The strategy for sustainable mobility in Bologna

CIVITAS MIMOSA STUDY TOUR

Mobility Department - Municipality of Bologna

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10th april 2014

Bologna
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• Urban Traffic MasterPlan: measures for the medium term
  - IT-Systems
  - Facilities policy: promoting LPT, bicycles, car sharing, private vehicles renewal;
  - New policy planning: the programme *Di nuovo in centro* (*A city centre again*); *Civitas Mimosa* project, the new SUMP

• The strategy for long term:
  - New High Speed Station,
  - Metropolitan Rail Service (SFM), People Mover, Trolleybus,
  - Public parking buildings
BOLOGNA: OVERVIEW ON URBAN MOBILITY

Pedestrian Areas ~ 12,000 0.88
Limited Traffic Zone - L.T.Z. ~ 45,000 3.20
City Centre ~ 53,000 4.51
Municipality Area ~ 380,000 140.85
Overall demographic size ~ 650,000

DAILY MOVEMENTS --> about 2 MLN
(Peak times --> about 200,000)

<table>
<thead>
<tr>
<th>MODAL SPLIT (internal movs)</th>
</tr>
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<tbody>
<tr>
<td>Cars (driver)</td>
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<tr>
<td>Cars (passenger)</td>
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<tr>
<td>Motorbikes</td>
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<tr>
<td>Public Transport</td>
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<tr>
<td>Bicycle</td>
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<td>Pedestrian</td>
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The Municipality of Bologna has been involved over the last few years in a plan intended to limit the negative effects of traffic. These are, first and foremost, traffic congestion and air pollution, longstanding problems in many Italian cities and throughout the Po area in particular.

A serious attempt to solve this problem has to work at two levels. Strategically and temporally, these are well separated:
- **Medium term strategies** --> effective actions has to be taken to regulate mobility
- **Long term strategies** --> a new infrastructure framework has to be set up

**The planning for urban mobility since 2000:**

- 2000: Traffic MasterPlan (Piano del Traffico)
- 2005: Special Plan for Air Quality (Piano straordinario per la Qualità dell’Aria)
- 2006: Plan for freight delivery in the city (Piano per la distribuzione delle merci in città)
- 2008: Structural Plan for the Municipality of Bologna (Piano Strutturale Comunale)
- 2009/2013: MIMOSA Project
- 2011: Programme *Di nuovo in centro*
The backbone of the strategy for medium term is represented by the Urban Traffic MasterPlan (PGTU) approved by the City Council in June 2007.

**CRITICAL FACTORS:**
- Congestion due to private cars and parking
- Air and noise Pollution
- Road accidents

**AREAS:**
- Environment (sustainable accessibility)
- Mobility (wide accessibility)
- Safety (protect “weak” road users)

**PGTU - URBAN TRAFFIC PLAN**
(Approved by the Municipality of Bologna Council in June 2007)

- Reduces air and noise pollution
- Improves Road Safety
- Encourages more eco-compatible vehicles
- Increases public transports
- Saves energy in the transports sector
- Achieves widely-available but sustainable access

Actions planned works following two guidelines running together: introduce a new regulation scheme and facilities policy, in order to support and promote sustainable mobility in the city.
**SIRIO**: Enforcement system for access in LTZ - Launched in Feb. 2005

- **LTZ Area**: 3.2 km$^2$ (around the 80% of the city centre)
- **Restrictions from 7 AM to 8 PM** (since May 2012: restrictions are active every day, even on Saturday)
- **LTZ Access control**: 9 gates monitored by cameras
- **Number of LTZ Access Authorisations**: around 60,000
- The system **automatically generates fines** for transgressors
RITA: Enforcement system for access to bus lanes and “T” and “U” Areas

- Access control to the “T” Area (3 main central roads) : 3 gates
- Access control to bus lanes : 16 gates monitored by cameras
- Access control to the “U” Area (university zone) : 2 gates
- Control of cars and motorbikes
- Restrictions are effective 24h a day every days
- The system automatically generates fines for transgressors
Semi-pedestrian area (University Area) progressively implemented and enforcement activity started

access rules:
- 2 cameras and some electronic pillars
- semi pedestrian area hh0-24
- enforcement system also for motorbikes
- access authorisation only for residents and freight operators
SIRIO and RITA positioning

- **SIRIO** - 9 gates in LTZ
- **RITA** - 3 gates in “T” area
- **RITA** - 16 gates to control bus lanes
- **UNIVERSITY “U” AREA** - 2 gates to control semi pedestrian area

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ITS results (since 2004)

- 35% of unauthorised cars in LTZ
- 30% in the 3 main roads in the centre
- 70% of unauthorised vehicles in “U” area
- 70% of unauthorised cars in PT dedicated lanes

Beside such successful results in terms of traffic indicators, the LTZ control access has allowed the city Administration to carry out an ambitious strategy to improve livableness of the city centre.

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CISIUM: an integrated platform in a distributed environment to manage and integrate a set of instruments for traffic planning, control and monitoring.

Main functionalities:
- Centralised traffic light control (sensors and traffic light equipment)
- Integration with the Limited Traffic Zones/bus lanes control gates
- Integration with the real time bus control centre for bus prioritisation
- More than 40 Variable Message Signs
- Real Time Traffic Information on web, sms, email, satellite GPS car navigator systems

Main benefits:
- Real time traffic monitoring
- Powerful tool for traffic planning
- Real time information for road users
Support and make more attractive the Local Public Transport service

**Goals** (PGTU 2007):
- to reach a share of 30% for movements made by bus in the city (the same of car users)
- to increase +40,000 LPT users a day (+17%)
- to increase the bus speed up to 17 km/h (compared to actual 14,6 km/h)
- to assure the respect of service timetable

**Measures:**
1) **Bus fleet renewal**
   Next measures planned:
   - introduction of more less pollutant vehicles (CNG, trolleybuses, hybrid)

2) **Infrastructural works to improve efficiency, accessibility and users safety**
   Next measures planned:
   - new RITA gates to protect access to reserved bus lanes
   - civil works on the road structure - lane 14 and other main lanes
   - civil works to improve safety on many bus stops

3) **Other actions to support Public Transport**
FACILITIES POLICY: PROMOTING LOCAL PUBLIC TRANSPORT

Park & Ride structures

Inter-modality policy supported by parking facilities and economic management

Objectives:
- increase use of Public Transport and bicycle
- discourage on-street parking
- decrease congestion and pollution in the city

- “P + Bus”: car parking is free if you take bus (bus stops are available nearby all parking areas)
- “P + Bici”: car parking is free if you take your bicycle or public bicycles are available for rent free - “C'entro in Bici” service
- “P + Taxi”: car parking is free if you take taxi
Stimer - MiMuovo

Unique mobility card to create a real intermodal network (railway, bus, P&R and other services) by means of an integrated payment system (Municipality of Bologna in collaboration with Regione Emilia Romagna).

Objectives:
- increase use of Public Transport
- improve and rationalise mobility in the city
FACILITIES POLICY: PROMOTING BICYCLES

“C'entro in bici” - public system of bike sharing

- 188 free public bikes; bikes can be taken with personal codified key
- 24 stations, placed nearby strategic areas (train station, extra/sub urban bus station, car parks, University, City Hall,...)
- about 5,700 registered users (mainly commuters and students)
FACILITIES POLICY: PROMOTING CAR SHARING

Car Sharing in Bologna

Service launched on August 2002; Managing authority: ATC S.p.A
Demand: ~ 1,100 cards delivered (private users: 85%)
Offer: - 50 cars (most of them fuelled by natural gas)
- 39 parking bays

On-going improvement
- extend the service: + 30 vehicles in urban fleet
- increase territorial coverage: + 20 parking bays
- 6 new electric cars hosted in covered car parks
- protection of car sharing parking bays with physical tools
FACILITIES POLICY: PROMOTING PRIVATE VEHICLES RENEWAL

Encourage cleaner private vehicles

The Municipality of Bologna supports the private vehicles stocks renewal by:

- financial incentives to install CNG/LPG plant instead of traditional fossil fuels engines
- circulation facilities in advantage of cleaner vehicles (forced by the regulation scheme)
- communication campaigns in order to raise people's environmental awareness

Beside the decrease of motorization rate (52 cars each 100 inhabitants in 2012) the share of cars with low impact has increased

In Bologna about 16% of circulating cars are powered by CNG/LPG. Compared to the average 6% in other Italian cities and the target of 10% stated at European level.
Measures to improve road safety

Strategy --> Urban Road Safety Plan:

1) Black spots detection and settlement, considering number of road accidents and their heaviness (e.g: 30km/h Zones)

2) Widespread civil interventions all over the road network, considering as priority the “weak” road users’ safety

3) Actions to promote safer behaviours: mobility management, support of correct behaviours on road and road rules respect, even by means of ITS

4) Actions to raise awareness on road safety, specifically addressed to younger and students (e.g.: Safer road to school)
Many measures implemented were supported also by the Civitas Mimosa project (and other EU projects), funded by European Commission to demonstrate and support actions for sustainable mobility in the cities. The Municipality of Bologna was the project co-ordinator.

**Project Topic:** innovative measures for sustainable mobility in the city

**Project slogan:** “How to move better to live in better cities”

- 5 cities
- 17 partners
- 25 M€ budget
- 70 measures
The programme aims to strongly reduce personal car use and related traffic congestion, air and noise pollution.

Dec. 2011 --> official project presentation to citizens (in the framework of the 2nd T-Days)

From Dec. 2011 to March 2012 --> public consultation phase (citizens and stakeholders):
- public meetings took place in the city centre (about 400 people participated)
- people contributed also answering an on-line questionnaire with proposals about the city centre’s livability (1,350 answers collected)
- a short animated you tube film about the plan had 1,300 hits
Di nuovo in centro: to strongly reduce personal car use and related traffic congestion, air and noise pollution

May 2012 --> First measures implementation: the “T-zone” has become permanently traffic-free at week-ends and holidays --> ok cyclists/pedestrians; forbidden cars, taxies, motorcycles and even buses!

LPT service modification during the T-Days: even buses do not enter the “T” area

A special bus lane has been introduced only during the T-Days, to reach the “T” area boundary. Two hybrid buses are equipped with very innovative technology: super capacitors replace conventional electric batteries:
EXAMPLES OF RECENT REALIZATIONS

Via Falegnami
To get stronger the pedestrian use of this central street during the week ends, via Falegnami was incorporated into the T-days area

Via Azzo Gardino
every Saturday morning (in winter) and on monday evening (in summer) a new pedestrian area (from the garden of the Cineteca to via del Rondone) gives space to the Earth Market

Piazza di Porta Ravegnana
In this square under the two towers was created a completly pedestrian area, providing also new seats and street furniture and reshaping pedestrian crossing
The “bicycle ring road” is the project for a cycling ring along the avenues surrounding the old city centre of Bologna, allowing the paths and routes from the different parts of the city to link to the centre.
NEW POLICY PLANNING: IMPLEMENTATION OF SAFETY MEASURES AND CYCLE PATHS

via Borgo S. Pietro

via Zanardi: two-way cycle protected track

via Calori

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Bologna is currently involved in the preparation of the new Sustainable urban mobility plan (SUMP).

The masterPlan will provide in a couple of years to:

- Increase and improve the enforcement system for access in LTZ and pedestrian areas
- Increase services and infrastructures for cycling
- Realize new pedestrian areas
- Adopt measures to improve road safety (30 km/h zone, environmental islands)
- Adopt measures to support and make more attractive the Local Public Transport service
The strategy for long term works to create a new infrastructure framework for collective public transport, having the backbone in rail and trolleybus systems:

- AV: high speed railway
- SFM
- PEOPLE MOVER
- Trolleybus
- Trolleybus planned
Last June was opened the new high-speed railway station to the travelers.

Bologna is one of the most important Italian railway junction and heart of the new network of 'high speed.'
HIGH SPEED STATION: ADMISSION TO THE NEW TRACKS (16-19)

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• Stations increased (+ 7 in the Municipality area; + 15 in metropolitan area)
• Transit increased, with fixed timetable
• Capacity increased thanks also to the new High Speed rail running in separate lanes
• More integration with LPT and urban mobility (cycle lanes and car parking infrastructures)
• Expected users: 120,000/160,000 users/day
• The new Station “Mazzini” was opened in JUNE 2013; the station “S.Vitale” is close to be completed
People Mover - Monorail to connect the Airport with the city Railway station

- Nº STATIONS: 3
- MAX FREQUENCY: 7’ 30”
- LENGHT OF JOURNAY: 7’ 30”’ (5,000 mt)
- CONVOY CAPACITY: 200 - 220 Pass
- SYSTEM CAPACITY: 1400 - 1500 Pass/h per direction
- ESTIMATED DEMAND: about 1,5 - 2 Mn Pass/year
People Mover - Monorail to connect the Airport with the city Railway station
(Airport station)
People Mover - Monorail to connect the Airport with the city Railway station

(Layout)
THE STRATEGY FOR LONG TERM: TROLLEYBUS

Trolleybus

Lanes realized:
- Lanes 32 and 33
- Lane 13
- Lane 14

New lanes planned
### Parking network

#### Car slots available in public parking buildings (plan to 2014)

<table>
<thead>
<tr>
<th>Year</th>
<th>Interchange</th>
<th>To the city</th>
<th>Others</th>
<th>TOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>3.191</td>
<td>6.714</td>
<td>859</td>
<td>10.764</td>
</tr>
<tr>
<td>2014</td>
<td>5.323</td>
<td>12.598</td>
<td>1.685</td>
<td>19.606</td>
</tr>
</tbody>
</table>

#### Recent buildings for public parking

**Main parking buildings realised in 2005-2009**

<table>
<thead>
<tr>
<th>N° slots</th>
<th>Year of start service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zaccherini Alvisi</td>
<td>500</td>
</tr>
<tr>
<td>Finelli</td>
<td>72</td>
</tr>
<tr>
<td>Carracci</td>
<td>920</td>
</tr>
<tr>
<td>Belmeloro</td>
<td>150</td>
</tr>
<tr>
<td>Riva Reno</td>
<td>543</td>
</tr>
<tr>
<td>Michelino</td>
<td>5875</td>
</tr>
</tbody>
</table>

**Main parking buildings recently realised**

<table>
<thead>
<tr>
<th>N° slots</th>
<th>End of works</th>
</tr>
</thead>
<tbody>
<tr>
<td>D'azeglio</td>
<td>84</td>
</tr>
<tr>
<td>Allende</td>
<td>55</td>
</tr>
<tr>
<td>Camerone Salesiani</td>
<td>450</td>
</tr>
<tr>
<td>Ex Riva Calzoni</td>
<td>212</td>
</tr>
</tbody>
</table>

**Next main parking buildings**

<table>
<thead>
<tr>
<th>N° slots</th>
<th>Works started</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ospedale Maggiore</td>
<td>550</td>
</tr>
<tr>
<td>Ex Euraquarium</td>
<td>160</td>
</tr>
<tr>
<td>Ex Veneta</td>
<td>100</td>
</tr>
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Many Thanks

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