Bordeaux aims to achieve mobility that is smooth running, intelligent and deliberately chosen.
751,415 inhabitants

58,000 hectares

A Reference Metropolis in the EU

6th largest French urban area
(1.1 M inhabitants)

28 municipalities
Bordeaux, a connected metropolis

- Completion of the LGV High Speed Rail Line in 2017
- Bordeaux Merignac International airport
- An international port
- 4 national and international motorways and a ring road
- Two new bridges over the Garonne river

TOWARDS INTELLIGENT MOBILITY
Better use of space
GERTRUDE, a centralised traffic regulation system

**Creation of GERTRUDE (1973)**: Real Time Electronic Management of Traffic Lights against Jams:

- a global solution in order to manage traffic and travel flows, deployed at first along the Garonne river and on main roads crossing the river,

- based on real-time processing of recovered sensor information and orders down to the junction lights,

- 610 totally adaptive intersections linked with the traffic centre out of a total of 910 intersections (9000 sensors).

**Evolution towards GERTRUDE 2.0**: Electronic Management of Real-Time Regulation for Urban Planning, Transport and the Environment = to take into account, for example, the priority given to separate-lane public transport, with strategies that adapt to actual conditions.

**In the 1990s** the French State completed the local system with the ALIENOR system for traffic management and safety on the ring road.
Bus priority

Technology based on hyper frequency transmission with receivers on traffic lights linked with GERTRUDE:

- Bus Line 3, 15 km with 10,000 travellers per day
- Redesigned 1.7 km of road with bus lane
- 45 cross roads equipped out of 49

Consequences after one year experimentation:

- Travel time reduced from 1 hour to 50 minutes
- 10% more users since 2010
- Bus frequency upgraded from 12 minutes to 10
- No measurable impact on energy consumption

Decision to extend to 2 other lines
A modern public transport network

- 3 tramway lines (60 km) + 79 bus lines

✓ Number of public transport users increased by 30% over the last five years (& 126 M in 2014)

- objective:
  ✓ Urban multimodal transport network: 5 tramway lines (nearby 80 km) by 2020.
Mobility made in Bordeaux

- designed around several tramway lines and restructured bus lines
- with a new operating mode for the tram network (intermediate terminus): Increased rush hour frequency every 3’30

- complemented by several parts of the chain of mobility: Vcub (bicycle), Batcub (river shuttle), Bluecub (electric car sharing)
- car-sharing (Koolicar and Citiz)
- car-pooling
Lessons to be learnt from the latest household/transport survey

- upper limit of 4 journeys/day/person (with a total of 2.5 million journeys)

- alternative means of transport are increasing within the city

- the use of personal cars is still preferred for 59% of daily journeys

- the “tramway effect” is noticeable in the city centre
Characterisation of traffic

- significant shift in car traffic within the city ring-road over the last ten years (-30% inner city)

- the distribution of inner-city daily travel: car (14%), public transport (22%), walking (54%), cycling (8%)

- Bordeaux Metropolis is still facing congestion problems:

  ✓ as a comparison, the volume of rush-hour traffic 30 years ago was the same as it is at midday now.

  ✓ outside of the city centre and the ring road, a majority of inhabitants still rely on their cars.

- 66% of journeys under 2km are still made by personal car.
Bordeaux “partnership mobility charter”

- The need of a new mobility model for the next 20 years
- A mobility forum: a collaborative and participatory approach
- A partnership charter: 20 principles & a 17-action programme
- Mobility part of local town plan will take into account some of these proposals

**Fluid mobility**
- Slow & fast fluidity
- Predictability

**20 principles for a new mobility model**

- More regulation for greater fluidity
- Encouragement of rational mobility

**Towards Intelligent Mobility**

**6 coordinated plans for public authorities**

**6 strategic partnership programs**

**5 innovations for change**

**Bordeaux “partnership mobility charter”**
From a transport policy to a mobility policy

- **AXIS 1:** Make public transport more efficient
- **AXIS 2:** Optimize road infrastructure and share the public space
- **AXIS 3:** Manage parking to change practices in planning and mobility
- **AXIS 4:** Encourage other modes
- **AXIS 5:** Develop a planning document to preserve the future
Toward a smooth-running, intelligent, sustainable and deliberately chosen mobility

The foundations of a new mobility model

- Concerning the transport network, to maximise existing infrastructure, smoother flows with more real time information, predictable travel times, and a wider range of services for customised mobility.

- To continue to restrict the use of cars in the city centre and offer a broader range of solutions for users to be able to choose and customise their own mobility.

- The aim is to improve the quality of life of inhabitants, but also the workings of economic activity, and hence the attractiveness of our territory.

To develop both technological and user-based innovation

- In order to rise to these challenges, we need to assure complementarity between investments in the transport infrastructure and the development of technological and user-based innovations serving intelligent mobility.
ITS world congress, “35 demonstrations”

ITS Challenge at stake

Autonomous & connected vehicle demos

- Autonomous electric vehicle (without any driver)
- Automated parking demos
- Automated electric vehicles in traffic on open roads

Digital revolution

Toward a more intelligent, fluid and selected mobility:
Challenge at stake

Climate Plan (approved in February 2011):

“Reduce the modal portion of the car in favour of alternative modes”
optimisation of existing networks

Innovation & developments

- a multimodal dashboard for improved coordination
  - Intended at first for operators
  - Supplemented by Floating Car Data (experimentation)

- Compass4D: connected Vehicles

- Possible new ring-road uses:
  - Making the ring road 2x3-lanes constitutes an innovation opportunity
  - Study by the State to experiment a high-level bus service on the hard shoulder
  - Alienor 2 / traffic regulation devices and to promote public transport services, car-sharing and modal shift (P+R)
Estimated impact on CO2 emissions

-30% road traffic in the inner city 2000-2012
250 tCO2eq per day saved in 2012 - nearby 300,000 tCO2eq saved between 2000-2012

in the top 10 of most cyclist-friendly cities in the world Copenhagenize Index 2013, 2014, 2015
+76% 2003/2013

83% of residents in favour of restricting car usage in the city 1st for sustainable roads using warm asphalt (300,000t)
-20% energy and -30% GHG (Greenhouse Gaz)

Thanks to NGV buses (70% of metro buses fleet)
from 104g/km of CO2 to 78g/km of CO2 (1998 - 2009)

TOWARDS INTELLIGENT MOBILITY
Better use of space
Smartline
Solution for Metropolitan Areas Rising commuting Traffic, Leveraging Inhabitants Networking and Ecological aspirations

TOWARDS INTELLIGENT MOBILITY
Better use of space
Thank you for your attention