SUSTAINABLE MOBILITY IN MILAN (ITALY)

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MILAN. Main data

Inhabitants Milano: ~ 1.3 M
A dense city: 180 km$^2$, ~ 7300 people/km$^2$

Inhabitants metropolitan area: ~ 3.2 M
1570 km$^2$, ~ 2000 people/km$^2$

An attractive city/daily City users: ~ 1 M

A European city, in transformation
Trips/day, 2014: 5,678,000, of which 56% within Milan and 44% commuter trips between Milan and surroundings.

Registered cars

2003 6,25 cars / 10 inh 794,578
2013 5,18 cars / 10 inh 701,301 cars (~17%)

Car ownership rate: 51 cars/100 inhabitants
The Sustainable Urban Mobility Plan is being adopted by the city of Milan. The process, started in 2013, is now being finalized after several open debates with the city and stakeholders involved under the supervision of a scientific steering committee.

The Plan aims to reshape Milan’s overall mobility during the next 10 years, redefining the boundaries of the metropolitan city and serving large suburban areas.

The process was designed to be widely participatory and with high political engagement.
The challenges: reduce traffic and use of polluting vehicles and provide safe public spaces to promote Active Mobility (walking and biking).

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<th>Sustainable Mobility</th>
<th>Equity, Safety, Social Inclusion</th>
<th>Environmental Quality</th>
<th>Economy, Innovations, Efficiency</th>
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<td>INCREASE ACCESSIBILITY IN A WIDER AREA</td>
<td>REDUCE STREET ACCIDENTS</td>
<td>REDUCE LOCAL POLLUTANTS AND EMISSIONS</td>
<td>ECONOMIC SUSTAINABILITY</td>
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<td>REDUCE CAR DEPENDANCY</td>
<td>REDUCE PEOPLE’S EXPOSURE TO POLLUTION</td>
<td>REDUCE ENERGY CONSUMPTION AND CO2 EMISSIONS</td>
<td>INTERNALIZE EXTERNAL COSTS</td>
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<td>INCREASE PUBLIC SPACE FOR ACTIVE MOBILITY</td>
<td>REDUCE BARRIERS FOR ALL</td>
<td>REDUCE ACOUSTIC POLLUTION</td>
<td>PROMOTE ECONOMIC SUSTAINABILITY IN URBAN LOGISTICS</td>
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<tr>
<td>PARKING RULE CONTROL AND RESPECT</td>
<td>INCREASE ALTERNATIVE MOBILITY CHOICES</td>
<td>IMPROVE URBAN LANDSCAPE QUALITY</td>
<td>OPTIMIZATION OF MOBILITY RESOURCES</td>
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</table>
SUMP/ PUMS Strategies

1. **Metropolitan Area Scale** - Public transport to reduce congestion and increase safe / green accessibility

2. **Urban Mobility** - Public transport quality as backbone

3. **Public Spaces for Active Mobility**

4. **Mobility Demand Management** (people and logistic)

URBAN MOBILITY – SHORT DISTANCE: Strengthening and innovation of the existing Public Transport services and network (with dedicated right-of-way not shared with other traffic, increased speed). No barriers for disabled people.

PUBLIC SPACE FOR ACTIVE MOBILITY. VISION ZERO AS MAIN PRIORITY: Street safety, 30km/h speed zones, focus on Walk/Cycle.

MOBILITY DEMAND MANAGEMENT FOR PEOPLE AND GOODS: Access and parking regulations, charging schemes, sharing mobility, and low-emission vehicles.
Main asset. The Public Transport

Per capita cost and use of public transport in EU cities:

- **Milan**: 35€/month (83 km/inh)
- **Rome**: 35€/month (61 km/inh)
- **Torino**: 38€/month (54 km/inh)
- **Paris**: 70€/month (307 km/inh)
- **Berlin**: 79€/month (78 km/inh)
- **Barcelona**: 52€/month (77 km/inh)
- **London**: 171€/month (69 km/inh)
Public Transport at Night

2 lines

14 lines

LINEE NOTTURNE - NIGHT LINES

- M1 QRE DEGLI OLMI - BISCEGLIE M1 - CAIRIOLI M1
- M1 SESTO 1° MAGGIO FS M1 - MOLINO DORINO M1
- M2 CASGNA GOBBA M2 - PIAZZA ABBIATEGRAFI M2
- M3 SAN DONATO M3 - COMASINA M3
- N6 CADEORNA FN M1 M2 - CENTRALE FS M2 M3
- N15 GRATIOLGIOLO - SAN BABI M1 M1
- N24 VIGENTINO - DUOMO M1 M3
- N27 V.LE UNGHERIA - SAN BABI M1 M1
- N42 BOCCHETTA - CENTRALE FS M2 M3
- N50 LOPENTEGGI - CAIRIOLI M1
- N54 LAMBRATE FS M2 - DUOMO M1 M3
- N57 Q.TO OGGIANO - CAIRIOLI M1
- N50 QUINTO ROMANO - DE ANGELO M1
- N90-N91 LODI M3 - LOTTO M1 / LOTTO M1 - LODI M3
- N94 BASTIONI DI PTA VOLTA - CADEORNA FN M1 M2
M5: New underground line completed in 2015

- **New underground line completed in 2015**

**2015 Usage**

- Passengers transferring to other lines
- Passengers exiting from M5
- Total passengers

**Total Annual Passengers**

- Phase 1: 6,519,514
- Phase 2: 12,617,469
- Completion: 25,638,755
- Estimate: 35,000,000

**Passenger Transfers**

- 2013: 6,519,514
- 2014: 12,617,469
- 2015: 25,638,755
- Stima 2016: 35,000,000
Entirely automated, the M4 line will connect the San Cristoforo station in the southwest of the city to Linate airport in the east, crossing through the heart of Milan. The M4 will provide access to several essential transit centers, as well as major tourist destinations and commercial districts.
Invest in existing lines - T LINES - Fast and efficient - Synchronized traffic lights - Accessible stops - Information

Linea A  Bresso – Cadorna
Linea B  Certosa FS – Gobba
Linea C  Stazione Centrale Porta Genova
Linea D  Missori – Rozzano Humanitas
Linea E  Noverasco - Missori
Linea F  P.zza Fontana – Santa Giulia
Linea G  Cinisello – Bignami
Linea H  Milano – Desio – Seregno
Linea I  Milano – Limbiate
Linea L & M  Current route of the Cerchia Filoviaria lines 90/91 (trolleybus)
Linea metropolitana M1 e bus sostitutivo NM1: dal 30/05 potenziamento del servizio serale per Expo nel weekend

Dal 30 maggio, sabato e domenica, potenziato il collegamento serale con Rho-Fiera (Linea M1 e NM1)

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Infomobility and Open Data

www.muoversi.milano.it
Infomobility and intermodal navigation

http://www.muoversi.milano.it/

For any trip all options displayed and compared (time, distance).
Towards mobility as a comprehensive service

Current efforts focus on accessibility and service, including preliminary versions of an e-ticketing system to work across the entire system. The next steps are to fully integrate information services and payments options, simplifying the process for users and improving the ability to measure performance efficiencies.
Private sector services - Car Sharing

<table>
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<tr>
<th>INDICATORS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Km per use</td>
<td>7 km</td>
</tr>
<tr>
<td>Duration per use</td>
<td>33 min, (70% drive time)</td>
</tr>
<tr>
<td>Daily uses</td>
<td>9.000</td>
</tr>
<tr>
<td>Daily uses / car</td>
<td>6.5</td>
</tr>
<tr>
<td>Registered users</td>
<td>370.000</td>
</tr>
</tbody>
</table>

Car2Go
- 8/2013
- 700
- 100.000

E-Vai
- 11/2010
- 100
- 18.000

GuidaMi
- 2004
- 75
- 3.000

Enjoy
- 12/2013
- 883
- 230.000

Share’n go
- 6/2015
- 308
- 12.650

Andamento orario degli utilizzi
Active Mobility

Zone 30 Expansion
Growth in sq.m of 30km/h speed limit

Cycling Network Expansion
2011-2015 (km)

Pedestrian Zones
Growth in sq.m
Bike sharing and urban spaces designed for bikes

- 280 stations
- 4,650 bikes - 1,000 ebike
- 45,000 registered users
Bike Sharing

The world’s first bike sharing system that combines both traditional and electric bicycles.
Bikes for All: E- Bikes and Junior Bikes
BikeMi use
“Area C” is a road pricing measure launched by the Municipality of Milan in 2012 in order to improve living conditions of those who live, work, study, and visit the city. “Area C” is the restricted traffic zone in the center of Milan (C for Cerchia Bastioni).

There are 43 access points monitored by cameras, including 7 exclusively for public transport. The charge is active on Monday, Tuesday, Wednesday, and Friday from 7:30am to 7:30pm, and Thursday from 7:30am to 6pm.
Congestion charge - Context

- **Area:** 8.2 km², 4.5% of the entire territory of the Municipality of Milan

- **Residents:** 77,950 (42,300 households)

- The area has an **outstanding attractiveness** because of the activities and services within it. During daylight hours an average of 39,000 people/km² are active in the area with a peak of almost 140,000 person/km² within the historic center between the **Duomo** and San Babila.

- **295,704 employees** work in the area, amounting to **nearly 37% of total employees** in the Municipality of Milan.

Approximately half a million people enter Area C on a daily basis.
Decreasing vehicle access to the Area C, thereby:

✓ Decreasing traffic congestion;
✓ Improving public transport speed;
✓ Decreasing the prevalence of on-street parking;
✓ Reducing road accidents;
✓ Reducing polluting emissions caused by traffic;
✓ Reducing health risks related to air pollution;
✓ Increasing the share of sustainable modes of travel;
✓ Improving urban center quality and attractiveness; and
✓ Raising funds for sustainable mobility services and infrastructure.
Congestion charge - Electronic gates

Integrated IR illuminator

Context (CTX) camera

Cerchia dei Bastioni Entrance Points

Entrance reserved to the public transport

Access to the area C does not allow the use of fast track lanes
Automatic Plate Recognition System

IR camera with OCR

Context (CTX) camera

List of crossings
AREA C - Rules

- All vehicles: 5 €

- Except: Mopeds, motorcycles, electric cars, vehicles for disabled people, vehicles for public utility services, vehicles for public transport services, taxi, hybrid*, methane powered*, lpg*, and biofuel* cars are exempt from the charge. (*until 1 January 2017)

- BANNED: the access to “Area C” is forbidden for Euro 0, 1, 2, 3, diesel vehicles, and vehicles with a length of more than 7.5 meters.

- Residents: the first 40 crossings annually are free and 2€ thereafter.
## AREA C - Results

### Mobility results

*Daily vehicle entrance in Area C (end 2015): 93,342*

- **Traffic Reduction:** -29.2% / ~40,000 average daily entrances (compared with 2011 Ecopass, the previous pollution charge scheme)

- **Fewer Road accidents:** -26%

- **Increase of public transport speed (2014):** +2% for buses between 9:00-10:00 and +5.9 between 18:00-19:00 and +2.2% for trams between 09:00-10:00 and +4.4 between 18:00-19:00;

- **Decrease in parking occupation:** +10% public spaces available

### Environmental results

- **Fewer polluting vehicles:** -49%
  (a reduction of 2,400 per day)

- **More clean vehicles:** +6.1%
  (from 9.6% to 16.6% of the total vehicles)

- **Improved air quality:**
  - Total PM10 -18%; Exhaust PM10 -10%;
  - Ammonia -42%; Nitrogen Oxides -18%;
  - Carbon Dioxide -35%

- **Less Black Carbon (BC):**
  - 28% to 52% reduction of BC concentration
Next step - Traffic tracking and cameras monitoring for the expanded Milan Low Emission Zone
Thanks

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