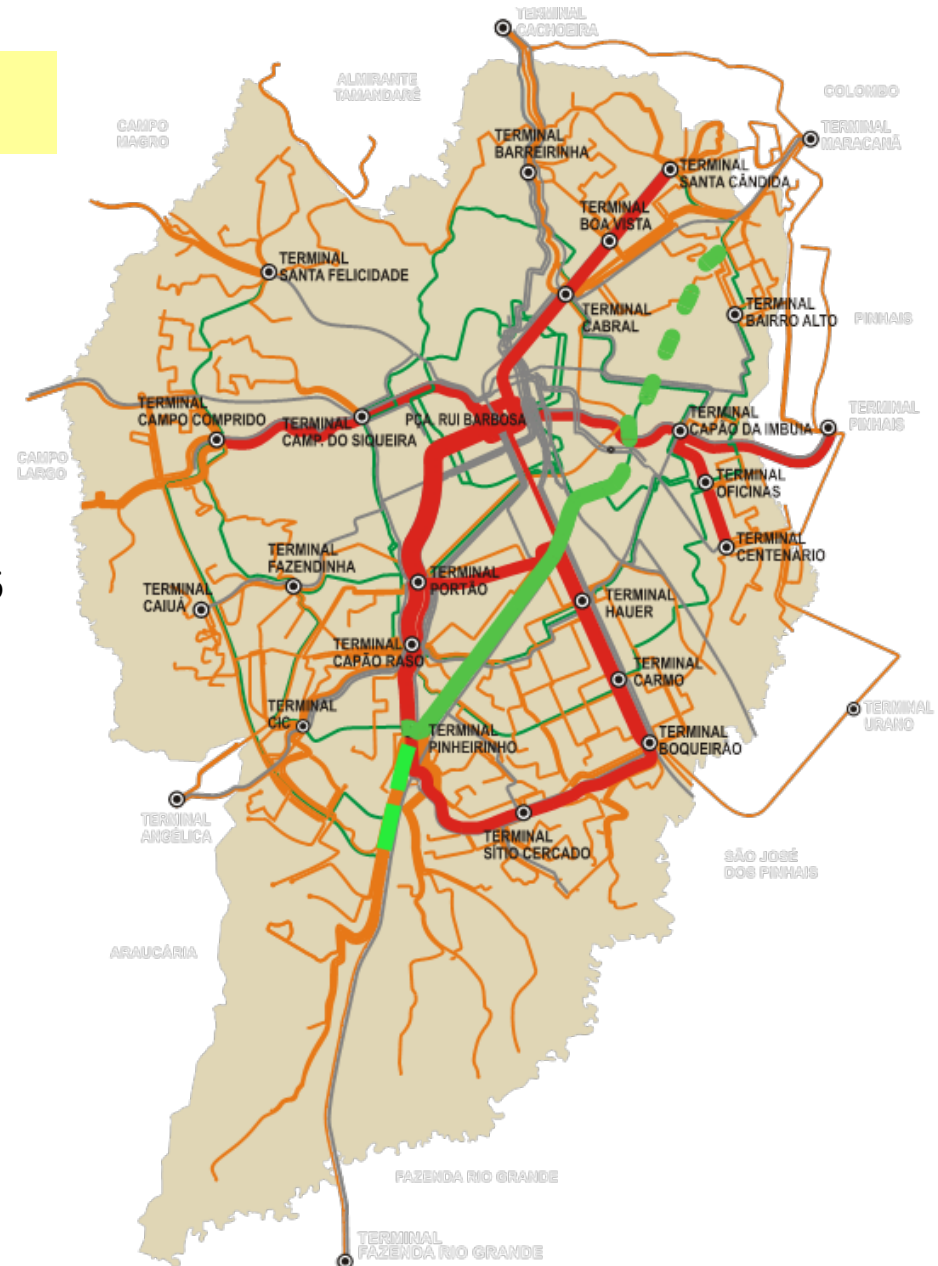
New Structural axis – Green Line

Metropolization

Maintenance + consolidation of guidelines from 1966

Implementation of new urban tools

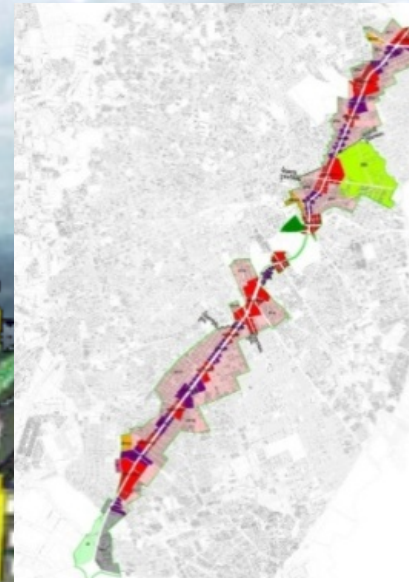
Public Participation (democratic management)



New Corridor of Development - Green Line

2005 – current date

- 18km total length
- 23 affected neighborhoods (287.000 inhabitants)
- 21.000 m² of green areas
- 5.200 planted trees



OUC – Urban Tool

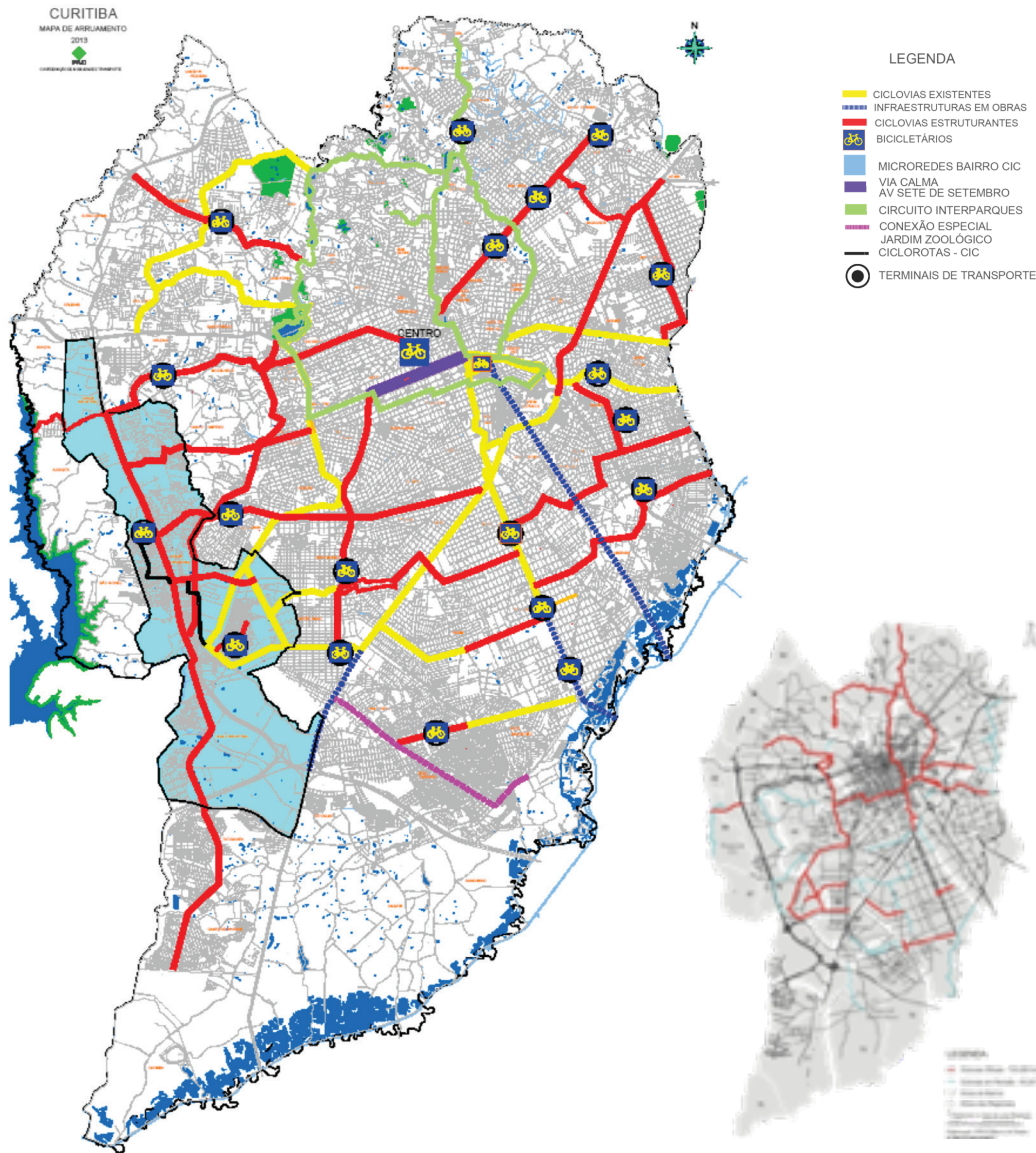




New Corridor of Development - Green Line



Bicycle Plan - 2013



Before: **120 Km Interparks (2012)**

Bicycle as a transportation modal

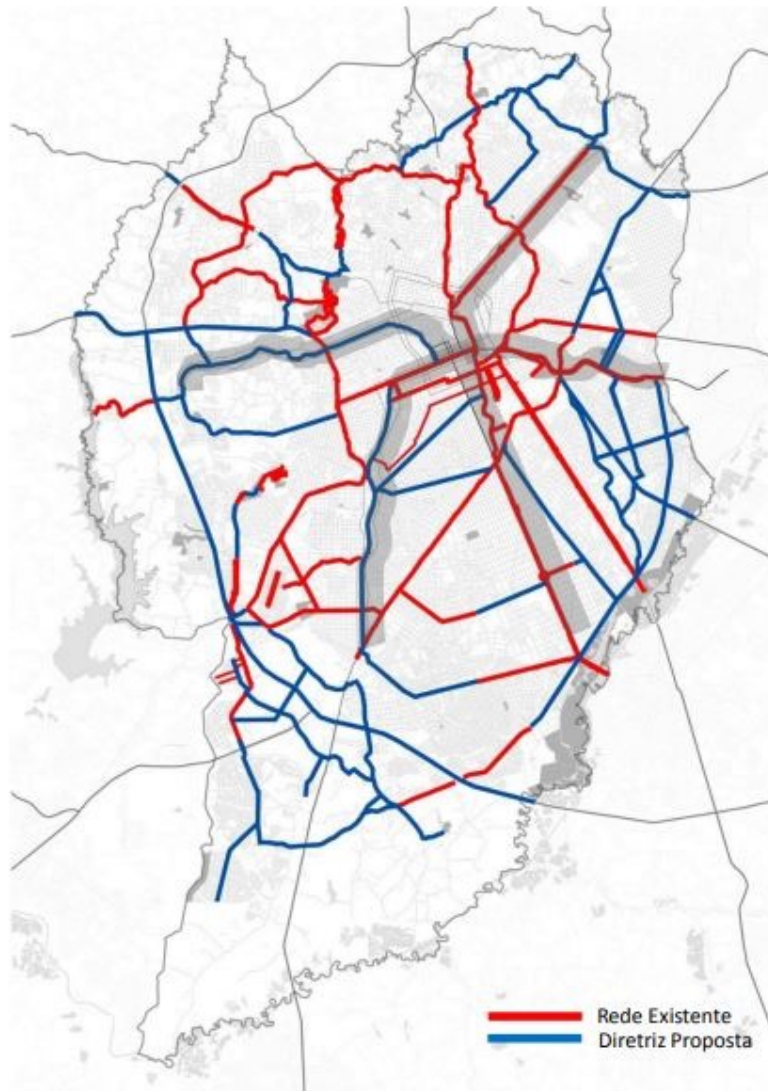
300 km additional cycling ways:

- 90 km: cycling routes
- 80 km: traffic calming roads
- 130 km: existing cycling ways (among bikeways, bike lanes and shared sidewalks between cyclists and pedestrians)

Total bikeways network (2015): 190,4km



259km bicycle network implemented



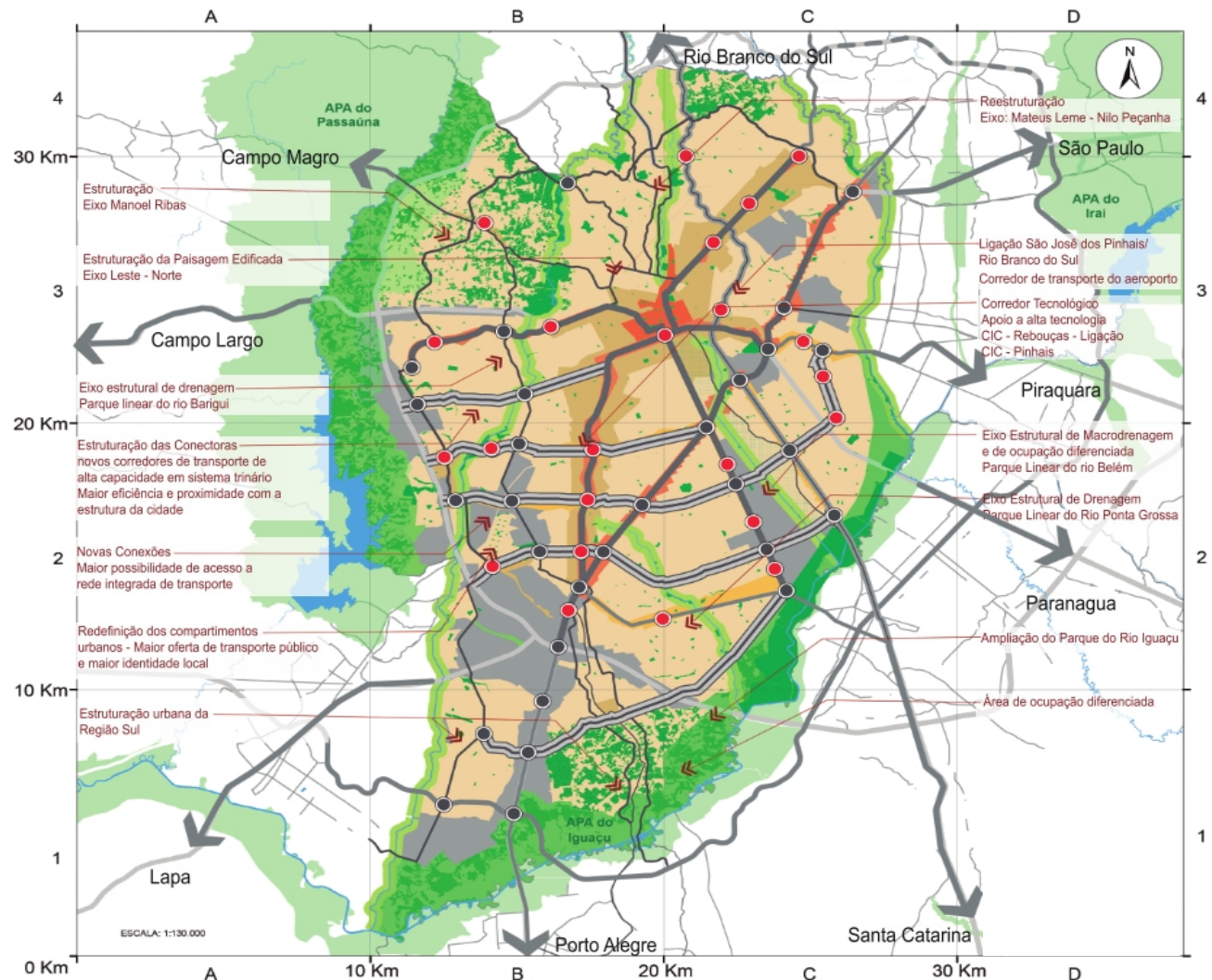
Master Plan Revision – 2014 - 2015

Population: 1,9 million inhab.

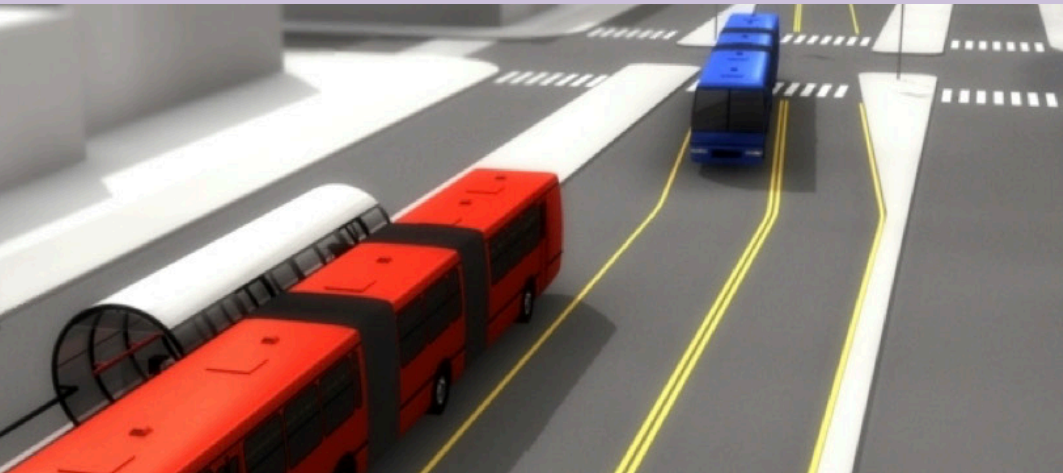


Grid Development - horizontal

- Same guidelines from 1966
- Review zoning/land use
- “Conectores”
- Connection nodes
- **Metropolization**



System improvements



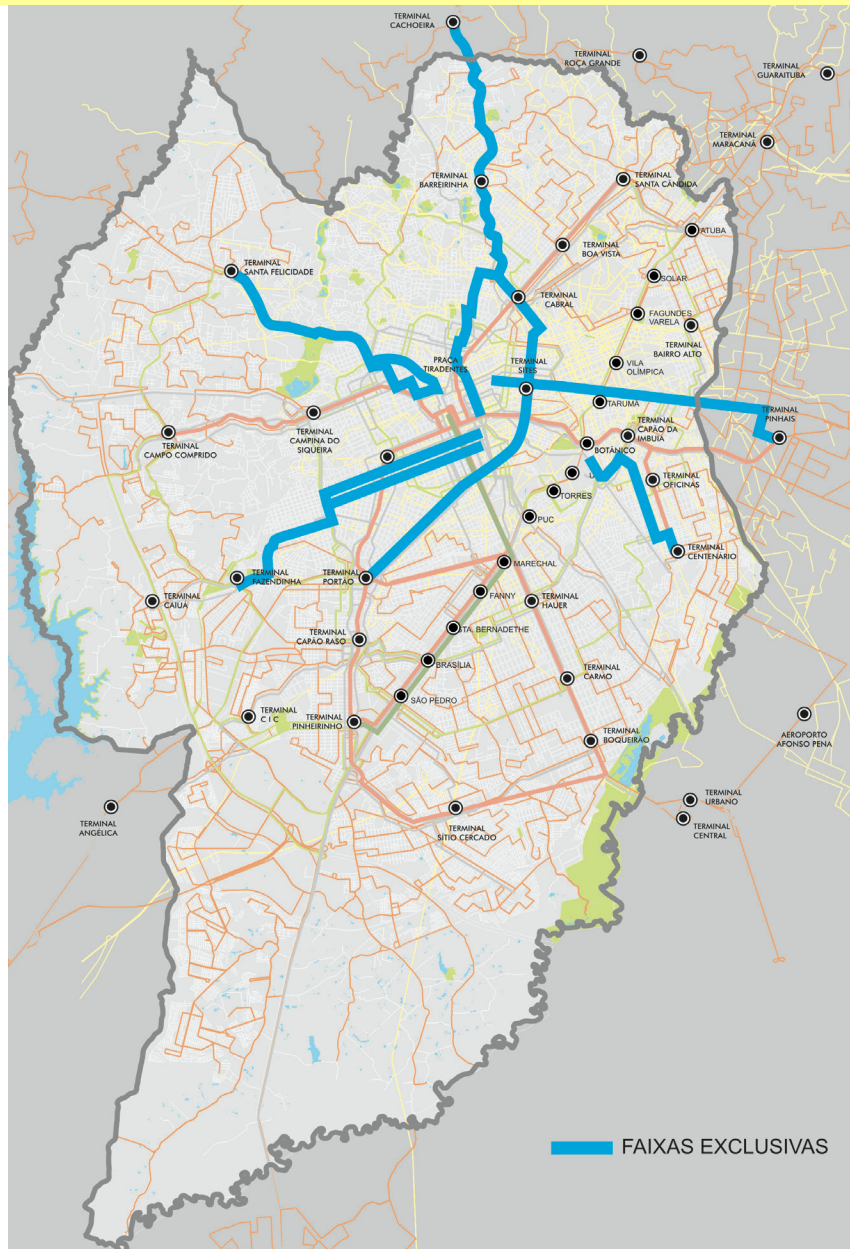
Improvement on the exclusive lanes/
change of station positions

Biofuel / Hybrid Buses

Ligeirão - “blue bus” for 250
passengers



New exclusive lanes for buses



Hibribus + Hibriplus



Origin – Destination Survey (2016 – 2017)



80 MIL VISITAS DOMICILIARES
17 MUNICÍPIOS DA REGIÃO METROPOLITANA
58 POSTOS DE PESQUISAS DISTRIBUÍDOS NAS CIDADES

PESQUISA

ORIGEM DESTINO

GRANDE CURITIBA

Onde você mora? Aonde você vai?
Com sua ajuda, o transporte da cidade vai melhorar.
Receba o pesquisador e responda o questionário.

afd
Consórcio Mobilidade
URBS
IPPUC
SETRAN
PREFEITURA DE CURITIBA

Mais informações: (41) 3010-0630

- First origin-destination survey in Curitiba;
- 25% financed by the French Development Agency (AFD) and 75% financed by Curitiba's Municipality;
- 17 metropolitan cities;
- Door-to-door survey: 80 thousand household visits;
- Started in: April, 8th, 2016;
- The survey will help the government **plan solutions** according to displacement needs: **new streets, bikeways, bus lines and schedules, taxi stops**, etc.

Traffic calming

An aerial photograph of a multi-lane urban street. A prominent red bus is traveling in the center-right lane. To its left, a black truck is also moving in the same direction. Further left, a silver car is visible. The street is lined with buildings on the left and trees. Pedestrians are walking on the sidewalks. A small digital display on the sidewalk shows a person's face. The overall scene depicts a busy city environment with various vehicles and infrastructure.

Complete Streets - Rua Voluntários da Pátria

2019 - 2020

\$ - Footpath Restructuring Fund

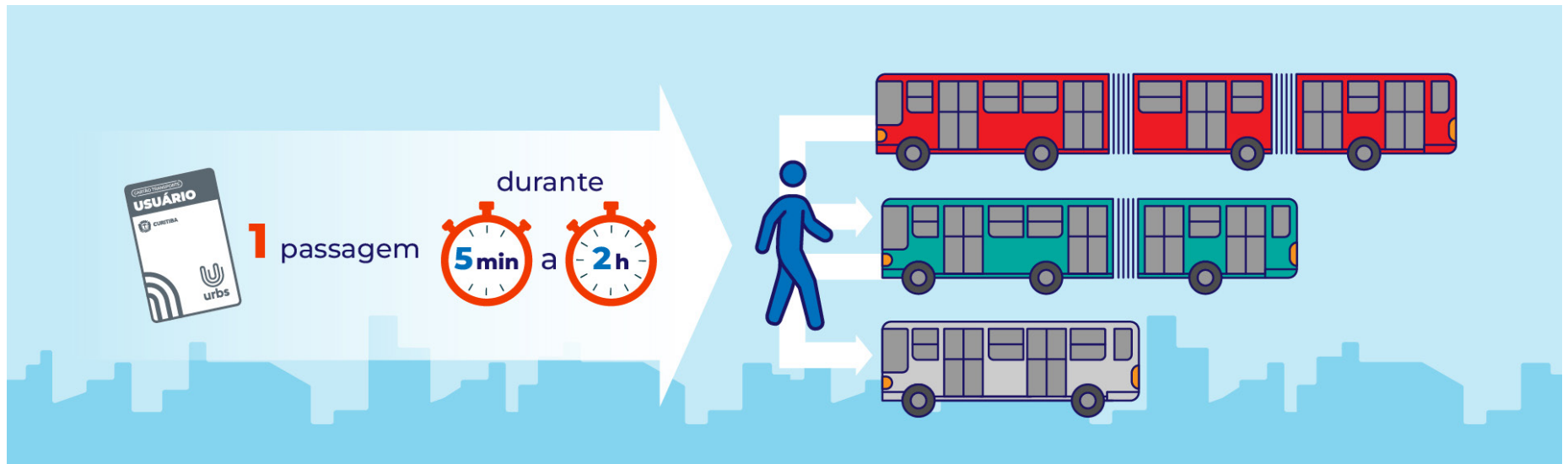
Source: fines, taxes, permits...



Ticketing system (integration)

with the transport card

72 options (stations, stops and bus lines)



Ticketing system (transport card)

R\$5.50 = ~AUD1,50

mid-2023?

Only card (transport card - free \$ - or credit)

*Significant reduction in robberies in bus lines



Sustainable mobility program

Inter 2

BRT East - West

MaaS platform

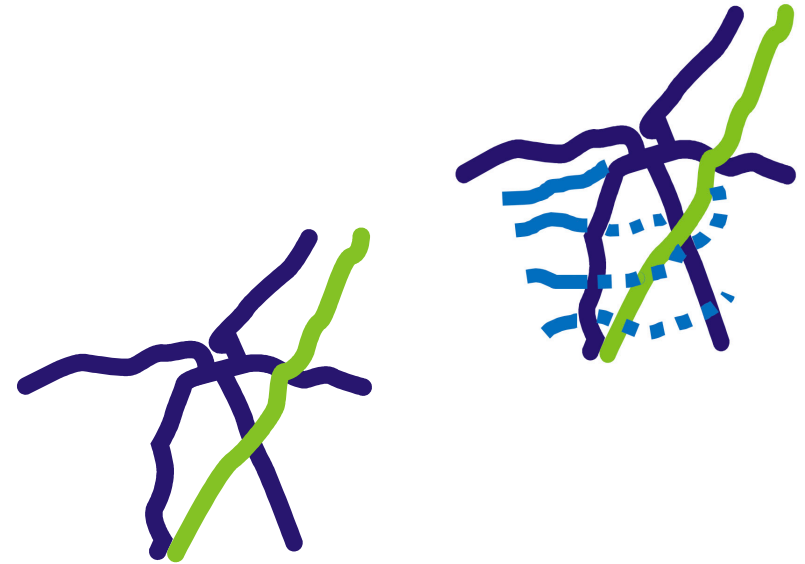
Transition to an electric fleet



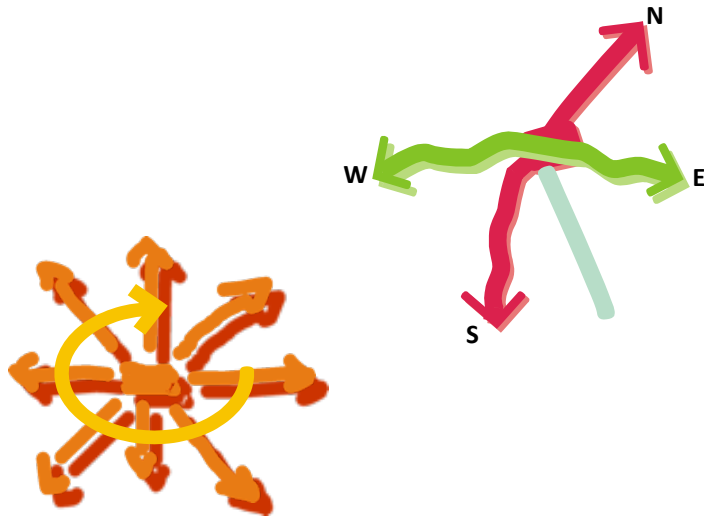
Station-based bike sharing

Tendering process underway...
2023?





...TOD can transform a city!





thank you!

Luisiana Paganelli

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